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JIGYASA

The Journal of Educational Research and Innovation
A Peer Reviewed Journal of CPE Project for All Subjects

[Estd. : 1946]

MAGADH MAHILA COLLEGE

2nd Cycle NAAC Accredited **'A'** Grade with CGPA 3.02
'College with Potential for Excellence' (CPE)
Status Accorded by UGC

Patna University, Patna

North Gandhi Maidan Patna - 800 001, Bihar, (India)

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JIGYASA- The Journal of Magadh Mahila College, Patna University, Patna is a peer reviewed academic journal on educational research and innovation. The Journal contains original, peer-reviewed academic articles dealing with issues of state, national and international relevance in educational research, innovation, theory, methodology, and practice.

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About The College

Magadh Mahila College, a pioneer institution of higher education for young women in Bihar was established in 1946. A constituent unit of Patna University, possessing a permanent affiliation under section **2(f)and 12(B) of UGC Act - 1956** and reaccredited with '**A' grade (3.02 CGPA)** by NAAC in January 2013, it is imparting education to more than 3800 students in various disciplines. It has been awarded **CPE** (College with Potential for Excellence) Status by the UGC, New Delhi for 2011-16 and has retained the status of CPE till 2021.

The college has been honoured with **'Best College Award'** on 'Shiskha Diwas' 2014 by Sri Nitish Kumar, the chief minister of Bihar and has also been awarded **'Excellent Institution of Higher Education for Girls in Bihar'** by His Excellency Sri Ram Nath Kovind, the Governor-cum Chancellor of Universities of Bihar, on the occasion of 'National Education Bihar Summit and Award 2016'.

Quality teaching, Computer education, facility for extracurricular activities including Sports, Music, NSS, NCC, Science and IT Society, Students' Counseling Cell, Grievance Redressal Cell, Anti-Ragging Cell, Gender Knowledge Centre, Green Earth Brigade, Red Ribbon Club, Language Lab and Hostel accommodation are inside the campus with modern facilities.

The college got the pride of becoming the first college of the state to establish an Incubation Centre, in the name of **'Magadh Mahila Entrepreneurs Incubation Centre'** with a sole aim of preparing skilled young entrepreneurs for business Incubation.

The college also became the first ever institution of Higher Education in India to introduce House System with the name of **'Sahodra-The Daughters of Same Mother'** for developing all aspects of learning and growth of students.

Day Care Centre functions on the campus for the benefit of the children of our employees (faculty and staff) and also the children of married students. Children are taken care by trained and dedicated caretakers with the assistance of two helpers.

Magadh Mahila College has been selected as **Model Electoral Literacy Club by Election Commission of India**. The college has taken initiative for physically challenged students and in this context **Lift** has been constructed in the premises of the college.

Also the college is the first college in the state to construct a **'Zoological Garden** with **Aquatic Park** and **Fish Aquarium**' to boost natural habitat in its campus. **'Infirmary'** has also been constructed in the college to look after sick students and any unforeseen contingencies. The College has well-equipped **Gym** for students and staff members on the campus. The College has appoint a Lady Gym Trainer who properly all sort of guidance and training. Keeping in view the health aspects of the students including those of hostels the institution has constructed canteen in the name **'Madalsa Student Cafeteria'** and **Sudha Milk Parlour with Juce Corner**. The institution has also set up **'100 KwP Solar Power Plant'** to effectively utilize renewable source of energy.

College has developed a **Solid-Liquid Waste Management System** and **Rain Water Harvesting** on its campus at the entrance which was inaugurated on 31.01.2019 and a MOU was also signed with Sunai Consultancy (P) Ltd. It serves beneficial to entire Campus.

Vision, Mission And Core Values

Magadh Mahila College is a premier institution of higher education for young women in Bihar and well known in the region for its value based education, quality teaching and discipline. This is the first girls' college in the state where teaching in science subjects started as early as 1947. Presently it is imparting education to more than 3800 students in 32 degree and diploma courses in the faculty of Arts, Humanities, Fine Arts, Social Sciences, Science, Commerce, Business Administration and Computer Applications at different levels.

The College Emblem comprising of three symbols conveys the message of Awareness, Brotherhood and Progress. The emblem represents the vision and mission of the esteemed women's institution. The holistic vision of college is committed to inculcate the pursuit of knowledge with preservation of our culture and traditional values leading to the empowerment of women and in particular, bringing about inclusive growth and qualitative changes in the society. The college directs its efforts to support the mission of Patna University and dedicates itself to promote an academic culture that provides opportunities to obtain the skill, knowledge and behaviour for empowering our students to be productive citizens. Our efforts focus to broaden their understanding of themselves and the world they live in, by developing strong communication and leadership skill, lifelong learning skill, profound social skill, appreciation for healthy environment and life style and commitment to the nation, society and humanity.

Our Vision

- To be leader in the field of education by providing innovative learning environment, women empowerment with traditional values to bring qualitative changes in the society
- To give direction to students to accomplish self-learning with Indian values, freedom and creativity to sustain themselves in the changing societal and economic environment
- On the bank of Holy Ganga, the College provides perennial flowing environment of self-learning, to become flexible to meet the women centric challenges by inculcating innovative educational methods
- Empowering girl students with knowledge and skills to enable them to cope up and compete with demands of modern age
- To develop leaders with new ideas and capacity to make difference in themselves and society by upholding values of respect and humanism
- To be the Centre of excellence in education, skill development and overall development

Our Mission

- A stimulating learning environment through new and innovative academic programmes
- Culturally rich environment linking education to the outside world
- To provide dedicated and responsive scholars as faculty

Our Core Values

- Discipline
- Honesty
- Indian Values, ethics and culture
- Dedication
- Inclusiveness
- Team-works
- Sincerity
- Humanity

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From the Principal's Desk

It is indeed a matter of pride and pleasure to present you the **Volume-V of 'JIGYASA'**, the Research Journal of Magadh Mahila College for the academic year 2017-2018.

JIGYASA is a peer reviewed academic periodical on educational research and innovation to encourage and promote the research work of Undergraduate and Postgraduate students from all discipline. JIGYASA contains original, peer reviewed academic articles dealing with issues which are relevant in educational research, innovation, theory, methodology and practice. It is a noble attempt to translate the classroom knowledge of students for research experiences. I am sure that this research journal will be able to achieve its mission. The research work of students of the institution is reflected at prestigious forums.

The Journal is outcome of sincere efforts of our Undergraduate and Postgraduate students as Research Scholars. On the basis of empirical survey, primary data was collected; lab-work by a team of 2-3 students under the guidance of supervisor of various departments was done. The research paper finding was presented in power point format made by each peer team for publication in this journal. This kind of initiative grooms students towards enhancement of their reading and writing skills.

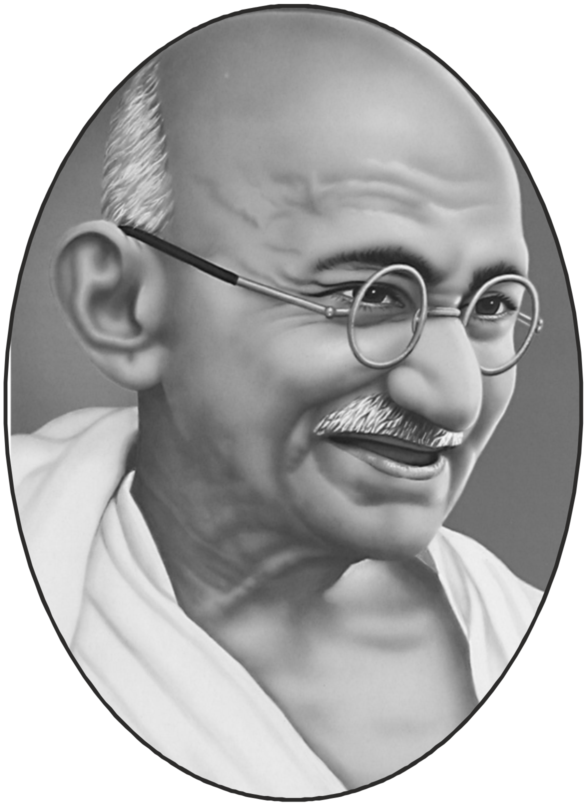
The Research Journal is innovative, providing a venue for scholarly works that report on the integration of teaching, learning, outreach programme, community engagement and research. It also serves as an effective instrument for knowledge building and efficient source of learning for the students. One of the main objective of the research work under CPE Scheme is to understand human consciousness as well as study various methodologies which may increase our wellbeing.

From the desk of Principal-cum- Editor, I invite quality research papers from the students of all Under Graduate and Post Graduate disciplines.

We look forward to join this mission and continue an inspired journey called Research Journal JIGYASA including the quality research articles of the students.

Shashi Sharma

Prof. (Dr.) Shashi Sharma
Principal-cum-Editor
Magadh Mahila College
Patna University, Patna



Carefully watch your thoughts, for they become your words.

Manage and watch your words, for they will become your actions.

Consider and judge your actions, for they have become your habits.

Acknowledge and watch your habits, for they shall become your values.

Understand and embrace your values, for they become your destiny.

– Mahatma Gandhi

English

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MORAL AND ETHICAL DILEMMAS : A COMPARATIVE STUDY OF MARLOWE'S *DOCTOR FAUSTUS* AND SHAKESPEARE'S *OTHELLO*

* **Shreya Kumari** * **Nisha** * **Somya Suman**

Presentation : 27.02.2018
Supervisor : **Dr. Khushboo**

ABSTRACT : *There are many comparative points in light regarding similar themes, character types and Motifs employed in the play Doctor Faustus and Othello. Even cursory analysis points strong connection between the themes of sin and presence of the motifs of villains (evil characters who live only to destroy).The seeming different stories reveal the basic plot structure of the seven deadly sins. Both the plays were composed at the time when Church was the forefront of public consciousness and morality plays were in vogue. The seven deadly sins comprised the genre of liturgical morality plays. Both the plays bases the structure of plot(implicitly in Othello). In Dr. Faustus it comprises the general structure, in Othello, it is based on the manipulation and acting out of seven deadly sins by Iago, where his actions determine the tragic outcomes. Faustus perpetually struggles between good and evil, Othello's consideration as a genuine morality play is a subject of debate. This paper drives out moral and ethical dilemmas underlying in both the magnum-opus of its time and also gives a striking contrast in similarities.*

Key word : *Elizabethan Theatre-University Wits-William Shakespeare-Christopher Marlowe-Othello-Dr. Faustus-Hamartia-Catharasis-Power-Jealousy-Lust-Greed-Ethics-Morality.*

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INTRODUCTION

ELIZABETHAN AGE - A GLANCE

The Elizabethan era lifted itself above political struggles and religious wars. This period was characterized by an unprecedented vitality, it became the nursery of art and adventure because of its The dramatist passion for experiment, its lust for exploration and its inherent flexibility. The English spirit was liberated for new concepts in literature and science, as well as for a revival in statecraft and religion. Freedom and spontaneity became the characteristics of a period, which, within a quarter century, produced such immortals as Shakespeare, Marlowe and Jonson. The glorious outburst of creativity, characterized the Elizabethan age as the 'Golden Age of Literature.'

ELIZABETHAN DRAMA AND THEATRE

The simplest definition of Elizabethan Drama is that it is drama written during the reign of Elizabeth I , but that is absurdly simplistic. Elizabethan drama is much more than that.

Queen Elizabeth I of England and Ireland reigned from 1558-1603, during the time when European were starting to break out the cultural constraint imposed by the medieval Church. Great thinkers across the Europe were courageously directing their eyes away from the face of God and turning them towards the mind, the form and the ideas of human beings in a huge Humanistic Movement.

The Renaissance flowered right across Europe but had different emphasis in the different European cultures -it was religion and philosophy in Germany, for example art, architecture and sculptor in Italy. And in England it was drama. All through the middle ages English drama had been religious and didactic. When Elizabeth came to the throne most of the plays on offer to the public were miracle plays, presenting in crude dialogue stories from the bible and lives of the Saints, the moralities, which taught lesson for the guidance of life through the means of allegorical action. These were primarily dramas about God not about people. By the time Elizabeth's reign ended there was a complete revolution in theatre. What changed at that time was that the theatre became a place where people want to see not dramatized lectures on good behavior, but a reflection of their own spirit and day to day interests. They wanted to laugh and to cry- to be moved, not by divine reflections , but by human beings doing good and bad things just as they did-loving and murdering, stealing ,cheating, acting sacrificially, getting into trouble and behaving nobly, n short ,being human like themselves.

So when we look back at Elizabethan drama, we see, for the first time ,stage presentations of the human experience. We see acts of nobility by flawed by her.

We see human beings at their meanest level, we see psychological studies of the human character, such as the psychopathic Iago in *Othello*, we see the exploration of the deepest human emotions, such as love in *Romeo and Juliet* and Antony and Cleopatra. Although most of the plays of the period have an underlying Christian assumption because of the culture of the time in which they were written. They are essentially humanist, in tune with the Renaissance spirit of the time. In Elizabethan drama, because it is about people rather than God, we see a lot of humour. In Shakespeare's plays there is humour even in the darkest plays, such as the frequent laugh lines in Hamlet.

Towards the end of Eligabeth's reign, playwrights were developing new themes and techniques which led to the distinctive Jacobean theatre with its more crusty, violent plays that focused on the human being's capacity for selfishness dramatized in depth representation of ambition and its effects.

THE DRAMATIST

Elizabethan drama evolved quite naturally from the intellectual climate of the times and was accompanied by the growth of acting as a profession. The increasing popularity of drama led to acting companies, special theatres, and the need for new material to intact. The new play writers were not the Church's scholars of medieval times. Rather, a new occupation developed that of the professional playwright.

Educated young minds excited by the humanist spirit who had no inheritance or patrons to support their literacy efforts, found in drama are way to mould languages and ideas into a form that would support them. These groups of educated young men were known as the university wits.

CHRISTOPHER MARLOWE AS THE 'MORNING STAR' OF ELIZABETHAN DRAMA :

A.C .Swinburne eulogistically spoke of Marlowe this way -

"*Crowned, girdled, garbed and shod with light & fire, Son /first born of the morning, sovereign star*!"

Marlowe has rightly been called the 'morning star' of the great Elizabethan drama .He was the most genius, intelligent and creative minded among all the seven University Wits . He was an English playwright, poet & translator of the Elizabethan Era. He was the foremost Elizabethan tragedian of his day. He was baptized on 26th Feb 1564. He attended 'The king's school' in Canterbury and Corpus Christi College, Cambridge on a scholarship. He died in 1593 but in very short time, he wrote many magical and timeless pieces .He launched his dramatic career instantly and '*Tamburlaine the great*'(1587) became a stupendous success.

His most notable works - '*Hero and Leander*', '*Edward II' 'Dido, Queen of Carthage*,' The tragically history of Doctor Faustus' & ' *The Jew Of Malta*'.

Marlowe's plays are known for the use of Blank Verse and their overreaching protagonists. Before Marlowe the dramatist blank verse had not been accepted verse form for drama .He was the first to free the drama from the stiff traditions and proved that blank verse was an effective and expressive vehicle for Elizabethan drama. Shakespeare was later to follow Marlowe's example and use the natural rhythm of blank verse. He uses this technique to give unity to a passage. As in '*Doctor Faustus'* when Faustus sees Helen of Troy,

HE EXCLAIMS ;

" *oh , thou art fairer than the evening air*
Clad in the beauty of a thousands stars!
Brighter art thou than flaming Jupiter
When he appeared to hapless semele."

Here Marlowe used the technique of blank verse and it shows how it imparts a controlled unity to the passage. His plays have absence of female characters or women are placed in a trivial way in even as a servant and attendants .He proved the blank verse as expressive form of writing even with his mythological illusion and highly ornamented language.

In 'The World of Christopher Marlowe 'David Riggs actually states that Marlowe wrote about concerns that were actually affecting the people of that time. These concerns including "*Grinding poverty*, *class conflict, erotic desire, religious dissent and the fear of hell*."

The general themes of Marlowe's plays - The conflict between medieval values and renaissance, power as corruptive influence, the divided nature of man and a tragic flaw founds in the main protagonist which leads to his downfall, that flaw must be of hubris proportion, pride against gods. '*Dr. Faustus*' is the illustrious play written by him, which conveys a deep questions concerning morality, religion and man's relationship to both.

The play of Marlowe mainly identified as Morality Play. The chief aim of this kind of play is didactic, religious or ethical. It's general theme is also theological and aims to teach us doctrine and ethics of Christianity. Marlowe's '*Dr. Faustus*', the most significant play can be recalled a morality play to a very great extent. The main theme of this play is to attain super human power at any cost. Many think that the character Faustus is how Marlowe viewed people.

ACCORDING TO HALLAM

" *Marlowe's Faustus is full of poetic beauties, but an intermixture of buffoonery weakens the effect and leaves it, on the whole, rather a sketch by a great genius than a finished performance* ."

Marlowe always wanted to bring enlightenment to major issues through his works but in a way that people. His work '*Dr. Faustus*' is considered as one of the masterpieces of British Drama for all the time . Goethe splendidly remarked for' Dr.Faustus' - " *How grandly it is remarked* !"

Marlowe was also called as Kit Marlowe .He is the great English representative of towering individualism that characterized the Renaissance. Besides the blank verse, he is the first great dramatist to introduce Romance into English tragedy.

And one wild **Shakespeare**,following nature's light…

Nothing worthy could surmount the Bard -of-Avon and one could end babbling about him. The greatest contributor to English Drama in the Elizabethan Age and the times to come. In the form of comedy, history and tragic plays. He has 37plays to his account. His reputation as a playwright is as a tragedian. His four great tragedies are: *Hamlet, Macbeth, Othello and King Lear* the themes of which are common. Kingdom, War, Revenge, Bloodshed are major common themes. His works are influenced by classic literature. Shakespeare experiments on His characters and bring out the workings of human psychology.

'*Othello*' presents the dramatist's experimentation in Aristotelian unities : its action neither ends in a day nor ends in a place as it shifts from Venice to Cyprus. It is the tragedy of a noble Venetian Moor, who is consumed by his own fault of unfounded suspicion and jealousy gives way to get entrapped by his designing ancient, Iago, calling his total ruinage.

CONNOTATION OF MARLOWE & SHAKESPEARE: PUZZLE OF LITERARY WORLD

Marlowe was a great influence to Shakespeare. His literary influence on him universally accepted. Shakespeare seems to be very much aware of what Marlowe is up to and chooses to plot a parallel course. The exact relationship of these two major figures is one of the chief puzzles of literary history.

AS A.C. SWINEBURNE DECLARED ;

" *Marlowe first and he alone , guided Shakespeare into the right way of work* …"

Marlowe's mighty line revolutionized the Elizabethan stage. Before him there was no genuine blank verse and genuine tragedy in our language . After his arrival the way was prepared, the path made straight for Shakespeare.

Nearly half of the Shakespearean works have been attributed in whole or part to Marlowe . In seven of his plays ,Shakespeare is clearly and probably consciously copying Marlowe and in eleven other plays, there are faint traces and suggestions including, '*Henry VI, Parts 1,2&3', 'Titus Andronicus ' ,' Richard III', ' King John*' , and many others . Therefore,

IT IS SAID BY CRITICS …

"*Marlowe's hand appears in several Shakespearean texts*."

The richness of Marlowe's Vocabulary easily encompassed Shakespeare's and that many of their works were indistinguishable .Many Characters in the Marlovian and Shakespearean

Works are cut from the same dramatic cloth including ; ' *Tamburlaine and Titus',' Barabas and Shylock* ', ' *Edward II and Richard III*' &many other characters .Also the chief protagonist of the plays of both suffers from a 'Tragic flaw' that leads to his downfall …

As in '*Doctor Faustus*' the hero Faustus was highly ambitious and his desire is to pursue his knowledge to the infinity and this ambition became the source of destruction for him. In '*Othello*', the chief character Othello was the man of action .He took his action in jealousy without any thought and it ruined his life.

According to Researcher; ' Marlowe's matures into Shakespeare 's work- like '*Edward* II ' matures into '*Richard* II' , '*The Jew of Malta* ' evolves into '*The merchant of Venice' and 'Doctor Faustus' becomes' The Tempest*'.

The plays of both convey patriotic sentiments through their works .Their plays such as -'*The Massacre at Paris ', ' Henry VI', &* others helped in the unification of Protestants and Catholics at a time when religious civil war threatened in England.

Marlowe induced Comic scenes and characters in all of his dramatic works ,though that were tragedies or histories. It became the forerunners in the work of Shakespeare. '*Dido*' has several comic scenes and the clown in '*Dr. Faustus*' and also we see the other clowns and jesters in the plays of Shakespeare - *Hamlet* and '*Cornelius and Valdes* '.

Both the Marlovian and Shakespearean works deal with the supernatural elements -magic , black art ,the occult and explore the relations between natural and supernatural worlds. As ' Hecate, the queen of hell invoked her furies in 'Dr.Faustus '& Dido ,'Queen of Carthage' and also this queen figures prominently in '*Hamlet*', '*Macbeth'& 'King Lear* '.

The evidence for Marlowe's survival and authorial role in the Shakespearean canon is compelling. However the role of William Shakespeare is unclear. Some Marcovian feel that he played no appreciable part other than lending his name to the arrangement. Others feel that Shakespeare likely played a significant dramatic and literary role.

COMPARITIVE STUDY OF OTHELLO AND DR. FAUSTUS

In lining up the features of 'Dr.Faustus and 'Othello' we find numerous intersecting points, despite the difference in plots of both the plays .The underlying similarities and differences are seen not only in terms of themes and characters but also in motifs employed. Here are the points lined up:

FAUSTUS AND OTHELLO : OUR TRAGIC HEROES

According to Aristotle the tragic character :

- Is a man of rank and position, has outstanding qualities
- Possesses human tendency to make 'error in judgment', due to his flaw (hamartia)
- Is the main person around whom the plot revolves, action of others must lead to heighten his crises
- Is subjected to arouse pity and fear, fulfilling the cathartic essence of tragedy

Both Othello And Faustus are men of exceptional qualities. Othello is the brave Venetian general ,later positioned as the governor of Cyprus. He is admired and liked by everybody until he marries Desdemona, the fair daughter of venetian senator, brabantio. But its only Brabantio. But that disliked him on the grounds of elopement with his only daughter. Things would 've rested in peace but the sneaking villain Iago brings out the devastating blunders in Othello's character: gullibility and recklessness, which ultimately turn out his nobility into tragic waste further giving rise to his tragic flaw-jealousy, leading to the total transformation. From the admired man he turns to a raving mad murderer of his innocent wife, out of the suspicion of her adultery with his lieutenant and friend Cassio. His ruinage stems from his own weaknesses: his credulity in mask of Iago's. Iago planted seeds of jealousy and rage in him. He was 'man of actions' ,hence was deficient to give thoughts to his actions. He always identified himself as soldier, unused to social manners, and was often at failure to understand worldly affairs, therefore he fell an easy prey to Iago's duplicity. Othello lacking self -control allowed jealousy to consume him. At the end ,whether by guilt or egocentrism, he suicides, bringing to light his realisation :

"*speak of me as I am...*

(one) that loved not wisely but too well.

Of not only easily jealous ,but being wrought

Perplexed in the extreme"

He thereby realises his error and acknowledges it with dignity, and takes away his life.The dramatic irony of having the designer of his sufferings and yet unrecognised adds to his pathos. The audience is left teary-eyed sympathising with him and with heightened understanding and discovery of the extremities of passion latent in hearts.

The similar Marlowean hero Faustus, is a reputed scholar, unsurpassed in knowledge, unrivaled in law, medicine, alchemy, divinity, craving for more knowledge .Although his curiosity to learn may be taken as a natural human tendency and nothing objectionable but he demands for knowledge beyond human limitations(medieval belief) and falls for necromancy. His lust for knowledge blinds him from reason and kills his conscience leading him to sign a pact with the Devil, staking his body and soul for eternal damnation, culminating to his downfall. His lust for knowledge stems from the idea to have immense power which astrays him from godly ways. His pride (hubris)in his achievements made him disdain his present position as a "man", an ordinary being. Swayed by the charm of black magic and magicians, he conjures up the Devil ,wishing to get immense knowledge and power to rule over the world and experience the pleasures of flesh, prohibited in Christianity. Although he had great plans of the knowledge acquired by black art but once he gets power he forgot his ambition, corrupted by the devilish forces. Alike Othello Faustus' passion incited his doom and struggles between the choice of right and wrong, but he was nailed down from his horrors and strength of his character. At the eleventh hour, he subsides crying for Christ's mercy:

" *O soul ,be changed to little water drops*

And fall into the ocean. Ne'er be found

My god ,my god ,, look not so fierce on me!"

Alike Othello his realisation is not a pure loss of his reputation, rather it evokes catharses of the audience who are deeply remorseful at the loss of great Wittenberg scholar

THEMES & MOTIFS

There are many comparative points in light regarding similar themes , character types and Motifs employed in the play. Even cursory analysis points strong connection between the themes of sin and presence of the motifs of villains (evil characters who live only to destroy).The seeming different stories reveal the basic plot structure of the seven deadly sins. Both the plays were composed at the time when Church was the forefront of public consciousness and morality plays were in vogue.

The seven deadly sins comprised the genre of liturgical morality plays. Both the plays bases the structure of plot (*implicitly in Othello*). In *Dr.Faustus* it comprises the general structure; in '*Othello*', its based on the manipulation and acting out of seven deadly sins by Iago, where his actions determine the tragic outcomes. Faustus perpetually struggles between good and evil, Othello's consideration as a genuine morality play is a subject of debate. However ,a scholar posits that it echoes "something of the structure of morality play", with Othello caught between Desdemona and Iago, the good and evil forces. But the fact remains that the war between good and evil is confused due to the unsure footing that the characters and readers are caught in, due to the distortion of reality and the climaxes revealing the deception. It is Iago, most sinister of villains, real face and mask of honesty which both stuns and fascinates. Through his deception he makes other sin in which he himself is either too cowardly or too clever to dirty his hands with. He is master manipulator and uses other's trust, particularly the trust Othello bestows upon him, to meet his ends. He incites others to commit sins while he virtually remain unstained until the tragic end of theplay. He is never true to his character, but in asides making dark revelations of his evil. The plays dramatizes Othello's continuedloss of trust and leads to the final act of murder-the culmination of the effects of seven deadly sins, which is embodied in the horrific acts of murder and violence.

Among the seven deadly sins functioning within Othello as a result of cruel machinations of Iago the prominent one is wrath. Wrath has close connection with Iago(as he works through the vices and weaknesses of others) his wrath has no apparent identifiable roots nor does its extent is apparently provoked. Although he says". ..I do hate him as I do hell pains", yet nothing is evident in the play like "hell pains", but that Cassio has been promoted to lieutenant who is" almost damned for a wife/That never set a squadron in the field", in Iago's eyes

Later he intensifying his anger implies without basis that Othello nay have slept with his wife and he'll get" wife for wife" as revenge to his suspicions. These injuries to his wounded pride ,whether real or supposed harshly justify his subsequent rage. it becomes apparent that he hates Othello more than he expresses. But the unclear foundation of it makes one assume that he is a' victim of vice'.

Faustus is deluded into wrong by his own mistaken knowledge of self. By learning black art he challenges his position in universe because he desires to get power more than he 's assigned to as a human being(medieval belief).He despises still being a "a man ",despite all the law ,medicine and divinity demonstrating his sinful pride (hubris)which further paves the way for other cardinal sins Faustus succumbs to. Iago's counterpart in Faustus is the devil Mephistopheles who appears to be a servile spirit but reveals his true deceptive character in asides "what 'll I not do fetch his soul". He never took the charge of Faustus's damnation as his own devising, like Iago who shed the charges of fired in suspicions in Othello, although he knew he himself had evoked it and what he says that I play the villain? When this advice is free I give and honest Mephistopheles speaks in circumlocution and never gives clear answer to Faustus. When he says Faustus "thinks't thou heaven is such a glorious thing? I tell thee Faustus its not half so fair as thou.,or any man that breathe on earth" and when Faustus asks how he answers "Tw's made for man then he's more excellent", there by exciting Faustus' pride and making him confident of the devilish path he had chosen. He twists things whenever Faustus is conscience-stricken and tries to divert him by presenting the march of seven deadly sins. He's been assigned the task to bind the pure soul of Faustus to hell so that devil can mock at god and rejoice his victory. He practices all deceits and keeps company to Faustus, reducing him by degrees, alike Othello, to his own level An unrivaled scholar like Faustus tricks and abusing pope and fathers and plays magic for emperors to delight in all the time he struggles between his own latent carnal desires and conscience, and confuses himself: "*if we say we have no sins we deceive ourselves*" hence we are already damned. His actions stemming from this idea damns him in reality. He discards the idea of heaven and hell " *I think hell is a fable*" even when Mephistopheles tells him. He existence of hell in reality as his home and Faustus' would be dwelling. Mephistopheles deals hell's extent saying :hell has no limits...where we are is hell and hell is must we ever be", it deepens Faustus's belief of hell of fantasy hand there is nothing to worry about so called hellish torture. Bit by bit he advances his foot to eternal doom. But at last unlike Othello, Faustus is condemned alone, although he earnestly cries for Christ's mercy : "let Faustus live in hell a thousand years ,a hundred thousand ,and at last be sav'd", while being carried away by devils. This is suggestive of Faustus wrongs beyond the level of correction. Faustus's tragedy proposes against the Christian belief of salvation at last despite men had sinned beyond redemption.

POWER -BASIC IDEA IN PLAYS

It was an age of exploration and adventure with England gaining more economic power over other countries. This new sense of national and personal power is evident in writings of the time: plays often dealt with the ideology of power, power affecting the individual and society the negative effects of too much power. Faustus and Othello look at these concepts of power. Othello is based on all around power, those seeking it, how power destroys lives. Faustus shows the abuse of power and is a more critical examination of the nature of power given to fragile mortals.

Othello is the General of Venetian troops and later promoted as governor of Cyprus. He had both military and ruling power which Iago is envious of. Othello has firm sense of his place in society, he is true nationalist. Iago resents his position and is quiet bitter about the fact that "we all can't be masters "Another influence that Othello holds in others and others inversely hold on him is his ethnicity. It bestows upon him honour of tremendous militant but makes him an outcast in all white society. Later his colour is made target of racist insults by Iago, after his marriage to Desdemona. Brabantio accuses him of charming Desdemona by black art, connoting his colour with black magic. But nevertheless he exercised all the privileges of male dominance and aristocratic rights his white counterpart would exercise.

Othello's power is source of envy to both Roderigo and Iago. Roderigo envied him on account of Desdemona. His envy could do harm to Othello but Iago's keen power of jealousy turns out fatal. Iago invents language suited to his suit besides the mastery of manipulation making him most powerful person. Iago has more lines in the play than Othello's. Iago influenced Othello's speech to the extent that he talked more, using animal imagery than Iago himself. Iago's silence slowdown the plot. Iago resents the social powers and privileges that ruling class has. He is jealous of Cassio's promotion since he felt himself fit for the post. He harbours bitterness towards Othello of the power he has which he craves for himself. He is envious of Othello's happy marriage as he had won Desdemona's heart and devotion whereas he couldn't have the same from his union with Emilia. Through his most potent power understanding human nature he manipulates everything together with his lies and makes everyone victims of their own weaknesses They all fall due to weaknesses in human nature. Roderigo falls due to his lust, Cassio due to weak nature. Another power of Iago is the moral duplicity he maintained till the tragic scene. Throughout the play he is seen as "honest Iago"," A man he is of honesty and trust"(Othello's reference).He plays tricks on Othello upon his moral lineage, and he is swayed by the one Iago had! Fact of reality is that everyone except Iago adhered to moral code. No one can see why he should dupe them. Iago succeeds also because he had the power to transcend the moral limits of human nature.

Another example of a man who strives for power no matter what the cost is Faustus .The play pose a warning against man acquiring absolute power and squandering it. Faustus is consumed by the power at his finger tips. In sacrificing his soul he condemns himself to damnation for mere 24 years of using and abusing power. We see him abusing his power turning his back on God, although his fate is uncertain, its generally accepted that he is condemned to hell. This May be seen unfair as he didn't do anything particularly terrible with his power. He had great desires from the power acquired by the knowledge of black arts, but once he gains it, forgets his ambitions and indulged in vain pleasures, trickery and playing clown. Although the power hadn't made him wicked, rather his only corruption is in his ambitions being sapped and all he had done is to deserve damnation and waste his time.

Faustus practiced magic only because he felt he had reached the limits of the subjects he dealt and that he had still remained "a man". His search for power is not ruled by passion, unlike Iago ,but by cold logic as he talks himself out of the potential delights of a heavenly afterlife, and rationalises that the soul is a fair bargain for the power he seeks. He even mistakes by that the power bestowed by Lucifer is his own" *My gracious Lord, I am ready to accomplish your request so far forth as by art and power of my spirit I am able to perform*. But as the action advances he realises that what he took as his self power is actually the power granted by Lucifer. With this comes the realisation that devilish power is nothing compared to the omnipotence of God, the ultimate power. But since he had corrupted himself beyond correction he couldn't be saved. It sends a warning to audience and the readers that those who practice more than heaven permits meet the fate of Faustus. Faustus is both an object of lesson of hubris and as a dark speculation on what is intolerable and tragic about divine limits placed on human will.

Both these plays appear to be condemning and examining the devastating effect of power. *Othello* shows the power of emotions and its devastating effect and also the desire to acquire power and the extent it can corrupt those who desire it. Same is true for *Faustus*. Both Iago and Faustus strive for more than they have beengiven leading to their downfalls. Dr.Faustus conforms to the ideology of God's omnipotence and relies upon his mercy and grace. They also show that those in power have earned it,and no one can cheat their way to power.

CONCLUSION

Othello & *Faustus* were product of Renaissance Age, displaying the fired imagination of both the heros. Othello, is a character born of Shakespeare portrayed against all odds as equivalent to ruling white men endowed with ruling power over white. The character of Othello is Shakespeare's rebel against the superiority complex of Caucasians. Othello's value is no less than any other white man of same substance .The Dramatists also coveys him against common prejudices of their interiority . He could achieve a fair maid's devotion and not by underhand means. He was in power because he had earned it and one who tried to seize it did at his peril. Othello valued everything he had but fault in his stars had choosen of course against him, but in his death, he lived forever. Wild and passionate like his Pater.

Othello reaches the deepest niche of mind and its power experimenting in Iago, who had seen infinite power of unfathomable mind since he hadn't bound himself in codes he wouldn't be served super intelligent, hadn't he turned his talent to achieve petty position. He desired his charms;, his contrary to this statement ...

"***POWER ATTRACTS THE CORRUPTIBLE*** ."

Whether Iago was corrupted or corruptible is a matter of discourse neverthless, his psychology opens up vistas of interpretations. But above mentioned statement benefits Faustus, who serves in supporting it. Faustus had sinned knowingly. Testing the knowledge, he had gained through years of learning , he chanced to see what was like not adhering to Moral. He is a man of principal out in trial to be the opposite, unlike Iago who was true to his nature. The devil had part in his fall or Faustus had to be condemned. But is anyway again paradoxically truth, but is defying the medieval prejudice of masses. Marlowe portrays a non- conformist hero and thereby a peep into the horizons of human mind which had to develop in the upcoming times and beyond.

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A RESEARCH WORK ON THE CONTRIBUTION OF WOMEN WRITERS IN INDIAN ENGLISH LITERATURE

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ABSTRACT : *This research project traces the trajectory of the contribution of women writers of India in the glorious history of Indian English Literature. Their works in various genres reflects their versatility and their inner struggle in this male-dominated society. Writers like Arundhati Roy, Kamala Markandaya, Anita Desai , Jhumpa Lahiri among others have carved their niche in the literary world. Indian English Literature, which deals with the post-colonial dilemmas and mentalities, marks out women writers for their constant effort to clear their way through the grasps of the social restrictions. The research is a collection of such women writers and enlisting of their contribution in Indian English Literature and the various accolades that they have received in this process. Women writers in India are moving forward with their strong and sure strides, matching the pace of the world. We see them bursting out in full bloom spreading their own individual fragrances. They are recognized for their originality, versatility and the indigenous flavor of the soil that they bring to their works.*

Key word **:** *Indian English Literature, Post-Colonial, Patriarchal Society,Revolt*

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A BRIEF INTRODUCTION OF INDIAN ENGLISH LITERATURE

Indian English Literature includes the works of Indian English writers writing in English. Indian English Literature developed during a time when the country was looking forward to create its own identity in English writing. Indian English Literature refers to that body of work by writers from India, who pen strictly in the English Language and whose native or co-native language could be one of the regional language and indigenous languages of India. English Literature in India is also intimately linked with the works of associates of the Indian Diaspora, especially with people like Salman Rushdie who was born in India but presently resides elsewhere.

DEVELOPMENT OF INDIAN ENGLISH LITERATURE

Indian English literature precisely conforming to its gradual evolution had all begun in the summers of1608 when emperor Jahangir, in the court of the Mughals, had welcomed captain Williams Hawkins, commander of British Naval expedition Hector, in a gallant manner, though India was under the British rule, still, English was adopted by the Indians as a language of understanding and awareness, education and literary expression with an important means of communication amongst various people of dissimilar religions.

Indian English literature, quite understandably, spun attention from every quarter of the country, making the genre admired in its own right. Creative writing in English is looked at as an integral part of the literary traditions in the Indian perspective of fine arts. In early times of British rule, the novelistic writing, indeed the Indian English dramas and Indian English poetry, had tremendously arrested attention of the native masses. Every possible regional author was dedicated in their intelligence to deliver in the 'British mother tongue', highly erudite and learned as they were even in such periods. The man that comes to surface more than once in all the genres of Indian English Literature is Rabindranath Tagore, who is possibly an unending ocean of Knowledge and intellect, still research as an institution in him.

Indian English literature is two hundred years old. Sri Aurobindo stands like a huge oak spreading its branches over these two centuries. The contribution of Sri Aurobindo as a perfect writer and craftsman is undoubtedly great. He is the first poet in Indian English writing who has given the re-interpretation of myths. Sri Aurobindo envisages spiritual humanism. Sri Aurobindo, Rabindranath Tagore and Harindranath Chattopadhyaya reduced a substantial corpus of dramatic writing." Tagore tries through his novels, to focus the attention on some of the bitter truths and cruel customs of the lives and society as well. The new Post Colonial India with its evolving outlook, which is essentially a blend of tradition and modernism. It reveals the cosmopolitan outlook of the new generation who strives to strike a balance between the inherited traditional values and imbibed foreign culture.Salman Rushdie, Amitav Ghosh and Upamanya Chatterjee are the writers who reigned supreme with their momentous work. Their works delve into the hurdles faced by newly independence nation, which at times a harsh depiction of reality.

These writers have made bold attempts to recapture the altered perceptions of Post -colonial India and the use of evolutionary narrative technique has elevated their position among the writers of Indian Fiction in English.

CONTRIBUTION OF WOMEN WRITERS IN INDIAN ENGLISH

The works by women writers constitute a major segment of the contemporary Indian writing in English. Today women are seen establishing their identity in almost all walks of life and they have heralded a new consciousness in the realm of literature too. Among the women writers Sarojini Naidu, the great poetess charmed the readers with her writings. Feminism themes have also been used by authors like Nayantara Sehgal and Rama Mehta. Novelists like Kamala Markandaya and Anita Desai captured the spirit of Indian cultures and its traditional values. The novels of authors like Namita Gokhale or Shobha De are really out - spoken. Most of these female novelists are known for their bold views that are reflected in their novels. Basically, these are the novels of protest and an outburst of reservations and contaminations. Unlike the past, where the works of women novelists were given less priority and were actually undervalued, classification of feministic or male writings hardly makes any sense today. Nayantara Sehgal (1927) is another popular woman novelist who dominated the Post - Independence scenario of an Indian novel in English. She dealt with issues concerning women that later became major issues in the feminist movement launched in the sixties. With delicate sensitivity, she exposes the prejudices women face in the male-dominated society. In the twentieth century, women's writing was considered as a powerful medium of modernism and feminist statements.

The last two decades have witnessed phenomenal success in feminist writings of Indian English literature. Women writers in India are moving forward with their strong and sure strides, matching the pace of the world. We see them bursting out in full bloom spreading their own individual fragrances. They are recognized for their originality, versatility and the indigenous flavor of the soil that they bring to their work. Indian women writers like Kamala Markandaya, Bharathi Mukherjee, Anita Desai, Nayantara Sehgal and many more have played a pioneering role in conveying the readers a wild range of indigenous Indian issues, punctuated by a strong feministic outlook. It is amazing to note that these writers have climbed the ladder of success in a slow and painful way. Thus, this new voice of emerging modern India succeeded in drawing the attention of the public towards the pressing problems of gender inequality, social evils, and encroachment of land by foreign nationals and exploitation of women in a patriarchal society.These women writers have given literary work in India an unmistakable edge. Their women are real flesh - and - blood protagonists who make you look at them with awe with their relation to their surrounding their society, their children, their mental make -ups and themselves. Women writers in India not only sweep the audience off with their down to - earth attitudes, but they also have you nodded with wisdom and agreement. Their leading ladies jerk the average Indian readers out of their typical Indian complacency regarding gender issues. One might tend to think of women writers only in a Mills and Boon context, but women writers in India have proved that they are made of sterner and more serious stuff than that.

Our women writers have grappled with complex issues such as sensuality, servility, subjugation and society. They have handled them with a sense of balance, never disregarding our Indian traditions, yet discovering that there is more in the offing. The women novelists try to create awareness that this is the time to proclaim with definite precision. Majority of the Indian readers comprising both male and female read the novels of the Indian women authors with certain expectations. They look for some "Indian-ness" in the write - ups. Only the women novelists of India are capable of conveying the messages of feminism in an Indian way. The secret behind the success of novels written by contemporary women writers is their simple and life - like characters. They usually hail from middle class families. This is one of the techniques the author employs to make the readers deeply involve and subsequently the novels become quite absorbing and interesting. Though Indian women writers, wax eloquence on all aspects of the flaws and felicity of characters both male and female, the main thrust is on female characters. They will evoke sometimes sympathy or sorrow; sometimes they outshine even male characters in intelligence.

Understanding of the psyche of the characters,contemporary women writers like Manju Kapur, are considered to be post graduate student in the University of Life. Women's writing in the twentieth century moved towards a medium of modernism in which womanish and feminist statements were combined with political messages. Women writers like Mahashweta Devi combined women's causes with political movements. Over the years and throughout the political instability which affected Indian society at large, along with a myriad of other influences which have affected culture, language and social patterns, women's literature in India has evolved to show common experiences, a sense of sisterhood and a range of female experiences that question the recurring face of patriarchy.

ARUNDHATI ROY

Arundhati Roy, full name Suzanna Arundhati Roy, (born November 24, 1961, Shillong, Meghalaya, India), Indian author, actress, and political activist who was best known for the award-winning novel The God of Small Things (1997) and for her involvement in environmental and human rights causes. Roy's father was a Bengali tea planter, and her mother was a Christian of Syrian descent who challenged India's inheritance laws by successfully suing for the right of Christian women to receive an equal share of their fathers' estates. Though trained as an architect, Roy had little interest in design; she dreamed instead of a writing career. After a series of odd jobs, including artist and aerobics instructor, she wrote and costarred in the film In Which Annie Gives It to Those Ones (1989) and later penned scripts for the film Electric Moon (1992) and several television dramas. The films earned Roy a devoted following, but her literary career was interrupted by controversy. In 1995 she wrote two newspaper articles claiming that Shekhar Kapur's film Bandit Queen exploited Phoolan Devi, one of India's most wanted criminals in the early 1980s and a heroine of the oppressed. The columns caused uproar, including a court case, and Roy retreated from the public and returned to the novel she had begun to write. In 1997 Roy published her debut novel, The God of Small Things to wide acclaim. The Semi-autobiographical work departed from the conventional plots and light prose that had been typical among best-sellers. Composed in a lyrical language about South Asian themes and characters in a narrative that wandered through time, Roy's novel became the biggest-selling book by a non-expatriate Indian author and won the 1998 Man Booker Prize for Fiction. After this she wrote many fiction and non-fiction and got many awards. She is one of the most successful woman writers and played the most important role in contribution of Indian women writer in the history of English literature.

EARLY LIFE

Arundhati Roy was born in Shillong, Meghalaya, India, to Mary Roy, a Malayali Syrian Christian women's rights activist from Kerala and Rajib Roy, a Bengali Hindu tea plantation manager from Calcutta. She then studied architecture at the School of Planning and Architecture, Delhi, where she met architect Gerard da Cunha. The two lived together in Delhi, and then Goa, before they separated. Early in her career, Roy worked for television and movies. She wrote the screenplays for In Which Annie Gives It Those Ones (1989), a movie based on her experiences as a student of architecture, in which she also appeared as a performer, and Electric Moon (1992). Both were directed by her husband, Pradip Krishen, during their marriage. In her film review entitled, "The Great Indian Rape Trick", she questioned the right to "restage the rape of a living woman without her permission", and charged Shekhar Kapur with exploiting Phoolan Devi and misrepresenting both her life and its meaning.

LIST OF SOME OF HER WORKS

FICTION

- The God of Small Things. Flamingo, 1997.
- The Ministry of Utmost Happiness. Hamish Hamilton, 2017.

NON-FICTION

- The End of Imagination. Kottayam: D.C. Books, 1998
- The Cost of Living. Flamingo, 1999
- The Greater Common Good. Bombay: India Book Distributor, 1999
- The Algebra of Infinite Justice. Flamingo, 2002
- Power Politics. Cambridge: South End Press, 2002
- War Talk. Cambridge: South End Press, 2003
- An Ordinary Person's Guide To Empire. Consortium, 2004
- Broken Republic: Three Essays. New Delhi: Hamish Hamilton, 2011. Walking with the Comrades. New Delhi: Penguin, 2011

ACHIEVEMENTS

Arundhati Roy was awarded the 1997 Booker Prize for her novel The God of Small Things. The award carried a prize of approximately US$30,000 and a citation that noted, "The book keeps all the promises that it makes". Roy donated the prize money she received, as well as royalties from her book, to human rights causes. Prior to the Booker, Roy won the National Film Award for Best Screenplay in 1989, for the screenplay of In Which Annie Gives It Those Ones, in which she captured the anguish among the students prevailing in professional institutions. In 2015, she returned the national award in protest against religious intolerance and the growing violence by rightwing groups in India. In 2002, she won the Lannan Foundation's Cultural Freedom Award for her work about civil societies that are adversely affected by the world's most powerful governments and corporations, in order "to celebrate her life and her ongoing work in the struggle for freedom, justice and cultural diversity". In 2003, she was awarded "special recognition" as a Woman of Peace at the Global Exchange Human Rights Awards in San Francisco with Bianca Jagger, Barbara Lee, and Kathy Kelly. Roy was awarded the Sydney Peace Prize in May 2004 for her work in social campaigns and her advocacy of non-violence.

In January 2006, she was awarded the Sahitya Akademi Award, a national award from India's Academy of Letters, for her collection of essays on contemporary issues, The Algebra of Infinite Justice, but she declined to accept it "in protest against the Indian Government toeing the US line by 'violently and ruthlessly pursuing policies of brutalisation of industrial workers, increasing militarisation and economic neo-liberalisation'". In November 2011, she was awarded the Norman Mailer Prize for Distinguished Writing. Roy was featured in the 2014 list of Time 100, the 100 most influential people in the world.

ANITA DESAI

Anita Desai (1937) is another remarkable novelist who has experimented with diverse themes, which eventually emphasize the plight of the Indian women in Post - Colonial India. Anita Desai (born 24 June 1937) is an Indian novelist and the Professor of Humanities at the Massachusetts Institute of Technology. As a writer she has been shortlisted for the Booker Prize three times; she received a Sahitya Akademi Award in 1978 for her novel Fire on the Mountain, from the Sahitya Akademi, India's National Academy of Letters; she won the British Guardian Prize for The Village by the Sea. She graphically presented the turbulent psyche of the modern Indian women. Her protagonists are intelligent, sensible and sensitive, but in an attempt to manage home and children and attain emotional fulfillment, they reach on the verge of mental crisis.

EARLY LIFE

Anita Mazumdar was born in Mussoorie, India, to a German mother, Toni Nime, and a Bengali businessman, D. N. Mazumdar. She grew up speaking German at home and Bengali, Urdu, Hindi and English outside the house. However, she did not visit Germany until later in life as an adult. She first learned to read and write in English at school and as a result English became her "literary language". She began to write in English at the age of seven and published her first story at the age of nine. She was a student at Queen Mary's Higher Secondary School in Delhi and received her B.A. in English literature in 1957 from the Miranda House of the University of Delhi. The following year she married Ashvin Desai, the director of a computer software company and author of the book Between Eternities: Ideas on Life and The Cosmos.

They have four children, including Booker Prize-winning novelist Kiran Desai.

CAREER

Desai published her first novel, Cry The Peacock, in 1963. Her early novels focus on the lives of woman plagued with troubles in male dominated society. Cry, The Peacock (1963) depicts the travails and suppressed emotions of a neglected wife. Voices in the City (1965) depict the feeling of rootlessness and undue stress faced by a group of women in the busy city of Calcutta. Meanwhile, Bye - Bye Black Bird (1971) discusses on the disgusting issue of Indian Immigration in England and Clear Light of the Day (1980), is a novel in which Desai presents childhood innocence, affection and guilt in an engrossing and realistic manner. She considers Clear Light of Day (1980) her most autobiographical work as it is set during her coming of age and also in the same neighborhood in which she grew up. In 1984, she published In Custody - about an Urdu poet in his declining days - which was shortlisted for the Booker Prize. In 1993, she became a creative writing teacher at Massachusetts Institute of Technology. Desai has been labelled as a great feminist writer of international acclaim for having presented the predicament of sensitive women characters trapped between tradition and modern.

LIST OF SOME OF WORKS

- The Artist of Disappearance (2011)
- The Zigzag Way (2004)
- Diamond Dust and Other Stories (2000)
- Fasting, Feasting (1999)
- In Custody (1984)
- The Village by the Sea (1982)
- Clear Light of Day (1980)
- Fire on the Mountain (1977)
- Bye-bye Blackbird (1971)
- Voices in the City (1965)
- Cry, The Peacock (1963)

FILM

In 1993, her novel In Custody was adapted by Merchant Ivory Productions into an English film by the same name, directed by Ismail Merchant, with a screenplay by Shahrukh Husain. It won the 1994 President of India Gold Medal for Best Picture and stars Shashi Kapoor, Shabana Azmi and Om Puri.

ACHIEVEMENTS

- 1978 - Winifred Holtby Memorial Prize - Fire on the Mountain
- 1978 - Sahitya Akademi Award (National Academy of Letters Award) - Fire on the Mountain

- 1980 - Shortlisted, Booker Prize for Fiction - Clear Light of Day
- 1983 - Guardian Children's Fiction Prize - The Village by the Sea: an Indian family story
- 1984 - Shortlisted, Booker Prize for Fiction - In Custody
- 1993 - Neil Gunn Prize
- 1999 - Shortlisted, Booker Prize for Fiction: Fasting, Feasting
- 2000 - Alberto Moravia Prize for Literature (Italy)
- 2003 - Benson Medal of Royal Society of Literature
- 2007 - Sahitya Akademi Fellowship
- 2014 - Padma Bhushan

JHUMPA LAHIRI

Nilanjana Sudeshna "Jhumpa" Lahiri (Bengali born on July 11, 1967) is an American author. One of the most famous writer and played a very important role in history of English literature. She has a huge contribution as an Indian woman who contributed in English literature. Lahiri has been selected as the winner of the 29th PEN/Malamud Award for Excellence in the Short story. Lahiri's debut short story collection Interpreter of Maladies (1999) won the 2000 Pulitzer Prize for Fiction, and her first novel, The Namesake (2003), was adapted into the popular film of the same name. She was born Nilanjana Sudeshna but goes by her nickname Jhumpa Lahiri was a member of the President's Committee on the Arts and Humanities, appointed by U.S. President Barack Obama. She resigned from the President's Committee in August, 2017, cosigning a letter of resignation that said in reference to President Trump,"Ignoring your hateful rhetoric would have made us complicit in your words and actions. Lahiri is currently a professor of creative writing at Princeton University.

EARLY LIFE

Lahiri was born in London, the daughter of Bengali Indian emigrants from the state of West Bengal. Her family moved to the United States when she was two; Lahiri considers herself an American, stating, "I wasn't born here, but I might as well have been." Lahiri grew up in Kingston, Rhode Island, where her father Amar Lahiri works as a librarian at the University of Rhode Island. Lahiri's mother wanted her children to grow up knowing their Bengali heritage, and her family often visited relatives in Kolkata. When she began kindergarten in Kingston, Rhode Island, Lahiri's teacher decided to call her by her pet name, Jhumpa, because it was easier to pronounce than her "proper name." Lahiri's ambivalence over her identity was the inspiration for the ambivalence of Gogol, the protagonist of her novel The Namesake, over his unusual name. Lahiri graduated from South Kingstown High School and received her B.A. in English literature from Barnard College in 1989. Lahiri then received multiple degrees from Boston University. Lahiri has taught creative writing at Boston University and the Rhode Island

School of Design. In 2001, Lahiri married Alberto Vourvoulias-Bush, a journalist who was then deputy editor of TIME Latin America, and who is now senior editor of TIME Latin America. Lahiri lives in Rome with her husband and their two children, Octavio (b. 2002) and Noor (b. 2005). Lahiri joined the Princeton University faculty on July 1, 2015 as a professor of creative writing in the Lewis Center for the Arts.

CAREER

Lahiri's early short stories faced rejection from publishers "for years." Her debut short story collection, Interpreter of Maladies, was finally released in 1999. The stories address sensitive dilemmas in the lives of Indians or Indian immigrants, with themes such as marital difficulties, the bereavement over a stillborn child, and the disconnection between first and second generation United States immigrants. The collection was praised by American critics, but received mixed reviews in India, where reviewers were alternately enthusiastic and upset Lahiri had "not painted Indians in a more positive light.". In 2003, Lahiri published The Namesake, her first novel. The story spans over 30 years in the life of the Ganguli family. The Calcutta-born parents immigrated as young adults to the United States, where their children, Gogol and Sonia, grow up experiencing the constant generational and cultural gap with their parents. A film adaptation of The Namesake was released in March 2007, directed by Mira Nair and starring Kal Penn as Gogol and Bollywood stars Tabu and Irrfan Khan as his parents. Lahiri herself made a cameo as "Aunt Jhumpa."Lahiri's second collection of short stories, Unaccustomed Earth, was released on April 1, 2008. Upon its publication, Unaccustomed Earth achieved the rare distinction of debuting at number 1 on The New York Times best seller list. In September 2013, her novel The Lowland was placed on the shortlist for the Man Booker Prize, which ultimately went to The Luminaries by Eleanor Catton. The following month it was also long-listed for the National Book Award for Fiction, and revealed to be a finalist on October 16, 2013. Lahiri's writing is characterized by her "plain" language and her characters, often Indian immigrants to America who must navigate between the cultural values of their homeland and their adopted home. Lahiri's fiction is autobiographical and frequently draws upon her own experiences as well as those of her parents, friends, acquaintances, and others in the Bengali communities with which she is familiar. Lahiri examines her characters' struggles, anxieties, and biases to chronicle the nuances and details of immigrant psychology and behavior. Her stories describe their efforts to keep their children acquainted with Indian culture and traditions and to keep them close even after they have grown up in order to hang onto the Indian tradition of a joint family, in which the parents, their children and the children's families live under the same roof. As succeeding generations become increasingly assimilated into American culture and are comfortable in constructing perspectives outside of their country of origin, Lahiri's fiction shifts to the needs of the individual. She shows how later generations depart from the constraints of their immigrant parents, who are often devoted to their community and their responsibility to other immigrants.

LIST OF SOME OF WORKS

NOVELS

- The Namesake
- The Lowland

SHORT FICTION COLLECTIONS

- Interpreter of Maladies (1999)
- "A Temporary Matter" (previously published in The New Yorker)
- "When Mr. Pirzada Came to Dine" (previously published in The Louisville Review)
- "A Real Durwan" (previously published in the Harvard Review)
- "Sexy" (previously published in The New Yorker)
- "Mrs. Sen's" (previously published in Salamander)
- Unaccustomed Earth (2008)

NON-FICTION

- (Introduction) The Magic Barrel: Stories by Bernard Malamud, Farrar, Straus and Giroux
- "Cooking Lessons: The Long Way Home" (6 September 2004, The New Yorker)
- (Introduction) Malgudi Days by R.K. Narayan, Penguin Classics, August 2006

- "Improvisations: Rice" (23 November 2009, The New Yorker)
- "Reflections: Notes from a Literary Apprenticeship" (13 June 2011, The New Yorker)

ACHIEVEMENTS

- 1993 - Transatlantic Award from the Henfield Foundation
- 1999 - O. Henry Award for short story "Interpreter of Maladies"
- 1999 - PEN/Hemingway Award (Best Fiction Debut of the Year) for "Interpreter of Maladies"
- 1999 - "Interpreter of Maladies" selected as one of Best American Short Stories
- 2000 - Addison Metcalf Award from the American Academy of Arts and Letters
- 2000 - "The Third and Final Continent" selected as one of Best American Short Stories
- 2000 - The New Yorker's Best Debut of the Year for "Interpreter of Maladies"
- 2000 - Pulitzer Prize for Fiction for her debut "Interpreter of Maladies"
- 2009 - Asian American Literary Award for "Unaccustomed Earth"
- 2014 - DSC Prize for South Asian Literature for The Lowland
- 2014 - National Humanities Medal.

KAMALA MARKANDAYA

Kamala Markandaya is a pen name used by Kamla Purnaiya Taylor. She was an Indian novelist and journalist.

EARLY LIFE

Kamla Markandaya was born in 1924 in Bangalore, India. Markandaya came from a very upper class family. They were members of Brahmins. Markandaya studied History while at University of Madras and later worked in journalism. Both disciplines had a major impact on the culture examination that characterised her work.

CAREER

Markandaya's early education was intermittent because of her father, a railway officer, was frequently transferred, but she travelled widely with him both in India and abroad. At the age of sixteen, she entered Madras University as a history major but left without a degree to pursue a career in writing and journalism. After working briefly as a journalist in India, she emigrated to England in 1948, where she married an Englishman and settled in London as a freelance writer. With the publication of her first novel, Nectar in a Sieve, in 1954, she began a successful career writing novels. Like most of the Indian diaspora, Markandaya is preoccupied with the conflict between the East and the West, or that between traditional or modernity. She also ruminates on the contemporary Indian scene, both rural and urban, and in her fiction she explores its economic, sociocultural and spiritual aspects. Her famous work 'Nectar in a Sieve' is a moving saga of a peasant life in India presented in reminiscent mood by Rukmani, the narrator and female protagonist. The wife of a poor tenant farmer, she has been the helpless victim to the destruction of the pristine beauty of her quite village and of the old way of life when a Tannery is set up bear the village. With great faith and capacity for love and suffering, this simple, courageous women survives the calamities of nature and industrialism and personal sorrows. Based on the authors knowledge of Indian village life, the novel received wide critical acclaim and became the best seller. Much of the criticism devoted to Markandaya's work has been focused on its post-colonial overtones and the way in which India has evolved since its independence from British.

LIST OF WORKS

- Bombay Tiger (posthumous) 2008
- Shalimar (British ed. Pleasure City) 1982
- The Golden Honeycomb 1977
- Two Virgins 1973
- The Nowhere Man 1972
- The Coffer Dams 1969
- A Handful of Rice 1966
- Possession; a novel 1963
- A Silence of Desire 1960
- Some Inner Fury 1956
- Nectar in a Sieve 1955

ACHIEVEMENT

Know for culture clash between Indian rural and urban society, Markandaya's first published novel, 'Nectar in a Sieve', was a bestseller and cited as an 'American Library Association Notable Book ' in 1955.

CONCLUSION

So we can conclude that the women writers have given literary work in India an unmistakable edge. Their women are real flesh - and - blood protagonists who make you look at them with awe with their relationships to their surroundings, their society, their men, their children, their families, their mental make - ups and themselves. Women writers in India not only sweep the audience off with their down to - earth attitudes, but they also have you nodded with wisdom and agreement. Our women writers have grappled with complex issues such as sensuality, servility, subjugation and society. They have handled them with a sense of balance, never disregarding our Indian traditions, yet discovering that there is more in the offing. The women novelists try to create awareness that this is the time to proclaim with definite precision. In India, the women writers are doing well and their contribution is immense Only the women novelists of India are capable of conveying the messages of feminism in an Indian way. The secret behind the success of novels written by contemporary women writers is their simple and life - like characters. They usually hail from middle class families. This is one of the techniques the author employs to make the readers deeply involve and subsequently the novels become quite absorbing and interesting.

Women writers like Mahasweta Devi have combined women's causes with political movements. In Draupadi, Mahasweta devi creates a world of tribal rebels whose fight against a political system of enforced capitalism has driven them to become Naxalites. Over the years and throughout the political instability which affected Indian society at large, along with a myriad of other influences which have affected culture, language and social patterns, women's literature in India has evolved to show common experiences, a sense of sisterhood and a range of female experiences that question the recurring face of patriarchy. Fiction by women writers contributes a major segment of the contemporary Indian writing in English. Through the women writer's eye we can see a different world and with their assistance we can seek to realize the potential of human achievement.

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REPRESENTATION OF WOMEN IN ELIZABETHAN ERA ARTICULATING OTHELLO & HAMLET

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Presentation : 27.02.2018

Supervisor : **Dr. Archana Jaiswal**

ABSTRACT : *The present article aims at focusing on the status of women in the Elizabethan Era particularly in Elizabethan Era . It is not surprising that women in that era did not occupy remarkable place in the society.They were mariginalised and were bereft of their fundamental rights ; right to expression; right to educationetc .Women were considered to be no more than commodities.*

Key word : *Shakespearean, Renaissance, bioethics, racism, multiculturism*

INTRODUCTION

Elizabethan Era (1558-1603) 0r The Shakespearen Era (1560-1640), a great period in English literature is remarkable for the expansion of both mental and geographical horizons. The Nation was attaining a state of stability in politics. Under the rule of Maiden Queen, the pulse of the nation beat high; all human energy was cultivated to the utmost; enterprising travelers penetrated to the different places, bringing back accounts of the wonderful things they had seen and heard; and the comparative isolation in which Protestant England stood apart from Catholic nations of the continent, made her proudly defiant and confident in her own resources... Now, the broad intellectual flood known as the Renaissance meaning 'Re-birth' ran deep and strong through England; renewing the desire for knowledge, changing religious ideals, discovery of new world's, both geographical and literary and the enormous quickening of heart and mind was all dispersed. England became a fertile soul enriched by a thick layer of translation. Knowledge was pouring from the East and new words were opening in the West. Pamphlets and treaties were freely written; much abuse, often of a personal and scurrilous characters was indulged in, and literally questions became almost of national importance.

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CHARACTERISTICS OF ELIZABETHAN AGE:

REVIVAL OF INTEREST IN GREEK LITERATURE:

The ardent revival in the study of Greek Literature brought a dazzling light into many dark places of interest. The new classical influences were of great benefit. They tempered and polished the earlier rudeness of English Literature. The other one is the output, the age has rich literary productions of all kinds. Writers indulged in scurrilous abuses which were of personal character. But on the whole, the output of the literature was very wide, and after the lean years of the preceding epoch, the prodigal issue of the Elizabethan age is almost embarrassing. The next is Romanticism of the age, which is wonderful and beautiful. All desires were abundantly fed during the Elizabethan Age and can be called a romantic epoch. The spirit of Independence is also one of the characteristics of this age. In spite of borrowings from abroad, the authors of the age showed a spirit of Independence and creativity. Shakespeare borrowed freely, but by the alembic of his creative imaginations, he transformed the dross into gold. The last one is the development of the drama. Drama made a swift and wonderful leap into maturity. It reached splendid perfection in the hands of Shakespeare and Ben Jonson.

Extensive Authors of the Era : The love of gorgeous apparel and of splendid pageant which then prevailed is an apt symbol of the unpruned luxuriance. The wealth of high-colored phrases and extravagant expressions prevailed on literature. Men lived intensely, thought intensely, and wrote intensely. Elizabethan Age conceived its first and greatest romantic epoch. It gave rise to two troupes of actors - **Lord Chamberlain's (to which Shakespeare belongs) and Lord Admiral's.** In this **Sidney, Hooker, Spenser and Shakespeare**, and a crowd of writers, inferior, indeed, to these great names but possessed of so much fertility, vehement energy and native talent that in any other era they would have won for themselves a foremost place. To confabulate some of the major authors, (apart from Shakespeare) with their most popular works would be: The University Wits, a phrase used to name a group of late 16th-century English playwrights and pamphleteers who were **educated at the universities (Oxford or Cambridge)** and who became popular secular writers. Prominent members of this group were **Christopher Marlowe, Robert Greene, and Thomas Nashe from Cambridge, and John Lyly, Thomas Lodge, and George Peele from Oxford.** Thomas Kyd is also sometimes included in the group, though he is not believed to have studied at university. This diverse and talented loose association of London writers and dramatists set the stage for the theatrical Renaissance of Elizabethan England. They are identified as among the earliest professional writers in English, and prepared the way for the writings of William Shakespeare, who was born just two months after Christopher Marlowe.

G. K. Hunter argues that the new "Humanistic education" of the age allowed them to create a "complex commercial drama, drawing on the nationalisation of religious sentiment" in such a way that it spoke to an audience "caught in the contradictions and liberations history had imposed". While Marlowe is the most famous dramatist among them, Robert Greene and Thomas Nashe were better known for their controversial, risqué and argumentative pamphlets, creating an early form of journalism. Greene has been called the "first notorious professional writer".Christopher Marlowe, an English playwright, poet and translator of the

Elizabethan era. Marlowe was a renowned tragedian of his day. He greatly influenced William Shakespeare.Of the dramas attributed to Marlowe, Dido, Queen of Carthage is believed to have been his first. Marlowe's first play performed on the regular stage in London, in 1587, was 'Tamburlaine the Great', about the conqueror Timur (Tamerlane), who rises from shepherd to warlord. It is among the first English plays in blank verse. Marlowe has been credited in the New Oxford Shakespeare series as co-author of the three Henry VI plays.In 1917, in the Dictionary of National Biography, Sir Sidney Lee wrote that Marlowe was killed in a drunken fight, and this is still often stated as fact. Spender, anEnglish playwright, poet, actor, and literary critic, whose artistry exerted a lasting impact upon English poetry and stage comedy. He popularised the comedy of humours. He is best known for the satirical plays Every Man in His Humour(1598), Volpone, or The Fox (c. 1606), The Alchemist (1610) and Bartholomew Fair (1614) and for his lyric and epigrammatic poetry; he is generally regarded as the second most important English playwright during the reign of James VI and I after William Shakespeare Drayton was the first to bring the term 'Ode' ,for a lyrical poem.His first book was 'the Harmony of the Church' (1590). John Donne He is the pre-eminent representative of the Metaphysical Poets.' Anatomy of the World' (1611) is his remarkable work Jonson popularised Comedy of Humours. 'Every Man in His Humor' (1598) is his most famous work. Hooker was an English priest in the Church of England and an influential theologian.He was one of the most important English theologians of the sixteenth century. Of The Lawns Of Ecclesiastical Politie (1594) is his notable work. Bacon, an English philosopher, statesman, scientist, author and pioneer of the scientific method,Bacon has been called ' the creator of empiricism'.Bacon planned his "Great Instauration" in imitation of the Divine Work - the Work of the Six Days of Creation, as defined in the Bible. Burtonwood was an English scholar at Oxford University, best known for the classic The Anatomy of Melancholy. He was also the incumbent of St Thomas the Martyr, Oxford, and of Seagrave in Leicestershire.

SEMBLANCE OF WOMEN IN THE ERA :

Education : Women from wealthy families were allowed the privilege to education. They were taught Latin, Italian, Greek, music and dancing. Queen Elizabeth herself was tutored at home by Roger Ascham. They were always trained to look good and heard good. The common ladies were governed domestic matters and prepare for marriage. None of them were however allowed to go for higher education in the universities.

Marriage : Women belong to their fathers or the brothers and then to their husbands. They were given to marriage at an early age of 12, with dowry, of course, as a major portion in 1604, a law was passed that allowed men and women to marry without their parents consent. Still, such marriages were advised. There was no divorce process, she becomes separated, she was forced to obtain annulment. Single women, sometimes spend their life in convent or Nunnery but soon this option disappeared and they were looked upon as Witches. Shakespeare mentioned, " that married is an owner she does not dream of in Romeo and Juliet".

Laws of inheritance : Inheritance laws deducted that property be passed to the eldest son no matter how many daughters of family had, it was the son the inherited, regardless of age; a family could have a 25 year old daughter has an infant son, but it would be the son who inherited the property. However in the case of the total absence of male heirs, it would be the eldest daughter who would the inherit (though she could never, under any circumstances inherit a title) according to these rules daughters were eligibility inherit around 20% to 25% of the time. Despite, in the 17th century, only about 5% of daughters of the elite were inheriting.

Women Waging Law in Elizabethan England Tim Stretton states- The disparity in figures is accounted for because, while women could inherit in some cases, their inheritance was frowned upon and avoided at all costs. When we talk of profession, think it was patriarchal . Women were looked upon as weaker sex not just physically but emotionally and intellectual as well they were not allowed to go for any profession of their choice as they were deprived of Higher Educations. Nobel ladies were given all the manners to appear beautiful and act delicate. Poor women for only allowed to do the domestic work and nothing else. The religious context was also there, two major religion in England were the Catholic and Protestant. Women were chastised for remaining unwed. The girls were beaten in submission if she ever refused to obey as disobedience was seen as a crime against the religion. John Knox apparently mentioned, "women in her greatest perfection was made to serve and obey men"

WilliamShakespeare(1564-1616)English Poet and playwright William Shakespeare was born and raised in Stratford, Avon. He was the son of John Shakespeare and Marry Arden. At the age of 18,he married to a 26 old woman Anne Hathaway with whom he had three children. Shakespeare literary career started around 1592 but he had already written some of his masterpiece. He became the leading member of Lord Chamberlain's men, an acting company in London. Shakespeare produced most of his known works during 1589 to 1613.Shakespeare literary careeris divided in four period. In First Literary Period (1585-1594), Shakespeare has written some sonnets and seven plays like 'Comedy of Errors', 'Taming of the Shrew'etc... In Second Literary Period (1594-1600),he has written some history plays and joyous comedies such as:' As You Like It', Henry IV (part I and II) and many more. In Third Literary Period (1601-1608),Shakespeare wrote some of his masterpiece like'Othello', 'Hamlet', 'KingLear''Measure for Measure' etc.... And in last, The Fourth Literary Period (1608-1613), he wrote three plays. Shakespeare as a dramatist changed the whole meaning of drama. He gave a new shape to drama and the stage. Most of his dramas were written in Elizabethan Age and some were written in Jacobean age. He wrote Tragedie, Comedies ,History Plays, Roman Plays, Problem Plays etc. As a dramatist Shakespeare accepted the challenge of women's behaviour and their role in the dramas. Shakespeare heroine encompass a wide range of characterisation and types, from the uncompromising frankness of 'Cordelia', the quick wit of 'Beatrice'and 'Kate' and the intelligence of 'Portia'. Shakespeare's women characters testify to his genius. They are drawn with neither anger nor condescension. In personality they vary. Some are warm, delightful, friendly; others cold, aloof, and scornful. Some speak with confidence; others with diffidence .Shakespeare's heroines encompass a wide range of characterizations and types, from the uncompromising frankness of Cordelia, the quick wit of Beatrice and of Kate, and the intelligence of Portia, to the ruthlessness of Lady Macbeth, the opportunistic unkindness of Regan and Goneril, and the manipulative power of Volume.

WORKS OF WILLIAM SHAKESPEARE

Works Written		Published
TheComedyofErrors	1589-1594	1623
The two Gentlemen of Verona	1589-1593	1623
Venus and Adonis	1593	1593
RichardIII	1593	1597
Romeo and Juliet	1594	1597
Love's Labours Lost	1594	1598
A Midsummer Night's Dream	1595	1600
The Merchant of Venice	1596	1600
HenryIV,Part1	1596	1598
HenryIV,Part2	1597	1600
Much Ado About Nothing	1598	1600
Hamlet	1600	1603
Othello	1602-1603	1622
King Lear	1605	1608
Macbeth	1606	1623

Shakespeare has also written many poems including 154 sonnets and 2 long poems,"Venus and Adonis" was published in1593 and" The Rape of Lucre century" in1594. When we talk about universality in a particular work or writer, then it is universal in the sense that different cultures and successive generations have found in that work or that writer and decide to interpret them again and again. Shakespeare's tales have travelled well through 'the space and time: across cultures, across generation, across mediums , even without the magic of his language'. The plays of Shakespeare and their countless transmogrification into dramatic novels bear witness to that Universal appeal. 'A Russian Hamlet', 'Japanese Macbeth', 'An Egyptian Lear', 'A French Romeo'. Shakespeare is a Universal writer in the history because of the greatness of his work and his ability that take us to his time and space .From all cultures we go back to him for the projection of dreams, for the unexpected echo of our inhibition, for the express of fears. Shakespeare explain and explore the 'Jealousy in Othello ,Pride in King Lear, Ambition in Macbeth, Indecision in Hamlet' , which became universal problem. He also shows the different problems and characters of women through his drama. "Ben Jonson" complimented Shakespeare in a poem, "he was not often age but for all time" which later on proved by the works of Shakespeare . There are many examples in which Shakespeare has a concern to women in his plays like; In 'Merchant of Venice', he showed a strong intelligent women Portia who disguised as a man. Although his contemporary issue was not only gender but also racism and war. Shakespeare is universal at a time as well he showed the issue of Surrogate Motherhood, war crimes, human rights, multiculturalism, bioethics, etc in his dramas which actually is the issue of 21st century. 'Gender Equality' is certainly an issue of times but yet we find the strong woman 'Portia in Merchant of Venice', who disguised as a man. As for 'Interracial Marriage', it was only in 1960s when the Civil rights war attend for blacks in the US and to this date only 6% of blacks married white in the US. Inter-racial marriage and racism is clearly showed in "Othello" where, 'Othello who is a black man married to a fair White Lady Desdemona'. R.S White's description states: 'A dramatist's job is to give voices to opposing moral view points[...]. 'Shakespeare, Kyd and Dekker all challenge society, whilst allowing their audiences to witness the objectification of women. Women in their plays don't simply appear as helpless victims. They show courage, personality and are undoubtedly head strong. The women are restrained by society but fight for their desires. But unfortunately because of the patriarchal society women always end up as 'helpless victims'. Women were exploited in society and were always inferior to men except for Queen Elizabeth of course.The dramatist , hence created female characters to depict that women too were powerful. Shakespeare created many complex and engaging female roles for his young male actors to perform. Parent-child relationships feature heavily, and a significant number of these involve fathers and daughters. To affirm this fact we can take the example of one of his famous play 'Romeo and Juliet'. It may be a love story, but a daughter/ father relationship lies at the heart of the play's events. Juliet is not yet 14 when the young noble man Paris approaches her father Capulet for permission to woo his daughter. In Shakespeare's time, daughters of respectable families ,like Juliet, could expect their fathers to have a significant involvement in choosing their future husband. This reflected the subordinate position of women in a patriarchal society, and particularly the traditional view that daughters were a commodity and could be used in marriage to forge useful alliances. Paternal involvement in husband selection provided fertile material for Shakespeare in many of his plays, and he makes considerable dramatic use of the resulting family clashes. Shakespeare always wanted to explore the feminine gender, their roles in society as well as the cultural response towards them, without simple portraying them as helpless victims. This is instantly demonstrated in the opening scene of 'A Mid summer Night's Dream' where Shakespeare portrays Hermia as a developed female character, rather than a pathetic possession.He presents ahead strong woman who is restrained by society. Titan is also illustrates power and the strength of female relationships (despite being a fairy). In 'Titus Andronicus' Shakespeare uses powerful imagery of Lavinia's body as a'changing piece'to depict how women enabled men to have a sense of power. Lavinia illustrates the virtue of women by being silent. Shakespeare perhaps use shocking imagery of Lavinia to educate women into acting virtuous as a warning that society will change them into 'helpless victims'. Thomas Kyd's representation of Bel-Imperiain 'The Spanish Tragedy' is similar to Shakespeare's depiction of Lavinia and Tamora. Bel-imperia has the same qualities of Lavinia. She is chaste and is highly valued by men in society for this. There are many characters of Shakespeare who can be considered as the representative of women in

Elizabethan era, especially in Othello and Hamlet. Some of them are Ophelia, Desdemona and Gertrude. Ophelia is a difficult role to play because her character, like Gertrude's, is murky. Part of the difficulty is that Shakespeare wrote his female roles for men, and there were always limitations on them that restricted and defined the characterizations devised. In the case of an Ophelia, a very young and lovely woman, Shakespeare would have been writing for a boy. The extent to which a boy could grasp subtle nuances might have prevented the playwright from fleshing out the character more fully. We do know that Ophelia is torn between two contradictory poles. Her father and brother believe that Hamlet would use her, that he would take her virginity and throw it away because she could never be his wife. Her heart has convinced her that Hamlet loved her, though he swears he never did. To her father and brother, Ophelia is the eternal virgin, the vessel of morality whose purpose is to be a dutiful wife and steadfast mother. To Hamlet, she is a sexual object, a corrupt and deceitful lover. With no mother to guide her, she has no way of deciphering the contradictory expectations. Just like Hamlet, the medieval precept that the father's word is unquestionable governs Ophelia. But her Renaissance sense of romantic love also rules her. How can she be obedient to her father and true to her love? When she lies to Hamlet and tells him that Polonius is home when he is concealed in the room. Ophelia proves she cannot live in both worlds. She has chosen one, and her choice seals her fate. The dilemma also forces her into madness. She has no way to reconcile the contradictory selves her men demand that she be and still retain an equilibrium. Ophelia's desperation literally drives her crazy, and she has no means with which to heal herself. Desdemona is a lady of spirit and intelligence. For all the claims of military straightforwardness of some other characters, Desdemona is the most direct and honest speaker in the play. Her speeches are not as lengthy as those of the men, but with Desdemona, every word counts. For Desdemona, Othello is the hero of many exciting and dangerous adventures, who also has the appeal of the orphan child who needs love. Add to this the fact that he is now an honored and powerful man in her country, and what young noble woman would not find him attractive? As the Duke says, "I think this tale would win my daughter too". In Cyprus, in charge of her own household, Desdemona continues to fulfil her duties, receiving petitioners as the commander's wife and being hostess at official receptions. Her marriage has brought her position and happiness, so much so that she finds it unbearable to think that her husband has turned against her. This numbness lasts until she sees that he actually intends to kill her; then she puts up a brave and spirited defense, insisting on her innocence. In despair at losing his love, she still defends him from the consequences of his actions, but he is past seeing what is clear to her and to Shakespeare's audience: that she has committed herself wholly to loving him; without his love, she cannot live. Gertrude is a shadowy character with little substance on which to hang a characterization. We can examine her through what others say about her more than through what she says. That she is "th' imperial jointress" to the throne of Denmark indicates that she wields some power and suggests that Claudius' decision to marry her had political implications. Yet Hamlet Indicts all women by calling her fickle - "frailty, thy name is woman." We see through Hamlet the picture of a woman who one day lived obediently and in the shadow of one king to whom she was devoted. The next day she allies herself in love and politics with the polar opposite of the man she formerly called husband. The most haunting questions about Gertrude's character revolve around whether she knows that Claudius is a criminal. Is she merely a dependent woman who needs to live through her man? Is she a conniving temptress who used her power to conspire with Claudius to kill King Hamlet and usurp Prince Hamlet's ascendancy? No textual references are conclusive. The ghost of King Hamlet calls her his "most seeming virtuous queen." He entreats Hamlet to "Leave her to Heaven / And to those thorns that in her bosom lodge / To prick and sting her." These words could imply that she has reason to be guilty, that she is not blameless. Later, the ghost implores Hamlet to comfort her. "But look, amazement on thy mother sits. / Oh step between her and her fighting soul." Again, he waxes protective of her but implies that she has some reason to be spiritually conflicted. When Rosencrantz and Guildenstern arrive at Elsinore, she tells them that they have been sent for because of the way Hamlet "hath talked of you," and she promises them compensation fit for " a king's remembrance." She exhibits apparent sincerity in her concern for Hamlet, and yet, even after Hamlet has told her what he knows about Claudius, even after he has shared his fears of the trip to England, even after Hamlet has clearly proven that something is rotten in the state of Denmark, she never opposes Claudius to protect Hamlet. Unless, as some critics believe, she drinks the poisoned wine as an act of maternal protectiveness. Does she know the wine is poisoned? When "the Queen carouses to thy fortune, Hamlet" is she deliberately drinking to prevent Hamlet's death? If Gertrude has overheard Claudius and Laertes plotting, she would know all. If she is in Claudius' confidence, she would be complicit with all his conspiracies. Though Claudius professes love and admiration for Gertrude, he never confides to anyone the extent of their relationship. Gertrude describes her love for Hamlet when she asks him not to return to Wittenberg. When she shares with Ophelia her hope that the young woman would have married her Hamlet, she divulges her wish for his happiness. However, she never declares any kind of emotion for Claudius, either positive or negative. Ultimately, Gertrude's character remains malleable. In the hands of an astute actor and a clever director, she can come across as either Claudius' co-conspirator or Hamlet's defender. Either interpretation works, if built substantially.

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Hindi

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प्रेमचंद का साहित्य चिंतन : एक सर्वेक्षण

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परिचय

आधुनिक कहानीकारों की तरह मुंशी प्रेमचंद की कहानियाँ विदेशीपन से परिचालित नहीं हुई, अपितु विशुद्ध भारतीय संस्कृति की व्यापकता को सहेजे हुए है, तभी तो आचार्य हजारी प्रसाद द्विवेदी यह कहने से स्वयं को रोक नहीं पाए–

"प्रेमचंद के कथा साहित्य अध्ययन से उत्तर भारत की समस्त जनता के आचार-विचार, भाषा-भाव, आशा-आकांक्षा, दु:ख-दर्द, रीति-रिवाजों को जान सकते हैं। झोपड़ियों से महलों तक, खोमचेवाले से बैंको तक, गाँव से शहर की रंगीनियों तक, अमीरों से कृषकों तक, आपके इतने कौशलपूर्वक व प्रामाणिक भाव से अन्य कोई नहीं ले जा सकता। इतनी विविधता अन्यत्र नहीं मिलेगी।"

विश्लेषण

प्रेमचंद साहित्य को केवल मनोरंजन और विलासिता से जोड़कर नहीं देखते थे, बल्कि वह उन्हीं साहित्य को खरा मानने के पक्षधर थे, जिसमें उच्च-चिंतन, स्वाधीनता का भाव तथा जिनमें जीवन का सच्चाई को प्रकट किया गया हो।

वह उन्हें ही सच्चा साहित्यकार मानते हैं, जिनमें मानव के अंतर्मन में सौंदर्य प्रेम को जगाने की शक्ति होती है। उनका मानना है कि एक सच्चे साहित्यकार का कर्त्तव्य यह है कि वह दलित, पीड़ित और वंचित समूह के विषय में पूर्ण चिंतन करें और दु:खों को दूर करने का प्रयत्न करें और साथ ही उन्हें आगे बढ़ने के लिए भी प्रोत्साहित करें। उनका मानना है कि किसी भी लेखक द्वारा बोले गये एक वाक्य, एक शब्द, एक संकेत इस तरह पाठक हृदय में बैठ जाना चाहिए कि वह पाठक के अंत:करण को प्रकाशित कर सके। प्रेमचंद के विचार में एक साहित्यकार की सृष्टि वस्तुत: उसके साहित्य द्वारा ही होती है।

वह यह भी मानते हैं कि जिस साहित्यकार को धन तथा वैभव प्यारा होता है, उनका साहित्य के पवित्र मंदिर में कोई स्थान नहीं होता है। जो साहित्यकार सच्चे दिल से समाज की सेवा करता है, उन्हें स्वाभाविक रूप से मान, प्रतिष्ठा व समृद्धि प्राप्त होती है।

मुंशी प्रेमचंद हिन्दी तथा उर्दू के महानतम लेखकों में से एक हैं। उनके नाम से ही हमें उनकी असाधारण प्रतिभा का ज्ञान हो जाता है। उन्होंने हिन्दी साहित्य के अनेक विधाओं

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में अपनी लेखनी को हथियार बनाकर अपनी अद्वितीय प्रतिभा का परिचय संपूर्ण देश–वासियों के समक्ष प्रस्तुत किया है। जैसे–उपन्यास, कहानी, निबंध, नाटक, संस्मरण आदि।

प्रेमचंद उपन्यास को मानव–चरित्र का चित्र मानते हैं। मानव चरित्र पर प्रकाश डालना और उनके रहस्यों को खोलना ही उनके उपन्यासों का मूल उद्देश्य होता था। हिन्दी साहित्य में सामाजिक उपन्यासों का प्रारंभ प्रेमचंद से ही होता हे। उन्होंने अपने उपन्यासों में करुणा, व्यंग्य का प्रसार, पात्रों का सामाजिक रूप, समाज का आधार, परिवार, मानवतावादी दृष्टिकोण, सामाजिकता आदि को अधिक महत्व दिया है। इनके उपन्यासों को हम इस प्रकार वर्गीकृत कर सकते हैं। जैसे–

- 'सेवासदन', 'वरदान', 'निर्मला', 'प्रतिज्ञा', 'गबन', उनकी सामाजिक उपन्यास के उदाहरण हैं।
- 'प्रेमाश्रम', 'रंगभूमि', 'कर्मभूमि' उनकी राष्ट्रीय उपन्यास के उदाहरण हैं।
- 'कायाकल्प' तथा 'गोदान' उनकी राजनीतिक उपन्यास हैं।

मुंशी प्रेमचंद ने केवल हिन्दी उपन्यास साहित्य के बल्कि संपूर्ण भारतीय साहित्य के 'मील के पत्थर' के समान हैं। उन्होंने अपनी संपूर्ण उपन्यास किसी–न–किसी प्रकार की समस्याओं को वर्णित किया है तथा उन समस्याओं के समाधानों को बताकर संपूर्ण समाज को एक दिशा प्रदान करके यह सिद्ध कर दिया है कि समाज में चेतना लाकर एक नए समाज का निर्माण किया जा सकता है। इनकी प्रतिभा से अवगत होकर बंगाल के विख्यात उपन्यासकार शरतचंद्र चट्टोपाध्याय ने मुंशी प्रेमचंद को उपन्यास सम्राट कहकर संबोधित किया।

ऐतिहासिक दृष्टि से प्रेमचंद की संपूर्ण कहानी कला को तीन कालों में विभक्त किया जा सकता है–

प्रथमत: आरंभ में 'सप्तसरोज' तथा 'प्रेम–पचीसी' में संग्रहित कहानियाँ जैसे–'पंच परमेश्वर', 'नमक का दारोगा', 'मर्यादा की बेटी', 'सौत' आदि कहानियाँ लिखी गयी, जो कथ्य की दृष्टि से इतिवृत्तात्मक, आदर्शवादी व परिचयात्मक है। इन कहानियों की संवेदनाएँ किसी एक भाव बिन्दु पर केन्द्रित नहीं होती थी, बल्कि उनके इकाईयों, चरित्रों, घटनाओं तथा रस का जाल बुनी हुई चलती थी।

दूसरा काल था विकास काल, जिसमें कहानियाँ आदर्शोंन्मुखी यथार्थवादी कथ्य की दृष्टि से सुगठित, संक्षिप्त व कलात्मक रूप से अधिक निखरी हुई थी। 'प्रेम–प्रसून', 'प्रेम–द्वादशी' में संकलित इस दौर की कहानियों में शाप, हार की जीत, बूढ़ी काकी में पात्रों का अन्त:संघर्ष सजीवता व मानवीय तत्वों को उभारता है।

तृतीय काल में पात्रों के मनोवैज्ञानिक विश्लेषण व जीवन के यथार्थ चित्रण को सहेजे उत्कर्ष काल की कहानियाँ कलात्मक दृष्टि से उत्कर्ष हैं। इसमें उन्होंने कल्पना व व्याख्या के अंश को भी स्थान दिया है। घटनाओं की अपेक्षा पात्र चरित्र व चित्रण उनके द्वारा प्रतिपादित जीवन दर्शन को अधिक महत्व दिया गया है। 'सद्‌गति', 'नशा', 'पूस की रात', 'ईदगाह', ठाकुर का 'कुआँ' इस काल की उल्लेखनीय रचनाएँ हैं, जो उनकी विकसित कहानी कला का चरम निदर्शन करती है।

'कुछ विचार' नामक निबंध उनके विचारोत्तेजक भाषण का एक लेख संग्रह है। जिसमें कई विषयों को लेकर उठी तत्कालिक समस्याओं पर विचारक प्रेमचंद ने अपनी जीवनानुभवों के प्रकाश में उस विचार को प्रकट किया है। इस निबंध में उन्होंने अपनी भाषा संबंधी विचार को भी प्रस्तुत किया है। उनका मानना था कि ऐसी भाषा को राष्ट्रभाषा मानना चाहिए, जो बड़े भाग में बोली व समझी जाती हो। वह भारतवर्ष की राष्ट्र भाषा 'हिन्दुस्तानी' को मानते थे, क्योंकि इसमें हिन्दी तथा उर्दू के सम्मिलित रूप को स्वीकार किया गया था।

अंतत: हम इस निष्कर्ष पर पहुँचते हैं कि मुंशी प्रेमचंद का लेखन हिन्दी साहित्य की एक ऐसी विरासत है, जिसके बिना हिन्दी के विकास का अध्ययन ही अधूरा होगा। उनकी भाषा शैली जन–साधारण की भाषा थी, जो सीधे जनमानस के मन पर प्रभाव डालती थी। उनकी संपूर्ण साहित्य संबंधी दृष्टि का परिणाम यह है कि उनकी समस्त कृतियाँ सत्यम्, शिवम्, सुंदरम् तीनों ही कसौटी पर खरी उतरती हैं।

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THEORIES OF TRUTH : IMPLICATION OF EPISTEMOLOGICAL THEORIES IN SOCIO-POLITICAL DOMAIN

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ABSTRACT : *Truth is one of the central subjects in philosophy. Truth has been a topic of discussion in its own right for thousands of years. The present study concentrates on the main themes in the study of truth in the contemporary philosophical literature. It attempts to survey the key problems and theories of current interest, and show how they relate to one-another. This study is focused on: What do we mean by calling something true? Most obviously we mean corresponding to "the facts" - whatever those facts might be, or how we arrive at them. Here, it is also established that the implication of these theories can be shown in our public domain also.*

Key word **:** *Truth, Philosophy, Facts, Public Domain*

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INTRODUCTION

Truth is one of the central subjects in philosophy. Truth has been a topic of discussion in its own right for thousands of years. Moreover, a huge variety of issues in philosophy relate to truth, either by relying on theses about truth, or implying theses about truth.

It would be impossible to survey all there is to say about truth in any coherent way. Instead, this study will concentrate on the main themes in the study of truth in the contemporary philosophical literature. But, we may attempt to survey the key problems and theories of current interest, and show how they relate to one-another. A number of other entries investigate many of these topics in greater depth. Generally, discussion of the principal arguments is left to them. The goal of this study is only to provide an overview of the current Theories. Many of the references mentioned in this study can be found in the anthologies edited by Blackburn and Simmons (1999) and Lynch (2001b). There are also a number of book-length surveys of the topics discussed here, including

Burgess and Burgess (2011), Kirkham (1992), and Künne (2003).

The problem of truth is in a way easy to state : What truths are, and what (if anything) makes them true. But this simple statement masks a great deal of controversy. Whether there is a metaphysical problem of truth at all, and if there is, what kind of theory might address it, are all standing issues in the theory of truth. We will see a number of distinct ways of answering these questions.

Much of the contemporary literature on truth takes as its starting point some ideas which were prominent in the early part of the 20th century. There were a number of views of truth under discussion at that time, the most significant for the contemporary literature being the correspondence, coherence, and pragmatist theories of truth.

These theories all attempt to directly answer the nature question: what is the nature of truth? They take this question at face value: there are truths, and the question to be answered concerns their nature. In answering this question, each theory makes the notion of truth part of a more thoroughgoing metaphysics or epistemology. Explaining the nature of truth becomes an application of some metaphysical system, and truth inherits significant metaphysical presuppositions along the way.

The goal of this section is to characterize the ideas of the correspondence, coherence and pragmatist theories which animate the contemporary debate. In some cases, the received forms of these theories depart from the views that were actually defended in the early 20th century. We thus dub them the 'neo-classical theories'. Where appropriate, we pause to indicate how the neo-classical theories emerge from their 'classical' roots in the early 20th century.

THE CORRESPONDENCE THEORY

Perhaps the most important of the neo-classical theories for the contemporary literature is the correspondence theory. Ideas that sound strikingly like a correspondence theory are no doubt very old. They might well be found in Aristotle or Aquinas. When we turn to the late 19th and early 20th centuries where we pick up the story of the neo-classical theories of truth, it is clear that ideas about correspondence were central to the discussions of the time. In spite of their importance, however, it is strikingly difficult to find an accurate citation in the early 20th century for the received neo-classical view. Furthermore, the way the correspondence theory actually emerged will provide some valuable reference points for the contemporary debate. For these reasons, we dwell on the origins of the correspondence theory in the late 19th and early 20th centuries at greater length than those of the other neo-classical views, before turning to its contemporary neo-classical form.

THE ORIGINS OF THE CORRESPONDENCE THEORY

The basic idea of the correspondence theory is that what we believe or say is true if it corresponds to the way things actually are - to the facts. This idea can be seen in various forms throughout the history of philosophy. Its modern history starts with the beginnings of analytic philosophy at the turn of the 20th century, particularly in the work of G. E. Moore and Bertrand Russell.

Let us pick up the thread of this story in the years between 1898 and about 1910. These years are marked by Moore and Russell's rejection of idealism. Yet at this point, they do not hold a correspondence theory of truth. Indeed Moore (1899) sees the correspondence theory as a source of idealism, and rejects it. Russell follows Moore in this regard. (For discussion of Moore's early critique of idealism, where he rejects the correspondence theory of truth, see Baldwin (1991). Hylton (1990) provides an extensive discussion of Russell in the context of British idealism.)

In this period, Moore and Russell hold a version of the identity theory of truth. They say comparatively little about it, but it is stated briefly in Moore (1899; 1902) and Russell (1904). According to the identity theory, a true proposition is identical to a fact. Specifically, in Moore and Russell's hands, the theory begins with propositions, understood as the objects of beliefs and other propositional attitudes. Propositions are what are believed, and give the contents of beliefs. They are also, according to this theory, the primary bearers of truth. When a proposition is true, it is identical to a fact, and a belief in that proposition is correct. (Related ideas about the identity theory and idealism are discussed by McDowell,1994 and further developed by Hornsby, 2001).

The identity theory Moore and Russell espoused takes truth to be a property of propositions. Furthermore, taking up an idea familiar to readers of Moore, the property of truth is a simple unanalyzable property. Facts are understood as simply those propositions which are true. There are true propositions and false ones, and facts just are true propositions. There is thus no "difference between truth and the reality to which it is supposed to correspond" (Moore, 1902, p. 21). (For further discussion of the identity theory of truth, see Baldwin (1991), Candlish (1999), Cartwright (1987), Dodd (2000). Moore and Russell came to reject the identity theory of truth in favor of a correspondence theory, sometime around 1910 (as we see in Moore, 1953, which reports lectures he gave in 1910-1911, and Russell, 1910b). They do so because they came to reject the existence of propositions. Why? Among reasons, they came to doubt that there could be any such things as false propositions, and then concluded that there are no such things as propositions at all.

Why did Moore and Russell find false propositions problematic? A full answer to this question is a point of scholarship that would take us too far afield. (Moore himself lamented that he could not "put the objection in a clear and convincing way" (1953, p. 263), but see Cartwright (1987) and David (2001) for careful and clear exploration of the arguments.) But very roughly, the identification of facts with true propositions left them unable to see what a false proposition could be other than something which is just like a fact, though false. If such things existed, we would have fact-like things in the world, which Moore and Russell now see as enough to make false propositions count as true. Hence, they cannot exist, and so there are no false propositions. As Russell (1956, p. 223) later says, propositions seem to be at best "curious shadowy things" in addition to facts.

As Cartwright (1987) reminds us, it is useful to think of this argument in the context of Russell's slightly earlier views about propositions. As we see clearly in Russell (1903), for instance, he takes propositions to have constituents. But they are not mere collections of constituents, but a 'unity' which brings the constituents together. (We thus confront the 'problem of the unity of the proposition'.) But what, we might ask, would be the 'unity' of a proposition that Samuel Ramey sings - with constituents Ramey and singing - except Ramey bearing the property of singing? If that is what the unity consists in, then we seem to have nothing other than the fact that Ramey sings. But then we could not have genuine false propositions without having false facts.

As Cartwright also reminds us, there is some reason to doubt the cogency of this sort of argument. But let us put the assessment of the arguments aside, and continue the story. From the rejection of propositions a correspondence theory emerges. The primary bearers of truth are no longer propositions, but beliefs themselves. In a slogan:

A belief is true if and only if it corresponds to a fact.

Views like this are held by Moore (1953) and Russell (1910b; 1912). Of course, to understand such a theory, we need to understand the crucial relation of correspondence, as well as the notion of a fact to which a belief corresponds. We now turn to these questions. In doing so, we will leave the history, and present a somewhat more modern reconstruction of a correspondence theory.

THE COHERENCE THEORY

Though initially the correspondence theory was seen by its developers as a competitor to the identity theory of truth, it was also understood as opposed to the coherence theory of truth.

We will be much briefer with the historical origins of the coherence theory than we were with the correspondence theory. Like the correspondence theory, versions of the coherence theory can be seen throughout the history of philosophy. (See, for instance, Walker (1989) for a discussion of its early modern lineage.) Like the correspondence theory, it was important in the early 20th century British origins of analytic philosophy. Particularly, the coherence theory of truth is associated with the British idealists to whom Moore and Russell were reacting.

Many idealists at that time did indeed hold coherence theories. Let us take as an example Joachim (1906). (This is the theory that Russell (1910a) attacks.) Joachim says that:

Truth in its essential nature is that systematic coherence which is the character of a significant whole (p. 76).

We will not attempt a full exposition of Joachim's view, which would take us well beyond the discussion of truth into the details of British idealism. But a few remarks about his theory will help to give substance to the quoted passage.

Perhaps most importantly, Joachim talks of 'truth' in the singular. This is not merely a turn of phrase, but a reflection of his monistic idealism. Joachim insists that what is true is the "whole complete truth" (p. 90). Individual judgments or beliefs are certainly not the whole complete truth. Such judgments are, according to Joachim, only true to a degree. One aspect of this doctrine is a kind of holism about content, which holds that any individual belief or judgment gets its content only in virtue of being part of a system of judgments. But even these systems are only true to a degree, measuring the extent to which they express the content of the single 'whole complete truth'. Any real judgment we might make will only be partially true.

To flesh out Joachim's theory, we would have to explain what a significant whole is. We will not attempt that, as it leads us to some of the more formidable aspects of his view, e.g., that it is a "process of self-fulfillment" (p. 77). But it is clear that Joachim takes 'systematic coherence' to be stronger than consistency. In keeping with his holism about content, he rejects the idea that coherence is a relation between independently identified contents, and so finds it necessary to appeal to 'significant wholes'.

As with the correspondence theory, it will be useful to recast the coherence theory in a more modern form, which will abstract away from some of the difficult features of British idealism. As with the correspondence theory, it can be put in a slogan:

A belief is true if and only if it is part of a coherent system of beliefs.

To further the contrast with the neo-classical correspondence theory, we may add that a proposition is true if it is the content of a belief in the system, or entailed by a belief in the system. We may assume, with Joachim, that the condition of coherence will be stronger than consistency. With the idealists generally, we might suppose that features of the believing subject will come into play.

PRAGMATIST THEORIES

A different perspective on truth was offered by the American pragmatists. As with the neo-classical correspondence and coherence theories, the pragmatist theories go with some typical slogans. For example, Peirce is usually understood as holding the view that:

Truth is the end of inquiry

Both Peirce and James are associated with the slogan that:

TRUTH IS SATISFACTORY TO BELIEVE

James (e.g., 1907) understands this principle as telling us what practical value truth has. True beliefs are guaranteed not to conflict with subsequent experience. Likewise, Peirce's slogan tells us that true beliefs will remain settled at the end of prolonged inquiry. Peirce's slogan is perhaps most typically associated with pragmatist views of truth, so we might take it to be our canonical neo-classical theory. However, the contemporary literature does not seem to have firmly settled upon a received 'neo-classical' pragmatist theory.

In her reconstruction (upon which we have relied heavily), Haack (1976) notes that the pragmatists' views on truth also make room for the idea that truth involves a kind of correspondence, insofar as the scientific method of inquiry is answerable to some independent world. Peirce, for instance, does not reject a correspondence theory outright; rather, he complains that it provides merely a 'nominal' or 'transcendental' definition of truth (e.g Hartshorne et al., 1931-58, §5.553, §5.572), which is cut off from practical matters of experience, belief, and doubt (§5.416). (See Misak (2004) for an extended discussion.)

This marks an important difference between the pragmatist theories and the coherence theory we just considered. Even so, pragmatist theories also have an affinity with coherence theories, insofar as we expect the end of inquiry to be a coherent system of beliefs. As Haack also notes, James maintains an important verificationist idea: truth is what is verifiable.

CORRESPONDENCE REVISITED

The correspondence theory of truth expresses the very natural idea that truth is a content-to-world or word-to-world relation: what we say or think is true or false in virtue of the way the world turns out to be. We suggested that, against a background like the metaphysics of facts, it does so in a straightforward way. But the idea of correspondence is certainly not specific to this framework. Indeed, it is controversial whether a correspondence theory should rely on any particular metaphysics at all. The basic idea of correspondence, as Tarski (1944) and others have suggested, is captured in the slogan from Aristotle's Metaphysics ? 7.27, "to say of what is that it is, or of what is not that it is not, is true" (Ross, 1928). 'What is', it is natural enough to say, is a fact, but this natural turn of phrase may well not require a full-blown metaphysics of facts.

Yet without the metaphysics of facts, the notion of correspondence as discussed in section 1.1 loses substance. This has led to two distinct strands in contemporary thinking about the correspondence theory. One strand seeks to recast the correspondence theory in a way that does not rely on any particular ontology. Another seeks to find an appropriate ontology for correspondence, either in terms of facts or other entities. We will consider each in turn.

CORRESPONDENCE WITHOUT FACTS

Tarski himself sometimes suggested that his theory was a kind of correspondence theory of truth. Whether his own theory is a correspondence theory, and even whether it provides any substantial philosophical account of truth at all, is a matter of controversy. (One rather drastic negative assessment from Putnam (1985-86, p. 333) is that "As a philosophical account of truth, Tarski's theory fails as badly as it is possible for an account to fail.") But a number of philosophers (e.g., Davidson, 1969; Field, 1972) have seen Tarski's theory as providing at least the core of a correspondence theory of truth which dispenses with the metaphysics of facts.

Tarski's theory shows how truth for a sentence is determined by certain properties of its constituents; in particular, by properties of reference and satisfaction (as well as by the logical constants). As it is normally understood, reference is the preeminent word-to-world relation. Satisfaction is naturally understood as a word-to-world relation as well, which relates a predicate to the things in the world that bear it. The Tarskian recursive definition shows how truth is determined by reference and satisfaction, and so is in effect determined by the things in the world we refer to and the properties they bear. This, one might propose, is all the correspondence we need. It is not correspondence of sentences or propositions to facts; rather, it is correspondence of our expressions to objects and the properties they bear, and then ways of working out the truth of claims in terms of this.

REPRESENTATION AND CORRESPONDENCE

Much of the subsequent discussion of Field-style approaches to correspondence has focused on the role of representation in these views. Field's own (1972) discussion relies on a causal relation between terms and their referents, and a similar relation for satisfaction. These are instances of representation relations. According to representational views, meaningful items, like perhaps thoughts or sentences or their constituents, have their contents in virtue of standing in the right relation to the things they represent. On many views, including Field's, a name stands in such a relation to its bearer, and the relation is a causal one.

The project of developing a naturalist account of the representation relation has been an important one in the philosophy of mind and language. But, it has implications for the theory of truth. Representational views of content lead naturally to correspondence theories of truth. To make this vivid, suppose you hold that sentences or beliefs stand in a representation relation to some objects. It is natural to suppose that for true beliefs or sentences, those objects would be facts. We then have a correspondence theory, with the correspondence relation explicated as a representation relation: a truth bearer is true if it represents a fact.

As we have discussed, many contemporary views reject facts, but one can hold a representational view of content without them. One interpretation of Field's theory is just that. The relations of reference and satisfaction are representation relations, and truth for sentences is determined compositionally in terms of those representation relations, and the nature of the objects they represent. If we have such relations, we have the building blocks for a correspondence theory without facts. Field (1972) anticipated a naturalist reduction of the representation via a causal theory, but any view that accepts representation relations for truth bearers or their constituents can provide a similar theory of truth. (See Jackson (2006) and Lynch (2009) for further discussion.)

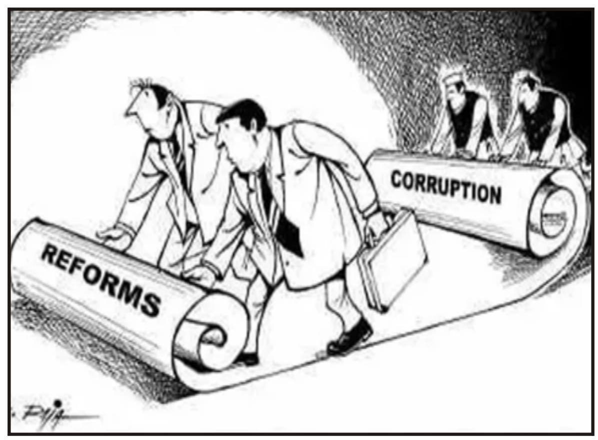
Representational views of content provide a natural way to approach the correspondence theory of truth, and likewise, anti-representational views provide a natural way to avoid the correspondence theory of truth.

Socio-Political Problems in India at A Glance

Inequality

Lack of Proper Education

Corruption



Gender Discrimination

Bad Politicians, Bad Police and Bad Judiciary

Government Job : A Divine Privilege

Nowhere in the world you will see such a mad blind rush aspiration to become a beaurocrat. We had unintentionally created a society in which being an beaurocrat gives you a legitimate license to use the obnoxious power of the post. This is self-evident in our society characterised by the amount of respect our society gives to a beaurocrat vis-a-vis an entrepreneur. Surely our county need more of visionary entrepreneurs rather than beaurocrats. Hence, true talent has to be nurtured in the right way and the right path so that it leads to job creation rather than job seeking.

CONCLUSION

One cannot miss the palpable social discontent in our society. The crisis in education, rising joblessness, slowdown in manufacturing and the agrarian crisis have morphed into concrete anger. After flirting with social coalitions and caste alliances all through the election campaign, we notice new caste-based solidarities struggled to make headway as religious polarization. All those who talks incessantly about vikas, did not run on the record of government; rather it is suddenly remembered vikas after the declaration of election results. This discontent, however, could not create a large enough momentum since the concept of 'Truth' is somewhere unapparent or fuzzy.

In the above noted socio-political debate, it may directly be asked: what is the nature of truth? We may take this question at face value: there are truths, and the question to be answered concerns their nature. In answering this question, each theory will make the notion of truth part of more significant presuppositions along the way. Here, we may also characterize the ideas of the correspondence, coherence and pragmatist theories which animate the contemporary debate.

And, finally we may establish- "The proposition itself is made to conform to a simple assertion of fact: expressions of belief, hope, wish, intention, etc. are ruled out of court. Such an approach may be remorselessly simplistic, reducing sentences to their simplest components, but the sentences then rest on assured foundations and can be built upon in log ically sound ways. Hence, it's implication can be shown in our public domain also".

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❑

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KITCHEN WASTE AS PLANT GROWTH ENHANCER

* **Shravya Shandilya,** * **Priyanka Kumari**

Presentation : 23.02.2018

Supervisor : **Dr. Pushpanjali Khare**

ABSTRACT : *Kitchen produces lots of waste materials which are non-consumable. Waste management guides us towards Recycle and Reuse concept. The kitchen is being used as home made manure and is used in pots with soil to grow indoor plants. Now a days Indoor plants are very commonly accepted part of the apartment culture in the society. Pothos plant (Epipremnum aureum), commonly known as money-plant is one of the most common indoor ornamental plant. It helps in controlling Indoor air pollution. Kitchen waste used as manure provides extra nutrition to the indoor plants in comparison to chemical fertilizers creating a healthy and green environment of our home.*

***Key word* :** *Pothos plant, Kitchen Waste.*

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INTRODUCTION

Kitchen produces lots of waste materials which are non-consumable. Waste management guide us towards Recycle and Reuse concept. The kitchen waste are bing used as home-made manure and are used in pots with soil to grow indoor plants. Indoor plants are very commonly accepted part of the apartment culture in the society.

Money Plant or Pothos plant (*Epipremnum aureum*) is one of the most common indor plant belonging to the Arum family (Araceae). It is also called Devil's vine, Taro vine, Silver vine, Malabarchestnut or Saba nut etc. It is an ornamental plant having capacity of removing air pollution. It grows as both trailer & climber. The money plant contributes in enhancing the wealth of the house as per ancient ethical belief. It is said that the greener your money plant threre comes more money in the house. It may be grown as both trailer and climber. It is a scramber shrub and it can climb by means of aerial roots or can be grow in pots as hanging plants or ver the trees and plants which hook over the tree branches. It is grown in water as well as in soil. It grows and flourishes well in shades also.

Due to over population there is a trend of vertical growth in the infra-structure of our society in the from of apartments and multi-storied buildings. Greenery is decreasing and pollution is increasing day by day. As we know that plants undergo various physiological processes such as photosynthesis, respiration and transpiration which can help in maintenance of pure air inside house, apartments or multi-storied buildings creating greenery and healthy environment of the surrounding.

The manure prepared from kitchen waste supposed to provide extra nutrition to the pot soil resulting in healthy green plant.

OBJECTIVE

The purpose of this project is to emphasize on the practical and beneficial application of kitchen waste as manure in the growth of indoor plant as well as comparing the growth of plant in chemical fertilizer.

MATERIALS AND METHODS

At first, kitchen waste materials were collected (such as used tea leaves, ppels of fruits and vegetables, egg shells) from our kitchen and dried in direct sunlight until it could get crushed.

- Dried waste material was crushed as powder
- It was then mixed with 400 gm soil with the help of water
- The soil and kitchen waste materials were mixed; water was sprikled in every 3 to 4 days as moisture is very important for preparing manure
- It was plunged in 3-4 days for proper aeration
- Then manure got prepared completely in 25-30 days
- Now in the prepared manure healthyPothos Plant twing of about 5 cm stem length with leaf 6 in number was planted
- Water was sprinkled inthe plant in every 4-5 days

PLANTATION OF POTHOS PLANT IN CHEMICAL FERTILIZER

- 5 gm Potash 5 gm Zinc and 10 gm DAP were taken and mixed with 400 gm soil in an earthen pot.
- Potassium chloride (commonly known as Muriate of potash or MOP) is the most common source used in agriculture, accounting for about 95% of all potash fertilizers used worldwide. MOP has ahigh nutrient concentration and is therefore relatively price competitive with other forms of potassium.
- Diammonium Phosphate (DAP) [(NH4)2 HPO4], is one of a series of water soluble ammonium phosphate salts that can be produced when ammonia reacts with phosphoric acid.
- A healthy twig of Pothos plant about 5 cem stem length, with 6 leaves was planted in the mixture of soil and chemical fertilizer.
- Water was sprinkled in the plant in every 4-5 days

PLANTATION OF POTHOS PLANT IN NORMAL GARDEN SOIL

400 gm soil in an earthen pot was taken and a healthy twig of pothos plant with stem leangth 5 cm and 6 leaves was planted in the pot. The moisture was maintained by sprinkling water in every 5-6 days. This pot was treated as control.

All the three pots with home-made manure, chemical fertilizer and without manure or any fertilizer were kept in shade and were taken proper care. Growth of Pothos plant was monitored and observed.

Later the soil samples from each pots were sent to sil test laboratory (Mrida Raasayan Kendra, Krishi Vibhag, Govt. of Bihar) for further verification of physio-chemical constituent.

OBSERVATION

After 20 days the plant showed normal growth in the control pot

- Normal growth in the pot has been observed in the plant.

- Stem length increased to 8 cm from 5 cm.
- Leaf number increased to 8 from 6.
- Leaf size and testure was normal.

AFTER 20 DAYS THE PLANT SHOWED COMPARATIVELY BETTER GROWTH IN THE HOME MADE MANURE POT.

- Stem length increased to 9 cm from 5 cm.
- Leaf number increased to 10 from 6.
- Leaf size also incresed and leaves were more healthy and shiny.

AFTER 20 DAYS THE PLANT SHOWED VARIABLE GROWTH IN CHEMICAL FORTILIZER POT

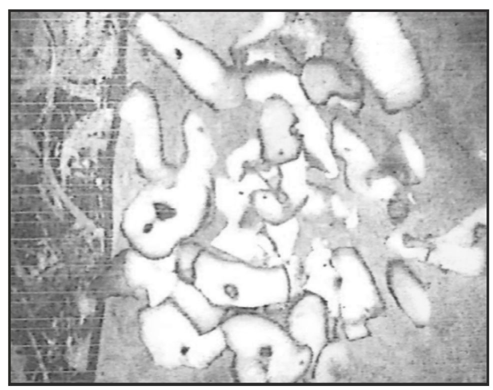
- The plant growth was good during first 10 days of growth period.
- But after 10 days gradually witling and withering in plant started.
- Leaves turned yellowish in colour and wilting as burn-patches appeared at the leaf surface.
- Stem got shrinked, weak and stunted.
- Finally, the plant died within 5 days.

Soil sample from all the tree pots were given in the soild test lab (Mrida Swasthya (card Krishi Vibhag) to study the physiochemical content of soil.

AS PER THE SOIL TEST REPORT :

- the sample A (garden soil) constitute 0.95% Carbon, 408 kg /ha Nitrogen & 445 kg/ha Potash.
- Sample B (soil + manure) constitute 1.18% Carbon, 482 kg/ha Nitrogen & 652 kg/ha Potash.
- Sample C (soil + chemical fertilizer) constitute 1.09% Carbon, 453 kg/ha Nitrogen & 527 kg/ha Potash.

A



B

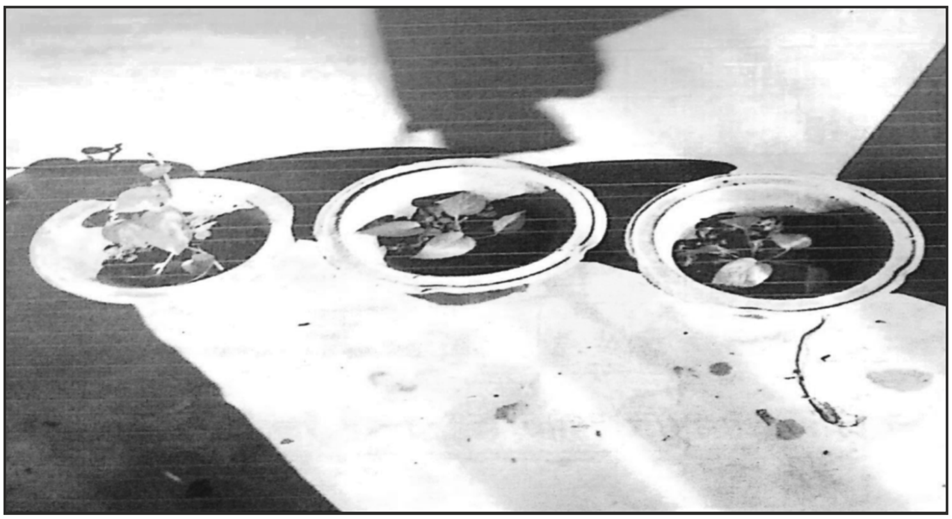
C

A & B - Peels of vegetables

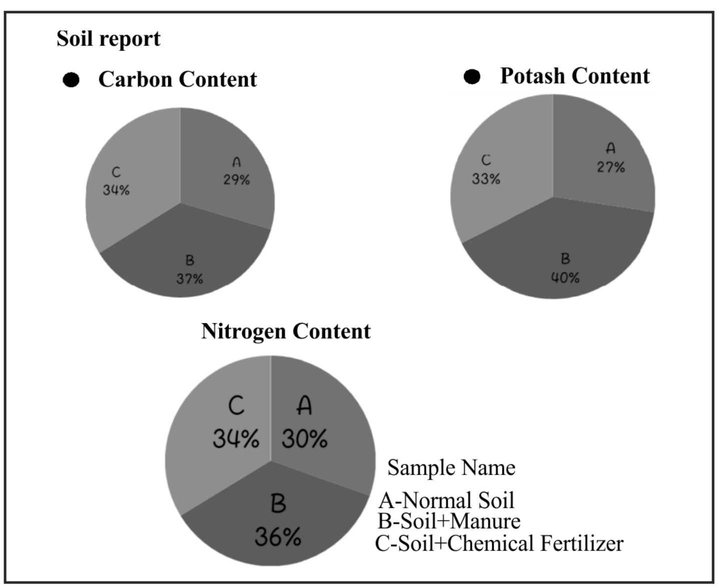
C - Mixing of soil and decomposed kitchen waste

D - Soil + Decomposed kitchen waste + Water

E - Soil and kitchen compost



F - Pot experiment showing growth of pothos plant



मृदा स्वास्थ्य कार्ड
बिहार सरकार
कृषि विभाग

कृषक का नाम	Shravya Shandilya & Priyanka Kumari.	आई० डी०	180126020301009
पिता / पति का. नाम	S/o	परीक्षण तिथि	1/30/2018
पता	Plot/Khasra : B, Thana No:	प्रकाशन तिथि	1/30/2018
	Magadh Mahila College, Patna	विश्लेषण प्रयोगशाला	CSTL, Patna
	Block: Patna Sadar, District: Patna	रिसोर्स कैटेगरी	RR

जाँच परिणाम :–

सामान्य विश्लेषण

कारक	पी० एच० (pH)	विद्युत चालकता (EC : dsm-1)	जैविक कार्बन (OC : %)	नाइट्रोजन (N : kg ha-1)	फास्फेट (P_2O_5 : kg ha-1)	पोटाश (K_2O : kg ha-1)
मानक	6.5 - 7.5	1 से कम	0.5 - 0.75	250 - 500	25 - 50	125 - 300
परिणाम	7.62	0.23	1.18	482	81	652
निष्कर्ष / स्तर	क्षारीय	सुरक्षित	उच्च	मध्यम	उच्च	उच्च

द्वितीयक पोषक तत्व (पी.पी.एम.)

कारक	सल्फर
मानक	10 से अधिक
परिणाम	23
निष्कर्ष / स्तर	सामान्य

सूक्ष्म पोषक तत्व (पी.पी.एम.)

बोरोन	जिंक	कॉपर	आयरन	मैंगनीज
0.50 से अधिक	0.78 से अधिक	0.60 से अधिक	7.00 से अधिक	3.00 से अधिक
0.88	12.56	2.354	41.68	4.812
सामान्य	सामान्य	सामान्य	सामान्य	सामान्य

पोषक तत्व / उर्वरक की अनुशंसा
एक एकड़ भूमि के लिए

फसल	अपेक्षित उपज q/ha	वर्मी कम्पोस्ट 20% of N	नाइट्रोजन 80%	फास्फेट 100%	पोटाश 100%
Paddy	40	2	8	6	4
Wheat	40	4.12	16	6	4
Potato	300	4.72	19	6	4
Barley	60	4.87	19	8	4

सभी मात्रा किलोग्राम में

उर्वरक की अनुशंसा कि.ग्रा. में एवं थैलियों (इकाई 50 कि.ग्रा.) में

Crop	COMPOST	DAP 18:46:00	UREA	SSP 16	MOP 60
Paddy	500 × 10	14 × 0.3	12 × 0.2	0 × 0	7 × 0.1
Wheat	1030 × 20.6	14 × 0.3	30 × 0.6	0 × 0	7 × 0.1
Potato	1180 × 23.6	14 × 0.3	36 × 0.7	0 × 0	7 × 0.1
Barley	1218 × 24.4	18 × 0.4	35 × 0.7	0 × 0	7 × 0.1

* नोटः कम से कम 25 किलो नाइटोजन, 15 किलो फासफोरस एवं 10 किलो पोटाश प्रति हेक्टर रासायनिक खाद से आपेक्षित

¤ विस्तृत जानकारी कृषि प्रसार पदाधिकारी से प्राप्त किया जा सकता है।

धरती माँ करे पुकार, मुझे चाहिए संतुलित आहार।

30.01.2018
S.T.L. Bihar
Patna

Soil Test Report : CSTL, Patna

मृदा स्वास्थ्य कार्ड
बिहार सरकार
कृषि विभाग

कृषक का नाम	Shravya Shandilya & Priyanka Kumari
पिता / पति का नाम	S/o
पता	Plot/Khasra : C, Thana No: Magadh Mahila College, Patna Block: Patna Sadar, District: Patna

आई० डी०	180126020301010
परीक्षण तिथि	1/30/2018
प्रकाशन तिथि	1/30/2018
विश्लेषण प्रयोगशाला	CSTL, Patna
रिसोर्स कैटेगरी	RR

जाँच परिणाम :–

सामान्य विश्लेषण

कारक	पी० एच० (pH)	विद्युत चालकता (EC : dsm-1)	जैविक कार्बन (OC : %)	नाइट्रोजन (N : kg ha-1)	फास्फेट (P_2O_5 : kg ha-1)	पोटाश (K_2O : kg ha-1)
मानक	6.5 - 7.5	1 से कम	0.5 - 0.75	250 - 500	25 - 50	125 - 300
परिणाम	6.4	0.808	1.09	453	96	527
निष्कर्ष / स्तर	अम्लीय	सुरक्षित	उच्च	मध्यम	उच्च	उच्च

द्वितीयक पोषक तत्व (पी.पी.एम.)

कारक	सल्फर
मानक	10 से अधिक
परिणाम	34
निष्कर्ष / स्तर	सामान्य

सूक्ष्म पोषक तत्व (पी.पी.एम.)

बोरोन	जिंक	कॉपर	आयरन	मैंगनीज
0.50 से अधिक	0.78 से अधिक	0.60 से अधिक	7.00 से अधिक	3.00 से अधिक
1	17.86	23.5	26.92	18.6
सामान्य	सामान्य	सामान्य	सामान्य	सामान्य

पोषक तत्व / उर्वरक की अनुशंसा
एक एकड़ भूमि के लिए

फसल	अपेक्षित उपज q/ha	वर्मी कम्पोस्ट 20% of N	नाइट्रोजन 80%	फास्फेट 100%	पोटाश 100%
Paddy	40	2	8	6	4
Wheat	40	4.66	19	6	4
Potato	300	5.12	20	6	4
Barley	60	5.22	21	6	4

सभी मात्रा किलोग्राम में

उर्वरक की अनुशंसा कि.ग्रा. में एवं थैलियों (इकाई 50 कि.ग्रा.) में

Crop	COMPOST	DAP 18:46:00	UREA	SSP 16	MOP 60
Paddy	500 × 10	14 × 0.3	12 × 0.2	0 × 0	7 × 0.1
Wheat	1165 × 23.3	14 × 0.3	35 × 0.7	0 × 0	7 × 0.1
Potato	1280 × 25.6	14 × 0.3	39 × 0.8	0 × 0	7 × 0.1
Barley	1305 × 26.1	14 × 0.3	40 × 0.8	0 × 0	7 × 0.1

* नोट: कम से कम 25 किलो नाइटोजन, 15 किलो फासफोरस एवं 10 किलो पोटाश प्रति हेक्टर रासायनिक खाद से आपेक्षित

¤ विस्तृत जानकारी कृषि प्रसार पदाधिकारी से प्राप्त किया जा सकता है।

धरती माँ करे पुकार, मुझे चाहिए संतुलित आहार।

30.01.2018
A.R.O
S.T.L, Bihar
Patna.

Soil Test Report : CSTL, Patna

DISCUSSION

We have seen from our experiment that plant grown in manure prepared from organic wase collected from kitchen has better growth result than the plant grownin normal soil and the soil mixed with chemical fertilizer.

With the help of Soil test report it was easy to understand the reason of variation in growth of plants in different pots.

So we concluded that if we grow an indoor plant using kitchen waste in the form of manure then we have two benefits-

1. Use of kitchen waste as home-made manure enhances growth of plant as well as it checks the production of pollutants arising from the wastage generated from our kitchen.
2. A normal indoor plant can be grown from the wastage of home very easily

From soil test report we have seen that carbon content is high in soil containing manure because, in the course of decomposition of kitchen wastes foul smell coming out from it, indicates the gradual growth of microorganisms which enhances the organic component of the soil. And this is very helpful in bringing out the best growth in plant.

We also concluded that use of chemical fertilizer inthe growth of plant is very harmful, although it shows better result in first few days butit has worst effect later on the growth of the plant as well as in soil constituents.

PRACTICAL APPLICATIONS

- By using organic wastage in preparation of manure it becomes very easy to get rid of many pollution aspects
- Money plant is normal indoor plant which have the capacity to clean the air. It helps in decreasing air-pollution. Hence use of kitchen waste makes very easy to grow this plant at home
- We can maintain greenery in our home as well as we are providing helping hands to the current revolutionary mission of our country

"Swacch Bharat Abhiyan"

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ASSESSMENT OF PIGMENT SEPARATION OF MEDICINAL PLANTS BEFORE AND AFTER TREATING WITH BIOFERTILIZER BY PAPER CHROMATOGRAPHY

*** Ghazia Nawaz,** *** Nancy Kumari**

*** Pallavi Singh**

Presentation : 23.02.2018
Supervisor : **Dr. Surendra Kumar Prasad**

ABSTRACT : *Plant biodiversity is the largest source of herbal medicine. India has 17000-18000 species of flowering plants among which 6000-7000 are estimated to have medicinal use. In this project three different varieties of medicinal plants are subjected to bio-fertilizer treatment for 20 days and later on the plant pigment were separated using paper chromatography and observed and their respective R.F. (resultant force) values are calculated.*

***Key word* :** *Plant biodiversity, chromatography, pigment, observed, bio-fertilizer treatment*

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INTRODUCTION

The chromatography may be defined as a technique for separating components in a mixture and identifying them. The technique exploits the differences in the partitioning behavior of analytes between the stationary phase and the mobile phase. The components of the mixture may be interacting with the stationary phase based on charges, Van-der-Waals force, relative solubility or adsorption.

All chromatographic systems consist of a stationery phase (solid, liquid, gel, etc.) which is immobilized and a mobile phase (liquid or gas) which runs through the stationary phase. The components of the analyte are separated as a result of phair interaction with the stationary and mobile phases. Several types of chromatographic procedures have been recognized on the basis of this interaction:

- Adsorption chromatography
- Partition chromatography
- Ion-exchange chromatography
- Affinity chromatography
- Gel-filtration chromatography

METHODOLOGY

Requirements :

Mortar&pastel. Measuring cylinder, hook fitted in a rubber cork , petroleum ether, methyl, alcohol, fresh leaves of the medicinal plants, chromatography paper.

Procedure:

The following procedure of paper chromatography is described with reference to the separation of amino acids. The procedure for all other molecules, remains the same except the extraction solvent, the mobile phase and the location reagent.

SAMPLE PREPARATION

A suitable solvent is needed which may ensure good solubility of the molecules to be extracted. Usually water miscible solvents are preferred. Some specific treatments may also be needed to separate the molecules in conjugated forms. Ethanol is the best solvent for amino acids. The matrix. In paper chromatography, paper itself functions as the matrix material. It is made cellulose fibre which is a polymer of glucose. The polymer chain has-OH groups attached to all around it. The spaces between these fibres make fine capillaries which play important role in the movement of the mobile phase.

LOADING THE SAMPLE

About 2-3 cm above the lower end of the paper strip a point is marked where the sample is spotted with the helps of a capillary tube or micro pipette. It is air dried and a little more sample is added to the same spot. Care should be taken that the spot remains and concentrated to get best result. Three to five repeated loading may sufficient.

SETTING THE APPARATUS

Take a rectangular jar pour into it 50-100 ml of the mobile phase. This be a single or a mixture of several solvents. The composition may vary for different solutes (samples). For amino acids the best mixture is Butanol: Acetic acid : Water 60:15:25 (V/V). This makes the mobile phase. The paper with the sample spot on it, is placed into this jar such that the lower end of the paper is just immersed in the solvent (Butanol: Acetic acid: Water) Care should taken that the sample spot, in any case remains above the solvent level and never touches it. The paper strip is suspended with the helps of a string and the jar is covered front has risen to 10cm or more. It is now taken out and the solvent front is marked with a pencil (the paper should not be touched by hand) Air dry it to remove superficial solvent.

Colored molecules can be directly spotted by their color. For other the colour has to be developed using a suitable location reagents (ninhydrin for amino acids and proteins, ammoniacal silver nitrate for sugar etc).

For amino acids, the strip is dipped in 1% solution of nihydrin (1%w/v in isopropanol). It could also be sprayed with an atomise. The paper strip is dried and heated in oven at 110^0 C. Purple colour sports may be observed after one hour. Sometime it may take several hour to develop. All sport are purple except that of proline which is yellow.

CALCULATION OF RF VALUES:

Rf value in paper chromatography can be calculated as the ration of he solute front to the solvent front.

Thus

$$RF = \frac{\text{Distance travelled by solute}}{\text{Distance travelled by solvent}}$$

RESULT

Calculation of RF value

$$RF = \frac{\text{Distance travelled by pigment}}{\text{Distance travelled by solvent}}$$

BEFORE FERTILISATION TREATMENT

Ocimum sanctum

Chlorophyll a = $\frac{AB}{AG} = \frac{8.7}{17.7}$ cm

Chlorpphyll b = $\frac{AC}{AG} = \frac{13.3}{17.7}$ c m

Chlorophyll c = $\frac{AD}{AG} = \frac{15.2}{17.7}$ cm

Xanthophylls = $\frac{AE}{AG} = \frac{17.0}{17.7}$ cm

Carotene = $\frac{AF}{AG} = \frac{17.5}{17.7}$ cm

CATHARANTHUS ROSEUS

Chlorophyll a = $\frac{AB}{AG} = \frac{9.2}{16.0}$ cm

Chlorophyll b = $\frac{AC}{AG} = \frac{12.0}{16.0}$ cm

Chlorophyll c = $\frac{AD}{AG} = \frac{12.5}{16.0}$ cm

Xanthophylls = $\frac{AE}{AG} = \frac{14.5}{16.0}$ cm

Carotene = $\frac{AF}{AG} = \frac{15.9}{16.0}$ cm

ALOE VERA

Chlorophyll a = $\frac{AB}{AD} = \frac{2.5}{16}$ cm

Carotene = $\frac{AC}{AD} = \frac{12}{16}$ cm

AFTER BIO-FERTILISER TREATMENT

Ocimum sanctum

Chlorophyll a = $\frac{AB}{AG} = \frac{16.9}{19}$ cm

Chlorophyll b = $\frac{AC}{AG} = \frac{17}{19}$ cm

Chlorophyll c = $\frac{AD}{AG} = \frac{17.2}{19}$ cm

Xanthophylls = $\frac{AD}{AG} = \frac{17.6}{19}$ cm

Carotene = $\frac{AF}{AG} = \frac{18}{19}$ cm

CATHARANTHUS ROSEUS

Chlorophyll a = $\frac{AB}{AG} = \frac{17}{19}$ cm

Chlorophyll b = $\frac{AC}{AG} = \frac{17.5}{19}$ cm

Chlorophyll c = $\frac{AD}{AG} = \frac{18}{19}$ cm

Xanthophyll = $\frac{AE}{AG} = \frac{18.4}{19}$ cm

Carotene = $\frac{AF}{AG} = \frac{18.7}{19}$ cm

ALOE VERA

Chlorophyll a = $\frac{AB}{AD} = \frac{12.5}{21}$ cm

Carotene = $\frac{AC}{AD} = \frac{20}{21}$ cm


Before
After
Quick Grid

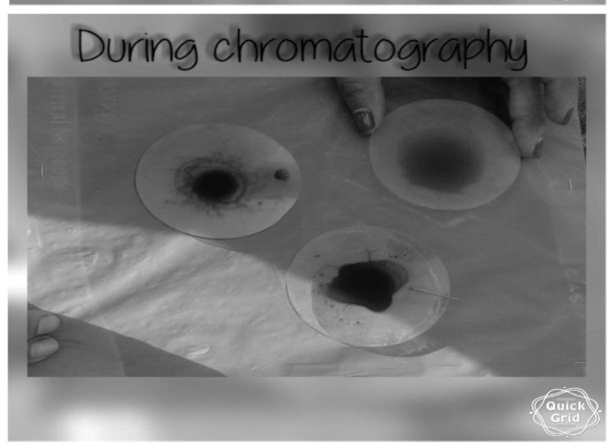

Before
After
Quick Grid


Before
After
Quick Grid


BEFORE
AFTER
Quick Grid


Quick Grid


PASTE
Quick Grid


During chromatography
Quick Grid

RESULT ANALYSIS

During study, assessment of pigment of separation of different plant leaves in different conditions i.e, without treatment and with treatment of biofertiliser are taken and their rf values were assessed . finally it was observed that pigment separation with biofertiliser plant leaves showed higher values.

PRECAUTION

The based edge of the paper must be in touch with the solvent mixture contained in the cylinder.

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Chemistry

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ORGANIC ANALYSIS OF BIODIESEL OBTAINED FROM DIFFERENT VEGETABLE OILS

*** Smita Karna** *** Erum Abedeen**

*** Mekhla Rashmi**

Presentation : 23.02.2018

Supervisor : **Dr. Bina Rani**

ABSTRACT : *Research was done for the organic analysis of biodiesel obtained from different vegetable oils. It was observed that biodiesel obtained from different vegetable oils show almost similar results and the prepared biodiesel is economically and environmentally very useful for our society. So, it can be preferred to the market diesel for use. From our opinion we concluded that biodiesel is the best diesel used in our everyday life.*

Key word **:** *Sodium Hydroxide Lye ,Transesteri- fication, Biodiesel, Phenopthalein Test, Hydrolysis, Glycerin, Ethanol*

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INTRODUCTION

Biodiesel is an eco-friendly alternative diesel fuel prepared from domestic renewable resources i.e, vegetable oil (edible or non-edible and animal fats).These natural oils and fats are mainly made up of methanol or ethanol in the presence of catalyst derived diesel and are called "Biodiesel". The process is called transesterification.The reaction is slow, so a potassium methoxide or ethoxide catalyst is used to speed up the reaction. Glycerin is also obtained as a byproduct but in a considerable quantity.

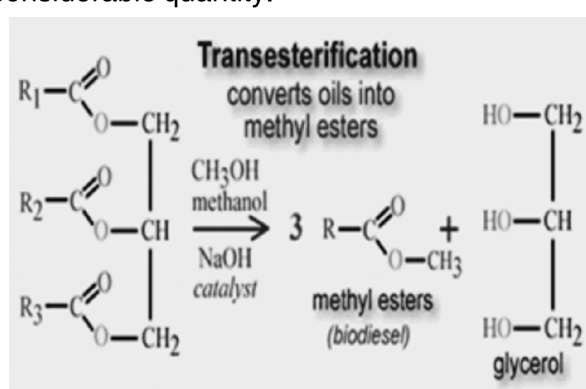

Figure : Conversion of oil into biodiesel and glycerin

The composition of different vegetable oils in triglycerides(Fat)are:

SAMPLES	SATURATED FATTY ACID			MONO UNSATURATED FATTY ACID	POLY UNSATURATED FATTY ACID	
	Myristic Acid	Palmitic Acid	Stearic Acid	Oleic Acid	Linoleic Acid	α-Linolenic Acid
SOYABEAN OIL	-	10%	4%	23%	51%	7-10%
RICE BRAN OIL	0.6%	21.5%	2.9%	38.4%	34.4%	2.2%
SUNFLOWER OIL	-	5%	6%	30%	59%	-

MATERIALS AND METHODS

(1)Synthesis of biodiesel from three different types of oils ,namely Soyabean Vegetable Oil ,Sunflower Vegetable oil, Rice Bran Vegetable Oil.

(2)Organic analysis of biodiesel obtained from above listed vegetable oils.

APPARATUS REQUIRED

Measuring Cylinder , Separating Funnel , Shaker, Test Tubes , Analytical Balance , Glass , Round Bottomed Flask

METHODOLOGY

0.35g of finely grounded anhydrous sodium hydroxide was added to 20 ml of pure (99%)methanol in a 250 ml Erlenmeyer flask containing a magnetic stirrer bar and the flask was put on the magnetic stirrer plate for vigorous stirring until all the NaOH was dissolved. This flask now contained sodium methoxide. 100 ml of 100% pure (unused) vegetable oil was warmed upto about 40 degree centigrade to increase the rate of reaction, the this oil was poured into the methoxide solution while continually stirring. At first the mixture was cloudy but soon it was separated into two layers. It was then stirred for 15-30 minutes.

The content was transferred into a 250 ml separating funnel and allowed to stand for 1 hour. The mixture was separated into two different layers, the lower layer was glycerol and the upper layer was the methyl ester (biodiesel).Then the stop cork of the separating funnel was opened and the glycerol was allowed to drain in a beaker make sure not to get any biodiesel mixed in the glycerol.

ANALYSIS OF BIODIESELS

1.Preliminary Tests of biodiesels obtained from different oil samples was done which are shown below in table 1 :

PARAMETERS	SOYABEAN OIL	RICE BRAN OIL	SUNFLOWER OIL
Physical state	LIQUID	LIQUID	LIQUID
Odour	FRUITY	FRUITY	FRUITY
Colour	DARK GOLDEN	LIGHT YELLOW	LIGHT GOLDEN
Solubility in water	SLIGHTLY SOLUBLE	INSOLUBLE	PARTIALLY SOLUBLE

Table-1

2. Test of Aromaticity of biodiesels obtained from all the three oil samples was done which are shown below in table 2 :

SAMPLES	OBSERVATION	INFERENCE
SOYABEAN OIL	BURNED WITH NON-SOOTY FLAME	NON-AROMATIC
RICE BRAN OIL	BURNED WITH NON-SOOTY FLAME	NON-AROMATIC
SUNFLOWER OIL	BURNED WITH NON-SOOTY FLAME	NON-AROMATIC

Table-2

3. Test of Unsaturation of biodiesels obtained from all three oil samples was done which are shown below in table 3:

SAMPLES	OBSERVATION	INFERENCE
SOYABEAN OIL	COLOUR OF $KMnO_4$ DISAPPEARED	UNSATURATED
RICE BRAN OIL	COLOUR OF $KMnO_4$ DISAPPEARED	UNSATURATED
SUNFLOWER OIL	COLOUR OF $KMnO_4$ DISAPPEARED	UNSATURATED

Table-3

4. Detection Of Elements of all biodiesels obtained from all three oil samples was done which are shown in table 4:

SAMPLES	OBSERVATION	INFERENCE
SOYABEAN OIL	NO PRUSSIAN BLUE COLOUR	NITROGEN ABSENT
	NO BLACK PRECIPITATE	SULPHUR ABSENT
	NO PRECIPITATE	HALOGENS ABSENT
RICE BRAN OIL	NO PRUSSIAN BLUE COLOUR	NITROGEN ABSENT
	NO BLACK PRECIPITATE	SULPHUR ABSENT
	NO PRECIPITATE	HALOGENS ABSENT
SUNFLOWER OIL	NO PRUSSIAN BLUE COLOUR	NITROGEN ABSENT
	NO BLACK PRECIPITATE	SULPHUR ABSENT
	NO PRECIPITATE	HALOGENS ABSENT

Table-4

5. Detection of functional groups of all the biodiesels obtained from all three samples was done which are shown in table 5:

Experiment	Observation	Inference
1.Test for Hydrocarbons and ethers **Iodine test:**0.2 g of sample was dissolved in 5 ml benzene and 5ml of very dilute solution of iodine prepared in benzene was added to it, then shaken well	No Brown colouration was obtained	Hydrocarbon and ether were absent
2.Test for Carboxylic group **Sodium bicarbonate test:** A little amount of sample was added to about 5 ml sodium bicarbonate solution	No Effervescence was observed	Carboxylic group absent in all the samples
3. Test for Aldehyde group **Fehling's test:** Equal volume of fehling's A and fehling's B solution was mixed and a small amount of organic compound was added and then boiled for sometime.	No red coloured precipitate was observed	Aldehyde group was absent in all the samples
4. Test for Ketonic group **Sodium Nitroprusside test:** 1ml of the sample was treated with freshly prepared solution of sodium nitroprusside followed by excess of NaOH solution	No wine red colouration was observed	Ketonic group was absent in all the samples
5. Test for Alcoholic group **Sodium test:** 3-4 ml of the sample was taken and a small piece of sodium metal was added	No Brisk effervescence was observed	Alcoholic group was absent
6.Test for Phenolic group **Aniline test:** A little (2:3) aniline was dissolved in dil.HCL, cooled in ice water and aq. Solution of $NaNO_2$ was added to it dropwise. Then sample predissolved in NaOH solution to it	No precipitate formed	Phenolic group was absent in all the samples

7.Test for Esters **Hydroxamic acid test :** 1 ml of $NH_2OH.HCL$solution and 4-5 drops of saturated alcoholic solution of KOH was taken in a test tube The mixture was heated to boil,then cooled and acidified with dilute HCL, 1drop of $FeCl_3$ solution was added to it	Voilet colouration was observed	Ester group was present in all the three samples
Phenolpthalein test:A little amount of sample was dissolved in 3-4 ml of alcohol and 2-3 drops of dil. NaOH solution was added followed by 1 drop of phenolphthalein	Pink colour was obtained which disappeared on heating	Ester group was present in all the three samples
8. Test for Carbohydrate **Ignition test:** The sample was heated over a flame after keeping it on a metal spatula	No charring smell of burnt sugar was observed in all the samples	Carbohydrate was absent in all the three samples

Table-5

RESULTS & DISCUSSION

Results Obtained From Organic Analysis

During the organic analysis, for the identification of the functional groups present in the taken biodiesel samples , preparation of derivative i.e,"Acid Hydrolysis" was taken place. The derivative prepared from all the biodiesel samples confirmed that all the three samples contain ester group i.e, it shows the hydrolysed derivative of ester (Biodiesel).

From the various organic analysis,we can say that biodiesels are usually non-aromatic & unsaturated compounds. They don't contain sulphur, nitrogen and any halogen.

Besides biodiesel glycerol is also obtained during the process but, yes in a considerable quantity which can be further used in food and cosmetic industry.

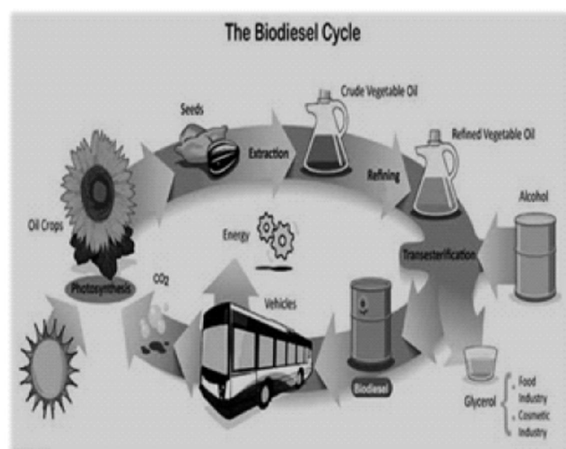

Figure-The Biodiesel Cycle

CONCLUSION

The Biodiesel was prepared from different vegetable oils & tested it on different organic parameters such as aromaticity, unsaturation, element detection, functional group analysis and it was confirmed by preparing its derivative. The entire test we have performed with extreme accuracy and offcourse with

much precaution. Our result does support to the theoretical result to a great extent. Our observation suggests that the physical characteristics of biodiesel from the listed three vegetable oils are almost similar and these characteristics depend upon the method of preparation of biodiesel from the vegetable oils and the recorded result shows the similar properties. To wholesome we can say that biodiesel is economically and environmentally very useful for our society. It is one of the most important renewable energy sources for transportation and household uses.

ACKNOWLEDGEMENTS

Our sincere thanks to Prof. (Dr.) Shashi Sharma Principal, Magadh Mahila College, Patna, the research committee who provides us facilities and financial support under the CPE scheme and Prof. (Dr.) Bina Rani, Head of The Department of Chemistry, for her guidance and valuable support throughout the course of this research work and all the teachers of the department for their heartily support, encouragement and guidance to accomplish this project.

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PREVENTION AND MANAGEMENT OF DIABETES WITH HERBS

* **Priyanka Jha** * **Samridhi Patel**

* **Priyanka Kumari**

Presentation : 23.02.2018
Supervisor : **Dr. Bina Rani**

ABSTRACT : *Our research shows some technique for the treatment of diabetes with herbs, these herbs have very active Phytochemicals for reducing blood glucose level or good anti diabetic potential. All these herbs except okra have high volume of insulin which is very useful for diabetic patient.*

HERBAL AND NATURAL THERAPIES

Many Common herbs and species claimed to have blood sugar lowering properties

Key word **:** *Sadabahaar, Bittermelon, Okra, Tulsi, Guava*

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INTRODUCTION

Today India is a diabetes capital of the world with as many as 50 millions of peoples suffering from diabetes, India has challenged to face. However timely detection and right management can go a long way in helping patients leads a normal life. Diabetes is a chronic disease that occur either when the pancrease does not produces enough insulin or when the body cannot effectively use the insulin it produces. Insulin is a harmone that regulates blood sugar. Hyperglucemia or raised blood sugar is a common effect of uncontrolled diabetes and over time leads to serious damage to many of the body system ,especially the nerves and blood vessels

SADABAHAAR (VINCA ROSEA)

Part used - Leaves

The leaves are used to control diabetes and High blood sugar. The leaves of Vinca Rosea contain alkaloid Vincamin. Which is responsible for reducing blood sugar level.

PHYTOCHEMICAL ANALYSIS OF SADABAHAAR

We have taken fresh leave of sdadabahar, wahsed, dried and finaly powdered it. Then transfer it in to beaker and added 100 ml of ethenol and boiled it on a waterbath for 2 Hours this exatract was used for following Test.

Test for Saponins : Few ml of extract was taken in a test tube and shaken vigorously, there were stable foam formed in the test tube which shows presence of saponins in the ethenolic exctract of sadabahar.

Test for Tannins : Few ml of exctract was taken in Test tube and added 2 ml of 2% of ferric cloride solution, a black color was formed shows the presence of tennins.

Test for Terpenoids : The exctract was taken in a test tube and added aprox 2 ml of conc sulphuric acid and shaken gentlly, a redish brown color was appeard which indicates the presence of terpenoid.

Test for Alkaloid : The extract was taken in a test tube and added 1-2 drops mayer's reagent. The formation of yellowish PPT indicate the presence of alkaloids

Test for Steroids : The extract was taken in test tube and added chloroform then filtered this solution mixture. Then in the filtrate added about one ml of acetic anhydride solution followed by conc sulphuric acid down the side of test tube. The green colouration was observed which shows the presence of steroids in the leaves of sadabahar.

Test for insulin : We have taken a little powder of leaf of sadabahar on watch glass and added 1-2 drops of 2 naphthol and a drop of conc sulphuric acid the powder was appear to reddish color which indicate the presence of insulin in the leave of sadabahar.

CONCLUSION : By this process the constituent separated are found to be alkaloid Vincamin and SAPONINS

SADABAHAR EXTRACT

- 250 gm of sadabahaar leaves + ground it + 1000 ml water + cook on mild fire
- reduce it to 500ml and filter this content
- Add 500 ml of Teel oil along with 100 gm of sadabahaar paste and 50 gm of black pepper powder
- Cook the content on low flame until the water is evaporated
- Each one ml of above extract is capable to controlling the 125 to 250 mg of blood glucose

BITTERMELON (MOMORDICA CHARANTIA)

Part Used : Fruits

Bitter melon is a herb which is highly riched in charantin which is an insulin like compound.

Charantin is use to treat diabetes can potentially replace treatment by injection of insulin.

SEPERATION OF ANTI-DIABETIC COMPOUND (TLC METHOD)

We have taken 25 ml of the exctract in beker and decanted on water bath to make this volum aprox 5 ml this exctract was used for spoting on TLC plate.

1. **Stationary phase :** TLC precoated silica gel
2. **Solvent System :** Benzene 8 ml, methenol 2 ml, conc HCL 3 ml and water 10 ml

3. **Spreying Reagent :** conc sulphuric acid

CONCLUSION

By This process 2 types of constituents are seperated :- by comparing their litrature it was found that the contitents was Charantin

BITTER MELON EXTRACT

- Take a fruit of ground it, add some volume of water boil it at low flame.
- Each 50 ml of extract of bitter melon contain 1.5 ml of charantin.

OKRA (ABELMOSCHUS ESCULENTUS)

Part Used : Fruits

Okra helps insulin function even act as the substitute for insulin

Okra fruit contain myricettin which greatly reduce the blood sugar level.

THE ACTIVE CONSTITUENT PRESENT IN OKRA

Test for Alkaloid : The extract was taken in a test tube and added 1-2 drops mayer's reagent . The formation of yellowish PPT indicate the presence of alkaloids

Test for Steroids : The extract was taken in test tube and added chloroform then filtered this solution mixture. Then in the filtrate added about one ml of acetic anhydride solution followed by conc sulphuric acid down the side of test tube. The green colouration was observed which shows the presence of steroids in the okra.

Test for Tennins : Few ml of exctract was taken in Test tube and added 2 ml of 2% of ferric cloride solution, a black color was formed shows the presence of tennins.

DOSES OF OKRA WATER FOR DIABETIC PATIENT

- Wash 4 to 5 medium size of okra fruit
- Split the fruit in half or cut each side of the fruit with the knife, place the fruit in masser jaar then cover them with water.
- Soak it over night at least 8 - 24 hours.
- Then squeeze the fruit into the water to release any left over fruit away and drink this water.

TULSI (OSCIMUM SANCTUM)

Part Used : Leaves

- Holy basil may also lower fasting and post meal blood glucose level
- 2.5 gm of Holy basil leave powder have abilities to reduce 17 .6 % of blood glucose level.

Extraction Procedure : 10 gm of the coarsely powdered leaf was taken in 250ml stopper conical flask and extracted with 100ml of alcohol for 24 hours by maceration technique

The extract was decanted and made up to 100 ml in a volumetric flask for thin layer chromatography 25 ml of the extract was taken from stock solution and evaporated to 5 ml on a water bath.

IDENTIFICATION OF TEST SOLUTION

1. **Test for protein :** Few drops of test solution was taken in a test tube, 10% sodium hydroxide solution was added to it. The solution was mixed thoroughly and 1% cuso4 was added drop by drop. The presence of greenese blue color shows the presence of protein.

2. Test for alkaloid : Few drop of solution was taken in test tube and little drop of wagner's reagent was added. Brown precipitate indicate the presence of alkaloid.

3. Test for anthocyanins : Few drops of extract was taken in a test tube and little cold sulphuric acid was added the solution was wormed cool then shaken with amyl alcohol. The anthocyanins separate in the alcohol layer shows the presence of anthocyanins

SEPARATION OF ANTI-DIABETIC COMPOUND (TLC METHOD) FROM TULSI

We have taken 25 ml of the extract in biker and decanted on water bath to make this volume aprox 5 ml this extract was used for spotting on TLC plate.

1. Stationary phase : TLC precoated silica gel

Solvent System : Chloroform:mtethenol (9:1)

CONCLUSION

By TLC constituent separated are Protein , alkaloid, anthocianin, and chlorophyll, xanthophyll, B carotine

Performing Insulin Test at Magadh mahila college Herbal lab in guidance of HOD Bina Rani Mam

GUAVA (PSIDIUM GUAJAVA)

Part Used : Leaves

- Guava is a herb leaves of which contain alkaloids and tannins and high potasium content which are useful for treatment of diabetes
- Dry the guava leaves and crush them boil this crush leaves in hot water at low flame
- Take a cup of this after every meal it reduces blood sugar level readily.

PHYTOCHEMICAL ANALYSIS OF GUAVA

Test for Alkaloid : The extract was taken in a test tube and added 1-2 drops mayer's reagent . The formation of yellowish PPT indicate the presence of alkaloids

Test for Steroids : The extract was taken in test tube and added chloroform then filtered this solution mixture. Then in the filtrate added about one ml of acetic anhydride solution followed by conc sulphuric acid down the side of test tube. The green colouration was observed which shows the presence of steroids in the leaves of GUAVA.

Testing anti diabetic constituent present in the Guava Leaves in our college Lab.

REFERENCES

- Wikipedia, Internet

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Mathematics

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APPLICATION OF MATRICES IN CRYPTOGRAPHY

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ABSTRACT : *Cryptography is the study of encoding and decoding of secret and confidential messages. There are several ways to encrypt a message, i.e., encryption of messages in cryptography can be done by group theory, linear algebra, matrices, etc. In this project, we have explained how a message can be coded and decoded using the matrix and their properties. The main cryptographic technique is Hill Cipher, which uses the encryption algorithm :* ***C = AP mod N****, where C is the column vector containing the numerical values of the cipher text message and we get the new message that is unclear by changing these values to their letters. A is called the key of the algorithm, and this key should be invertible for the decryption algorithm. P is the column vector of the plaintext numerical values and finally N is the number of letters of the alphabet used in our work. For the decryption algorithm:* ***P = A⁻¹C mod N*** *where A^{-1} is the inverse of matrix A. The Affine Cipher Algorithm can be used for encryption and decryption for more than one key.*

There is a wide application of diagonal and orthogonal matrices for exchange of messages in a confidential and secure way. In the proposed method, the idea has been extended to the matrices mainly to nonsingular diagonal matrices of higher order, especially induced from Quadratic Forms (QF). Also, in this work, a method using orthogonal matrix transform properties is proposed to encrypt and decrypt a message. It has been shown how to use matrix's function to create complex encryptions. Because orthogonal matrix is always diagonalizable on R, and the exponential of a diagonal matrix is easy to compute, the exponential of orthogonal matrix has been used to encrypt text messages.

Key word **:** *Cryptography, encoding and decoding, decryption Hill cipher, diagonal and orthogonal matrices*

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INTRODUCTION

MATRIX

A matrix (plural: matrices) is a rectangular array of numbers, symbols, or expressions, arranged in rows and columns. For example, the dimensions of the matrix below are 2 × 3 (read "two by three"), because there are two rows and three columns:

$$\begin{pmatrix} 3 & -4 & 23 \\ 6 & 19 & 4/5 \end{pmatrix}$$

DIAGONAL MATRIX

If all the entries outside the main diagonal are zero, then matrix is called a diagonal matrix.

Example : $\begin{pmatrix} -3 & -3 & 4 \\ 0 & 1 & 1 \\ 4 & 3 & 4 \end{pmatrix}$

INVERTIBLE MATRIX AND ITS INVERSE

A square matrix A is called invertible or non-singular if there exists a matrix B such that AB = BA = I_n, where I_n is the n×n identity matrix with 1s on the main diagonal and 0s elsewhere. If B exists, it is unique and is called the inverse matrix of A, denoted A^{-1}.

ORHTOGONAL MATRIX

An orthogonal matrix is a square matrix with real entries whose columns and rows are orthogonal unit vectors (that is, orthonormal vectors). Equivalently, a matrix A is orthogonal if its transpose is equal to its inverse:

$A^T = A^{-1}$, which entails $A^T A = AA^T = I_n$ where I_n is the unit matrix

EIGEN VALUES AND EIGEN VECTORS

A number λ and a non-zero vector v satisfying $Av = \lambda v$ are called an eigen value and an eigen vector of A respectively. The number λ is an eigen value of an $n \times n$ matrix A if and only if $A - \lambda I_n$ is not invertible, which is equivalent to $det(A - \lambda I) = 0$.

CRYPTOGRAPHY

Cryptography is the practice and study of techniques for secure communication in the presence of third parties called adversaries.Due to the most secure way of exchanging messages, cryptography has a wide application in military operations, banking transactions, e- communication, etc. More generally, cryptography is about constructing and analyzing protocols that prevent third parties or the public from reading private messages. Various aspects in information security such as data confidentiality, data integrity, authentication and non-repudiation are central to modern cryptography. Applications of cryptography include electronic commerce, chip-based payment cards, digital currencies, computer passwords and military communications. Cryptography prior to the modern age was effectively synonymous with encryption, the conversion of information from a readable state to apparent nonsense. The originator of an encrypted message shared the decoding technique needed to recover the original information only with intended recipients, thereby precluding unwanted persons from doing the same.

ENCRYPTION AND DECRYPTION

In the language of cryptography, codes are called the ciphers, messages are called plain text and coded messages are called cipher text.The idea behind enciphering a message is to make it worthless to everyone accept for the party with the deciphering "key".

EXAMPLE : Suppose we have to encode and decode a secret message which is "PREPARE TO NEGOTIATE" .

Let the encoding matrix be $\begin{pmatrix} -3 & -3 & 4 \\ 0 & 1 & 1 \\ 4 & 3 & 4 \end{pmatrix}$

Now, let us create first a plain text using the secret message:"PREPARE TO NEGOTIATE".

We assign a number for each letter of the alphabet. For simplicity, let us associate each letter with its position of alphabet, i.e., A is 1, B is

2 and so on. Also, we assign the number 27 to a space between two words.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	*(space)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27

Thus, the message becomes:

P	R	E	P	A	R	E	*	T	O	*	N	E	G	O	T	I	A	T	E
16	18	5	16	1	18	5	27	20	15	27	14	5	7	15	20	9	1	20	5

As we are using a 3 * 3 matrix or say a matrix of order 3 as encoding matrix, so we have to break the enumerated message into a sequence of 3 by 1 vector :

$$\begin{pmatrix} 16 & 16 & 5 & 15 & 5 & 20 & 20 \\ 18 & 1 & 27 & 27 & 7 & 9 & 5 \\ 5 & 18 & 20 & 14 & 15 & 1 & 27 \end{pmatrix}$$

We now encode the message by multiplying each of the above vectors by the encoding matrix. This can be done writing the above vectors as column of a matrix and perform the matrix multiplication of that matrix with the encoding matrix. The matrix we get after multiplying encoding matrix and plain text matrix is called **Cipher text Matrix**, which is given below :

$$\begin{pmatrix} -3 & -3 & 4 \\ 0 & 1 & 1 \\ 4 & 3 & 4 \end{pmatrix} * \begin{pmatrix} 16 & 16 & 5 & 15 & 5 & 20 & 20 \\ 18 & 1 & 27 & 27 & 7 & 9 & 5 \\ 5 & 18 & 20 & 14 & 15 & 1 & 27 \end{pmatrix}$$

$$= \begin{pmatrix} -122 & -123 & -176 & -182 & -96 & -91 & -183 \\ 23 & 19 & 47 & 41 & 22 & 10 & 32 \\ 138 & 139 & 181 & 197 & 101 & 111 & 203 \end{pmatrix}$$

The column of this matrix give encoded message. This message is transmitted in the following linear form:

-122, 23, 138, -123, 19, 139, -176, 47, 181, -182, 41, 197, -96, 22, 101, -91, 10, 111, -183, 32, 203.

To decode the message, the receiver writes this string as a sequence of 3 by 1 column matrix and repeats the technique using the inverse of the encoding matrix. The inverse of this encoding matrix is called the **Decoding Matrix**, which is

$$\begin{pmatrix} 1 & 0 & 1 \\ 4 & 4 & 3 \\ -4 & -3 & -3 \end{pmatrix}$$

Thus, to decode a message, perform the matrix multiplication and get the matrix :

$$\begin{pmatrix} 1 & 0 & 1 \\ 4 & 4 & 3 \\ -4 & -3 & -3 \end{pmatrix} * \begin{pmatrix} -122 & -123 & -176 & -182 & -96 & -91 & -183 \\ 23 & 19 & 47 & 41 & 22 & 10 & 32 \\ 138 & 139 & 181 & 197 & 101 & 111 & 203 \end{pmatrix}$$

$$= \begin{pmatrix} 16 & 16 & 5 & 15 & 5 & 20 & 20 \\ 18 & 1 & 27 & 27 & 7 & 9 & 5 \\ 5 & 18 & 20 & 14 & 15 & 1 & 27 \end{pmatrix}$$

The columns of this matrix, written in linear form, give the original message:-

16	18	5	16	1	18	5	27	20	15	27	14	5	7	15	20	9	1	20	5	27
P	R	E	P	A	R	E	*	T	O	*	N	E	G	O	T	I	A	T	E	*

Through this example, we have understood that how matrices and its theorems helped in encryption.

HILL CIPHER

The main cryptographic technique used is HILL CIPHER, developed by mathematician

LESTER HILL in 1929. In this method, the encryption algorithm takes plain text as input and produces "m" ciphertext (as discussed earlier) letter for them.

THE ENCRYPTION PROCESS

The encryption algorithm of this method is: **C ≡ AP (mod N)**, where C is the column vector of the numerical values of the cipher text, P is the column vector of the numerical values of the plaintext, A (which is an nxn matrix) is the key of the algorithm, where n may depend on the length of the message that needs to be encrypted, and N is the number of letters of the alphabet used in the cryptography. The matrix A must be invertible because we need the inverse of this matrix for the decryption process.

Let's understand it by the following example.

EXAMPLE: Suppose we have to encode the message "Help me" where the matrix A or say encoding matrix A is $\begin{pmatrix} 2 & 1 \\ 1 & 0 \end{pmatrix}$

First we use the table below to convert letters in the message to their numerical values

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	*(space)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	0

Now we group the plaintext letters into pairs of two and add 0 to fill out the last pair

H E L P * M E *

8 5 12 16 0 13 5 0

Then using **C ≡ AP (mod N)**, we get

$$\begin{pmatrix} 2 & 1 \\ 1 & 0 \end{pmatrix}\begin{pmatrix} 8 \\ 5 \end{pmatrix} = \begin{pmatrix} 21 \\ 8 \end{pmatrix}(mod 26),$$

$$\begin{pmatrix} 2 & 1 \\ 1 & 0 \end{pmatrix}\begin{pmatrix} 12 \\ 16 \end{pmatrix} = \begin{pmatrix} 40 \\ 12 \end{pmatrix} = \begin{pmatrix} 14 \\ 12 \end{pmatrix} = (mod 26)$$

$$\begin{pmatrix} 2 & 1 \\ 1 & 0 \end{pmatrix}\begin{pmatrix} 0 \\ 13 \end{pmatrix} = \begin{pmatrix} 13 \\ 0 \end{pmatrix}(mod 26), \begin{pmatrix} 2 & 1 \\ 1 & 0 \end{pmatrix}\begin{pmatrix} 5 \\ 0 \end{pmatrix} = \begin{pmatrix} 10 \\ 5 \end{pmatrix}(mod 26)$$

Now the new message becomes: (UHNLMJE)

21 8 14 12 13 0 10 5

U H N L M * J E

THE DECRYPTION PROCESS

The decryption is the process of converting the cipher text into plaintext and its algorithm is:

P=A^{-1}C (mod N), where A^{-1} is the inverse of matrix A.

Now let's understand this with the help of an example which we have encoded earlier:

Since, A = $\begin{pmatrix} 2 & 1 \\ 1 & 0 \end{pmatrix}$, therefore $A^{-1} = \begin{pmatrix} 0 & 1 \\ 1 & -2 \end{pmatrix}$

Now we put the cipher text into groups, where each group consists of two letter and we will find the numerical value of each letter from the table used above.

$$\begin{pmatrix} 0 & 1 \\ 1 & -2 \end{pmatrix}\begin{pmatrix} 21 \\ 8 \end{pmatrix} = \begin{pmatrix} 8 \\ 5 \end{pmatrix}(mod 26),$$

$$\begin{pmatrix} 0 & 1 \\ 1 & -2 \end{pmatrix}\begin{pmatrix} 14 \\ 12 \end{pmatrix} = \begin{pmatrix} 12 \\ 10 \end{pmatrix} = \begin{pmatrix} 12 \\ 16 \end{pmatrix} (mod 26)$$

$$\begin{pmatrix} 0 & 1 \\ 1 & -2 \end{pmatrix}\begin{pmatrix} 13 \\ 0 \end{pmatrix} = \begin{pmatrix} 0 \\ 13 \end{pmatrix}(mod 26),$$

$$\begin{pmatrix} 0 & 1 \\ 1 & -2 \end{pmatrix}\begin{pmatrix} 10 \\ 5 \end{pmatrix} = \begin{pmatrix} 5 \\ 0 \end{pmatrix}(mod 26)$$

Now by changing each numerical value in plaintext column vectors to its letter, we get the message "HELP ME".

8 5 12 16 0 13 5 0

H E L P * M E *

USING MORE THAN ONE KEY IN HILL CIPHER

In the Hill cipher, since the key used to encode or decode any message is a matrix, we can use the associative property of matrices to make the coding process more complex and more secure. Therefore; if we have two invertible matrices A and B and a plaintext column vector, P then the encryption algorithm is:

$$C \equiv ABP \equiv A\,(BP) \bmod N$$

The decryption algorithm, on the other hand, is

$$P \equiv (AB)^{-1} C = B^{-1} A^{-1} C = B^{-1} (A^{-1} C) \bmod N$$

In this way, we get a new cipher column vector C, because the matrix multiplication operation is an associative.

USING THE AFFINE CIPHER ALGORITHM IN HILL CIPHER

We can use the affine cipher technique to make the Hill cipher more complex. Encryption algorithm here is given as:

$$C \equiv AP + B \bmod N$$

where, A is an invertible matrix and B is a column vector like the vectors P and C. For the decryption algorithm is:

$$P \equiv A^{-1} C - A^{-1} B \equiv A^{-1} (C - B)$$

USING THE AFFINE CIPHER ALGORITHM IN HILL CIPHER WITH MORE THAN ONE KEY

By using the following algorithm to encrypt any message, we will get more complex process:

$$C \equiv (AB\ldots..M)\,P + K \pmod N$$

For the decryption, we will use algorithm as described below:

$$P \equiv (AB\ldots..M)^{-1} (C - K) \pmod N$$

DISADVANTAGES

Using higher order matrices for encryption is not beneficial because it is very hard to calculate inverse of higher order matrices and also requires higher level computer programs. Also using more than one key and affine cipher algorithm in more than one key will do the operation processes of matrices like multiplication complex in higher order matrices.

USE OF DIAGONAL MATRIX

In the proposed method, the idea has been extended to the matrices mainly to non-singular diagonal matrices of higher order, especially induced from quadratic form .We know that the determination of inverse of non-singular matrices of higher order is difficult and requires higher level algorithms for the use of computers.

THEOREM : A text message of strings of some length l can be converted into a matrix M (called a message matrix M) of size $m \times n$, where $n < m$ and n is the least positive integer such that $m \times n \geq l$ depending upon the length of the message with the help of suitably chosen numerals and zeroes.

Consider the message to be sent: BEST WISHES.

We take the standard codes as discussed above.

1. We convert the above message into a stream of numerical values as follows:

BEST WISHES: 2 5 19 20 0 23 9 19 8 5 19

(Here we admit a single spacing for the purpose of better understanding)

2. We construct the message matrix M with this stream of numerals as $M = \begin{pmatrix} 2 & 5 & 9 \\ 20 & 0 & 23 \\ 9 & 19 & 8 \\ 5 & 9 & 0 \end{pmatrix}$ which is of order 4×3 using the theorem.

3. Based on this, we take the 3rd order diagonal matrix (The diagonalized matrix of the matrix of a QF of suitable variables otherwise called the matrix of the canonical form) with Diag ( )). For e:g if the QF is $2x_1^2 + x_2^2 + x_3^2 + 2x_1x_2 - 2x_1x_3 - 4x_2x_3$,

then the matrix of the QF is $= \begin{pmatrix} 2 & 1 & -0 \\ 1 & 1 & -2 \\ -1 & -2 & 1 \end{pmatrix}$.

Also the canonical form is whose matrix is given by

$$D(-1, 1, 4) = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 4 \end{pmatrix}$$

4. Then we have the Encoder as E $= \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 4 \end{pmatrix}$

5. Then the encoded matrix is given by,

$$X = ME = \begin{pmatrix} 2 & 5 & 9 \\ 20 & 0 & 23 \\ 9 & 19 & 8 \\ 5 & 9 & 0 \end{pmatrix} \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 4 \end{pmatrix}$$

$$= \begin{pmatrix} -2 & 5 & 76 \\ -20 & 0 & 92 \\ -9 & 19 & 32 \\ -5 & 9 & 0 \end{pmatrix}$$

Hence, the encoded numeric message is given by–2 5 76 –20 0 92 –9 19 32 –5 19 0

6. Clearly the decoder is $E^{-1} = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1/4 \end{pmatrix}$

7. The encoded numeric message is to be decoded by first writing the encoded matrix X from the received message as,

$$M = XE^{-1} = \begin{pmatrix} -2 & 5 & 76 \\ -20 & 0 & 92 \\ -9 & 19 & 32 \\ -5 & 9 & 0 \end{pmatrix} \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1/4 \end{pmatrix}$$

$$= \begin{pmatrix} 2 & 5 & 9 \\ 20 & 0 & 23 \\ 9 & 19 & 8 \\ 5 & 9 & 0 \end{pmatrix}$$

8. This matrix M is converted into numeric message as 2 5 19 20 0 23 9 19 8 5 19

9. This streams of numerals is converted into text message as

25 19 20 0 23 9 19 8 5 19: BEST WISHES

A WORD TO SECURITY

In case of using the standard codes, one could recognize intuitively or by any way, the codes of use from the codes allotted for the alphabets. So the use of codes in a random or chaotic way or by using some process , increases the security level.

Let us understand the fact with same example as above.

Instead of using the standard codes A-1, B-2….Z-26 and 0 for space, if we use the codes assigned in a random way or by using some generator using number theory or combinatorics, then the message BEST WISHES is given by the matrix

$$M=\begin{pmatrix} 6 & 3 & 14 \\ 20 & 0 & 24 \\ 9 & 14 & 18 \\ 3 & 114 & 0 \end{pmatrix} \text{instead of } M=\begin{pmatrix} 2 & 5 & 9 \\ 20 & 0 & 23 \\ 9 & 19 & 8 \\ 5 & 9 & 0 \end{pmatrix}$$

Anyone who intervene the communication uses the standard codes for this message matrix will get a confusing message like "FENT XINHCN"

So the messengers are advised to make use of their convenient system of codes in order to have higher security level.

GENERALIZATION

Using this operation, we decompose the message of longer length into a message of shorter length and finally these are joined to get a message of larger length.

Consider the message M: MEPCO WISHES ALL THE BEST

This message is decomposed into two messages as follows,

$M = M_1+M_2$, where M_1 = MEPCO WISHES & M_2 = YOU ALL THE BEST

DISADVANTAGES

The entries of diagonal matrix vector induced from canonical form of QUADRATIC FORM (QF) may be imaginary. So precautions must be taken while selecting the QF. Also if public key verifies that diagonal matrices are used during encryption, then security of encrypted messages is very easy to break.

EXPONENTIAL OF ORTHOGONAL MATRIX

Orthogonal matrices have several properties that make them interesting to diagonalize and find its reverse. This work proposes a method to encrypt and decrypt a message using the properties of these matrices. Some of these properties will be used and are quicker than other matrix method to decrypt:

- Fast inversion
- Real eigen values
- Orthogonal eigenvector

METHOD

Let A be an orthogonal matrix. Because A is orthogonal, A is diagonalizable, and can be written as a product of matrics, one of them being a diagonal matrix.

It will be shown how to encrypt using exponential of matrix, so first, let's see how to compute the exponential of a matrix. So, let $A=C^{-1}DC$, where C and $C^{-1}$are the change of base matrix and D is the diagonal matrix.

Lett λ_i be the eigenvalues of A_i and v_i the eigenvectors associated. So, to calculate the exponential of A:

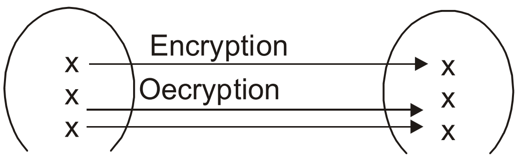
$$e^A = C^{-1}e^DC = C^{-1}\begin{pmatrix} e^{\lambda_1} & & & \\ & e^{\lambda_2} & & \\ & & \ddots & \\ & & & e^{\lambda_n} \end{pmatrix}C$$

Let's see how to calculate the exponential of a matrix A that is diagonalizable:

$$e^A = \Sigma_n \frac{A^n}{n!} = \Sigma_n \frac{(C^{-1}DC)^n}{n!} = \Sigma_n \frac{C^{-1}DCC^{-1}...CC^{-1}DC}{n!}$$

$$= C^{-1}\left(\Sigma_n \frac{D^n}{n!}\right)C = C^{-1}e^DC$$

An exponential function is used because it is a one- one function and it's well-defined in R and it's invertible in all R. So, one -one function is the relationship between the plaintext space (PT) and the ciphertext space (CT)



EXAMPLE

Let see how to encrypt the word "CRYPTOGRAPHY" choosing blocks of 4 letters. Let C the following orthogonal matrix:

$$C = \frac{1}{\sqrt{2}}\begin{pmatrix} 1 & -1 & 0 & 0 \\ 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & -1 \\ 0 & 0 & 1 & 1 \end{pmatrix}$$

We will use an exponential function as operator because it's a one-to-one function (trigonometric functions aren't one-to-one) and it's well defined in R. Firstly, because it's been chosen blocks of 4 letters (matrix 4x4), the word will be split in blocks of 4 letters:

CRYP | TOGR | APHY

So, to encrypt, we will use as eigenvalues and eigenvector of each of the number of alphabet matched with each letter:

$C:\lambda_{1,1}=3,\ R:\lambda_{1,2}=18,\ Y:\lambda_{1,3}=25, P:\lambda_{1,4}=16,$

$T:\lambda_{2,1}=20, O:\lambda_{2,2}=15, G:\lambda_{2,3}=7, R:\lambda_{2,4}=18,$

$A:\lambda_{3,4}=1, P:\lambda_{3,2}=16, H:\lambda_{3,3}=8,\ Y:\lambda_{3,4}=25$

It will be taken $X_{i,j}=\lambda_{i,j}$.

Once C has been chosen and the eigenvalues and eigenvectors, it will create the vectors on the space cryptographic.

For each block:

BLOCK 1: "CRYP"

$$Y_1 = C^{-1}DCX_1$$

$$=\frac{1}{2}\begin{pmatrix} 1 & 1 & 0 & 0 \\ -1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 \\ 0 & 0 & -1 & 1 \end{pmatrix}\begin{pmatrix} e^{3} & 00 & 0 \\ 0 & e^{18}0 & 0 \\ 0 & Oe^{25} & 0 \\ 0 & 00 & e^{16} \end{pmatrix}\begin{pmatrix} 1 & -1 & 0 & 0 \\ 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & -1 \\ 0 & 0 & 1 & 1 \end{pmatrix}\begin{pmatrix} 3 \\ 18 \\ 25 \\ 16 \end{pmatrix}$$

$$=\frac{1}{2}\begin{pmatrix} 21e^{18}-15e^{3} \\ 21e^{18}+15e^{3} \\ 41e^{16}+9e^{25} \\ 41e^{16}-9e^{25} \end{pmatrix}$$

BLOCK 2: "TOGR"

$$Y_2 = (C^2)^{-1}DC^2X_2$$

$$=\begin{pmatrix} 1 & 1 & 0 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & -1 & 0 \end{pmatrix}\begin{pmatrix} e^{20} & 00 & 0 \\ 0 & e^{15}0 & 0 \\ 0 & 0_e7 & 0 \\ 0 & 00 & e^{18} \end{pmatrix}\begin{pmatrix} 0 & -1 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & -1 \\ 0 & 0 & 1 & 0 \end{pmatrix}\begin{pmatrix} 20 \\ 15 \\ 7 \\ 18 \end{pmatrix}$$

$$=\begin{pmatrix} 20e^{15} \\ 15e^{20} \\ 7e^{18} \\ 18e^{7} \end{pmatrix}$$

BLOCK 3: "APHY"

$$Y_3 = (C^3)^{-1}DC^3X_3$$

$$=\frac{1}{2}\begin{pmatrix} -1 & 1 & 0 & 0 \\ -1 & -1 & 0 & 0 \\ 0 & 0 & -1 & 1 \\ 0 & 0 & -1 & -1 \end{pmatrix}\begin{pmatrix} e^{1} & 00 & 0 \\ 0 & e^{16}0 & 0 \\ 0 & 0e^{8} & 0 \\ 0 & 00 & e^{23} \end{pmatrix}\begin{pmatrix} -1 & -1 & 0 & 0 \\ 1 & -1 & 0 & 0 \\ 0 & 0 & -1 & -1 \\ 0 & 0 & 1 & -1 \end{pmatrix}\begin{pmatrix} 1 \\ 16 \\ 8 \\ 25 \end{pmatrix}$$

$$=\frac{1}{2}\begin{pmatrix} 17e^{1}-15e^{16} \\ 17e^{1}+15e^{16} \\ 33e^{8}-17e^{25} \\ 33e^{8}+17e^{25} \end{pmatrix}$$

To decrypt the cipher-block, once the system has received the cipher-blocks, it can decrypt by the reverse process.

To decrypt, the receiver receives k_{pub}. Because he has k_{priv}, he can compute $C = k_{priv} * k_{pub}$.

To decrypt the cipher-block, once the system has received the cipher-blocks, it can decrypt by the reverse process:

$$T_1 = CY_1 = \frac{1}{2}\begin{pmatrix} 1 & -1 & 0 & 0 \\ 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & -1 \\ 0 & 0 & 1 & 1 \end{pmatrix}\begin{pmatrix} 21e^{18} - 15e^{3} \\ 21e^{18} + 15e^{3} \\ 41e^{16} + 9e^{25} \\ 41e^{16} - 9e^{25} \end{pmatrix} = \begin{pmatrix} -15e^{3} \\ 21e^{18} \\ 9e^{25} \\ 41e^{16} \end{pmatrix}$$

$$T_2 = C^2Y_2 = \begin{pmatrix} 1 & -1 & 0 & 0 \\ 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & -1 \\ 0 & 0 & 1 & 1 \end{pmatrix}\begin{pmatrix} 20e^{15} \\ 15e^{20} \\ 7e^{18} \\ 18e^{7} \end{pmatrix} = \begin{pmatrix} 15e^{20} \\ 20e^{15} \\ -18^{e7} \\ 7e^{18} \end{pmatrix}$$

$$T_3 = C^3Y_3 = \frac{1}{2}\begin{pmatrix} -1 & -1 & 0 & 0 \\ 1 & -1 & 0 & 0 \\ 0 & 0 & -1 & -1 \\ 0 & 0 & 1 & -1 \end{pmatrix}\begin{pmatrix} 17e^{1} - 15e^{16} \\ 17e^{1} + 15e^{16} \\ 33e^{8} - 17e^{25} \\ 33e^{8} + 17e^{25} \end{pmatrix} = \begin{pmatrix} -17e^{1} \\ -15e^{16} \\ -33e^{8} \\ -17e^{25} \end{pmatrix}$$

Because, to encrypt it was used the matrix C and its reverse, whereas to decrypt, only one time is necessary, some values can be negative. So, because all values will be considered positive, absolute values of components will be considered:

$$T_1 = CY_1 = \begin{pmatrix} 15e^{3} \\ 21e^{18} \\ 9e^{25} \\ 41e^{16} \end{pmatrix},\ T_2 = C^2Y_2 = \begin{pmatrix} 15e^{20} \\ 20e^{15} \\ 18e^{7} \\ 7e^{18} \end{pmatrix},$$

$$T_3 = C^3Y_3 = \begin{pmatrix} 17e^{1} \\ 15e^{16} \\ 33e^{8} \\ 17e^{25} \end{pmatrix}$$

Using the values of the table, for each value it can be found the exponent of exponential, so find the value of the plaintext. So, for T_1:

$15e^{3}$: Exponent 3, so, the first character is "C"

$22e^{18}$: Exponent 18, so, "R"

$9e^{25}$: Exponent 25, so "Y"

$41e^{16}$: Exponent 16, so "P" And so on. Because each letter matched with a number, in the way that:

The cipher-blocks will be:

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
V	W	X	Y	Z	a	B	c	D	E	f	g	h	I	j	k	l	m	n	o	p
22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
q	r	S	t	U	v	W	x	Y	Z	0	1	2	3	4	5	6	7	8	9	*space
43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63

X_1 = "CRYP"

X_2 = "TOGR"

X_3 = "APHY"

And the text 'CRYPTGORAPHY" will be decrypted.

ATTACK

Suppose that attacker receives the encrypt text of **"CRTYP"**

$$Y_1 = P^{-1}C^{-1}DCX_1 = \frac{1}{2}\begin{pmatrix} 21e^{18} - 15e^{3} \\ 21e^{18} + 15e^{3} \\ 41e^{16} + 9e^{25} \\ 41e^{16} - 9e^{25} \end{pmatrix}$$

Taking linear combinations:

$Y_{11}+Y_{14}=21e^{18}=1378859352$,

$Y_{12}+Y_{23}=41e^{16}=364330531,3$,

$Y_{12}-Y_{14}=15e^{3}=30, 2830538$

$Y_{12}-Y_{23}=9e^{25}=648044094036,47$

Because the encryption is based on combinations, attacker must found a combination of exponentials to find 21 and 18 (and only if he knows that there's exponentials). Even so, the way would be trying several values of a and b in sense that, knowing c, $a*e^b = c$. But, the second block cipher is like:

$$Y_2 = (C^2)^{-1}DC^2X_2$$

And the method used for decrypt the first block won't be possible in this case because in this case the matrix is C^2, so the attacker must use the same method but for a different matrix.

Because each character is codified by an exponential e[char], in sense that, A is codified by e, B, by e^2 and so on, there's not linear combinations, and that difficult much more an attack by frequencies. Also, the final cyphertext is a combination of several ciphers, so it will be very difficult to separate them (ex, $21e^{18} + 15e^3$ is the combination of encryption of letters "C" and "R"). The matrix permutation P changes the position of each cyphertext, and that makes more difficult to decrypt the message without P.

EXTENSIONS

The method proposed can be extended to other function rather than exponential (hyperbolic sinus and hyperbolic cosines). Because there's a relationship between exponential function and hyperbolic functions, the same method could be applied.

It has shown that, for the exponential function, the matrix is:

$$e^A = C^{-1}e^DC = C^{-1}\begin{pmatrix} e^{\lambda_1} & & & \\ & e^{\lambda_2} & & \\ & & \ddots & \\ & & & e^{\lambda_n} \end{pmatrix}C$$

So, using hyperbolic sines:

$$\sinh A = \frac{e^A - e^{-A}}{2}$$

$$= C^{-1}\begin{pmatrix} \frac{e^{\lambda_1} - e^{-\lambda_1}}{2} & & & \\ & \frac{e^{\lambda_2} - e^{-\lambda_2}}{2} & & \\ & & \ddots & \\ & & & \frac{e^{\lambda_n} - e^{-\lambda_n}}{2} \end{pmatrix} C \sinh A$$

$$= C^{-1}\begin{pmatrix} \sinh\lambda_1 & & & \\ & \sinh\lambda_2 & & \\ & & \ddots & \\ & & & \sinh\lambda_n \end{pmatrix}C$$

Because the sinh is not periodic in R, it can be also used as the same method seen before.

CONCLUSION

From this study, we can conclude that the cryptography techniques which use MATRIX are easier than the others .We can improve the security of this technique by using matrices of higher size. But calculation of the inverse of higher order matrices requires higher level of computer programs. So, DIAGONAL MATRICES were preferred because inverses of diagonal matrices induced from Quadratic forms can be easily obtained. Also inverse of higher ordered diagonal matrix is easy to calculate and large messages can be split and suitable processing may be carried over.Higher level of security can be achieved by using own conventional codes or codes (as in the word on Security) processed by some structure.

But, the diagonal matrix induced from the canonical form of quadratic form may not have real number as their entries. so, orthogonal matrices were preferred, as they have some key features that are:

- Fast inversion
- Real eigenvalues
- Orthogonal eigenvector

We make use of expotnential to increase the security level, since exponential of diagonal matrix is easy to calculate.

Also, Each cipher-block is a linear combination of several cipher-blocks, it makes much difficult to plan an attack. Using the properties of orthogonal matrix, it will be faster to calculate the reverse of the matrix to generate the ciphertext and the plaintext.

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A STUDY OF REPRESENTATION OF POSITIVE INTEGERS AS SUM OF SQUARES

*** Surabhi Kumari   * Twinkle Das**

Presentation : 23.02.2018

Supervisor : **Dr. Binay Kumar**

ABSTRACT : *Our entire presentation is based on "A Study Of Representation Of Positive Integers As Sum Of Squares". It is observed that some of number from set of integer can be represented as square of single number or sum of square of two numbers or sum of square of three numbers or four numbers. Now the question arises which number can be expressed as square of single number or sum of square of two numbers or sum of square of three numbers or four numbers? Many researchers work in this direction. Fermat states first theorem whose proof was given by Euler in 1749, which explain which number can expressed as sum of two square. Later Legendre proved a theorem known as Three square theorem, which explain which types of number can be expressed as sum of three squares. Another proof of three square theorem based upon geometry was given by Ankey. Further Legendre's stated four square theorem but the proof was not given by him. Some analysis in this direction was explained by Lagrange's in 1770. So this theorem was known as Lagrange's four square theorem. The next year EULER offered a much simple demonstration of Lagrange's four square theorems.*

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INTRODUCTION

All positive integers can be expressed as sum of squares. Some can be expressed as sum of two or three squares. Some can be expressed as sum of four squares. And some can be expressed as sum of squares in multiple ways. For example, 338350 is the sum of first hundred non-zero squares. It can also be represented as $580^2 + 43^2 + 10^2 + 1^2$.

The problems based on sum of squares have received great deal of attention. But the research about sum of squares has been going on from since seventeen century. And many mathematicians like Fermat, Euler, Lagrange, etc. gave their enormous contribution regarding this field.

Historically, a problem that has received a good deal of attention has been that of representing positive integers as sum of squares.

$1 = 1^2$

$2 = 1^2 + 1^2$

$3 = 1^2 + 1^2 + 1^2$

$4 = 2^2$

$5 = 2^2 + 1^2$

$6 = 2^2 + 1^2 + 1^2$

$7 = 2^2 + 1^2 + 1^2 + 1^2$

$8 = 2^2 + 2^2$

and so on.......

So, we see that positive integers are represented as sum of four or less than four squares. So, our analysis is based on

1. Sum of two squares
2. Sum of three squares
3. Sum of four squares

REPRESENTATION OF INTERGERS AS SUM OF TWO SQUARES

By fundamental theorem every integer can be uniquely expressed as product of prime number. Thus if we able to know whether both type of prime $4k + 1$ and $4k + 3$ can be expressed as sum of two square or not then representation as sum of square of any integer can be easily explained by following well known lemma.

Lemma : If m and n are each the sum of two squares, then so is their product mn.

In 1640 Fermat proved a theorem that every prime of the form $4k + 1$ can be expressed as the sum of squares of two integers.

But due to some reason, it was not published; later Euler in 1754 published this theorem by showing that this representation is unique. But the prime of the type $4k + 3$ cannot be expressed as sum of two squares. For example the prime 7 and 11 are of type $4k + 3$, but they cannot be written as sum of two squares.

$7 = 2^2+1^2+1^2+1^2$

$11 = 3^2+1^2+1^2$

Thus it is clear that it is not always possible to express every integer as sum of square. Apart from prime number of the form $4k+1$ some other number can be expressed as sum of two square. For example the number 10, 26 can be written as

$10 = 3^2+1^2$

$26 = 5^2+1^2$

The positive integer n be written as $n=N^2m$, where m is square-free. Then n can be expressed as the sum of two squares if and only if m contains no prime factor of the form $4k + 3$.

SOME POINTS RELATED TO FERMAT'S THEOREM

- Fermat's $4n + 1$ theorem, sometimes called Fermat's two square theorem or simply called "Fermat theorem" states that a prime number p can be represented in an essentially unique manner (up to the order of addends) in the form of $x^2 + y^2$ for integer x and y if $p = 1 (\mathrm{mod}\ 4)$ or $p = 2$ (which is a degenerate case with $x = y = 1$). This theorem was stated by Fermat, but the first published proof was by EULER.
- On 25^{th} December,1640, Fermat communicated proof of this theorem to MERSENNE.
- The proof of 'THEOREM OF FERMAT' was published by LEONHARD EULER in 1754.

- In light of above statement of "THEOREM OF FERMAT" we can say that an odd prime of the form 4 n + 3 can not be written as sum of two square.

Consider primes 3, 7, 11, ……. which are of the form 4 n + 3

$3 = 1^2 + 1^2 + 1^2$ not equal to sum of two squares

$7 = 2^2 + 1^2 + 1^2 + 1^2$ not equal to sum of two squares

$11 = 3^2 + 1^2 + 1^2$ not equal to sum of two squares

On can easily prove that "No odd prime p of the form $4n + 3$ is a sum of two squares".

REPRESENTATION OF POSITIVE INTEGERS AS SUM OF THREE SQUARES

It is not always possible to express every positive integer as sum of two squares. For instance, when only two squares are allowed, we have no representation for integers 14, 33, and 67. These numbers can be expressed as sum of three square as explain below

$14 = 3^2 + 2^2 + 1^2$

$33 = 5^2 + 2^2 + 2^2$

$67 = 7^2 + 3^2 + 3^2$

Further if we assume that sum of square as sum by three square by adding 0^2 to each two square representable number. Thus representing integer as sum of three square is generalization of sum of two square. Now the question arises which type of number can be expressed as sum of three square.

Fermat was being the first person whogave the criterion that a number can be written as a sum of three squared integers if and only if it is not of the form $4n\,(8m + 7)$, where m and n are non-negative integers. Legendre in 1798 gives the complicated proof of Fermat theorem and later in1801 Gauss gives it simplify version of proof.

REPRESENTATION OF POSITIVE INTEGERS AS SUM OF FOUR SQUARES

As discussed in sum of two square or three square there exist some positive integers that are not representable as the sum of either two or three squares (take 7 and 15, for simple examples). But these number can be represented as sum of four square as explain below

$7 = 2^2 + 1^2 + 1^2 + 1^2$

$15 = 3^2 + 2^2 + 1^2 + 1^2$

Thus situation change dramatically when we turn to four squares: That is every number can be expressed as sum of four squares. The first explicit reference to the fact that every positive integer can be written as the sum of four squares, counting 0^2, was made by Bachet (in 1621) and he checked this conjecture for all integers up to 325. Fifteen years later Fermat claimed that he had a proof using his favorite method of infinite descent; however, as usual, he gave no details.

LEMMA 1 (Euler): If the integers m and n are each the sum of four squares, then mn is likewise so representable.

So, if all the factors of number are representable in standard form of a number, then the number itself is representable.

Euler discovered the fundamental identity that allows one to express the product of two sums of four squares as such a sum, and the crucial result that the congruence in the form of following lemma:

LEMMA 2 : If p is an odd prime, then the congruence $x^2 + y^2 + 1 \equiv 0 \, mod(p)$ has a solution x_0, y_0 where $0 \le x_0 \le (p - 1)/2$ and $0 \le y_0 \le (p - 1)/2$.

Above two lemmas are necessary tools in order to proving the theorem

THEOREM : Any prime p can be written as sum of four squares.

Finally by use of above lemma and theorem Lagrange gives the classical result in the form of following theorem:

THEOREM : (Lagrange) Any positive integer *n* can be written as the sum of four squares, some of which may be zero.

Although this theorem was proved by Fermat using infinite descent, the proof was suppressed. Euler was usable to prove the theorem. The first published proof was given by LAGRANGE in 1770.

CONCLUSION

This whole project is based on representation of numbers as sum of Squares. This project deepens our knowledge about numbers. With the help of this project we came to know that how a number can be represented as sum of squares in multiple ways. Many great Mathematicians namely FERMAT, EULER, LAGRANGE etc gave their enormous contribution towards this field. They enlighten this field with their research, theorems and their proofs. We can thus conclude that numbers are backbone of entire mathematics and their interpretation as sum of square may be helpful in many applied branches of science.

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DESIGNING OF WATER LEVEL ALARM USING 555 TIMER

*** Kumari Pooja** *** Sahiba Perveen**

Presentation : 23.02.2018

Supervisor : **Dr. Manish Kumar Verma**

ABSTRACT : *Conservation of water is of extreme importance, as it is going scarce day by day. Wastage of water and energy from over flowing overhead tanks is a common problem. Water level alarm is a simple low cost circuit, which uses 555 timer as an astable multivibrator. Water level alarm can be used to raise an alarm when the water level in the tank reaches a preset level, so that pump can be switched off.*

Key word **:** *555 timer, Multivibrator, water level alarm.*

INTRODUCTION

Nowadays, in all the buildings water is stored in the overhead tanks by using pumps. When the water is stored in the tank, no one can know when the water tank will fill. Hence there is an overflow of water in the tank, leading to wastage of energy and water. To resolve this type of problem, we can use water level alarm circuit of a 555 timer, which helps in indicating the level of water in the overhead tank and gives and alarm when the tank is full. The designed water level alarm circuit is of low cost. The water level indicator can be defined as a system which gives the information about the water level in reservoirs or in tanks which is used in homes and offices. In the present paper we have designed astable multivibrator using 555 timer and modified it to work as a water level alarm.

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THEORY

555 Timer

The 555 timer IC is an integrated circuit which is used in a variety of timer, pulse generation, and oscillator applications. The 555 can be used to provide time delays and as an oscillator. The 555 Timer is available in 8-pin Metal Can Package, 8-pin Mini Dual in-line Package (DIP) and 14-pin DIP. The 14-pin DIP is IC 556 which consists of two 555 timers.

The 8-pin DIP is most commonly used. The pin out diagrams of 555 Timer in both the 8-pin packages is shown in fig 1(a).

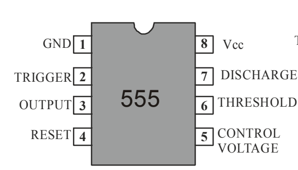

Fig 1(a): 555 Timer Pinout

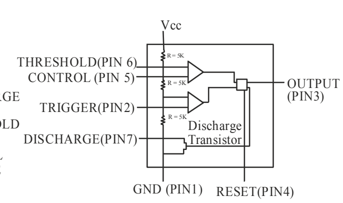

Fig 1(b): 555 Timer Internal Circuit Diagram

The internal block diagram of a 555 timer is shown in fig. 1(b). It consists of the two comparators, an SR flip-flop, two transistors, and a resistive network. The comparators are the basic Op-amps. The comparator 1, which provides the R input, compares the threshold voltage with a 2/3 V_{CC} reference voltage. The comparator 2, which provides the S input to the flip-flop, compares the trigger voltage with a 1/3 V_{CC} reference voltage. The resistive network of three resistors will act as a voltage divider circuit. The values of these resistors are 5 KΩ each. These three 5 KΩ resistors are responsible for the name "IC 555". Out of the two transistors, one transistor is a discharge transistor. The open collector of this transistor is connected to the discharge pin (Pin 7) of the IC. According to the output of the flip-flop, this transistor either goes into saturation or cut-off. When the transistor is saturated, it provides a discharge path to the capacitor that is connected externally. The flip flop reset terminal is connected to the reset terminal (Pin 4) which resets the timer irrespective of the other inputs.

The three 5 KΩ resistors inside the 555 timer form a voltage divider network. This network provides two reference voltages to the two comparators, 2/3 V_{CC} to the inverting terminal of the upper comparator (comparator 1) and 1/3 V_{CC} to the non-inverting terminal of the lower comparator (comparator 2).

The inverting terminal of the upper comparator is connected to the control input. Generally, control input is not used and is connected to 2/3 V_{CC}. The other input of the upper comparator is threshold and its output is connected to the R input of the flip-flop.

When the threshold voltage is greater than 2/3 V_{CC} (i.e. the control voltage), then the flip-flop is RESET and the output goes LOW. This will turn the discharge transistor ON (transistor goes to saturation) and provides a discharge path to any externally connected capacitor.

A trigger input is connected to the inverting terminal of the lower comparator. When the trigger input is less than the reference voltage (1/3 V_{CC}), the lower comparator's output is high.

This is connected to the S input of the flip-flop and hence the flip-flop is SET and the output goes HIGH and the timing interval starts. As the output is high, the discharge transistor is turned OFF and allows charging of any capacitor connected to it externally.

Hence, in order for the output to go HIGH, the trigger input should be less than the reference voltage momentarily. The output is low when the threshold voltage is greater than 2/3 V_{CC}, which resets the flip-flop and hence the output.

PROCEDURE AND OBSERVATIONS

Astable multivibrator is a multivibrator with no stable states and it oscillates between its two states back and forth in accordance with the RC time constant. Figure 2 shows the circuit diagram of astable multivibrator. The ciruit of astable multivibratior was realised with varying values of the components R_1 and R_2. Initially the capacitor C is fully discharged. This forces the output to go high. The discharge transistor is in off state. This allows the capacitor to charge through R_1 and R_2. When the voltage across C exceeds +2/3 V_{CC}, the output of upper comparator forces the flip-flop to reset state and correspondingly output of 555 to go low. At the same time the discharge transistor is switched on, allowing the capacitor to discharge through R_2 and transistor. When the voltage of the capacitor falls below 1/3 V_{CC}, the lower comparator Sets the flip flop and consequently output of 555 goes HIGH. At the same time discharge transistor is switched off and the capacitor starts charging again and the cycle repeats itself. The HIGH-state and LOW-state time periods are governed by the charge ($+V_{CC}/3$ to $+2V_{CC}/3$) and discharge ($+2V_{CC}/3$ to $+V_{CC}/3$) timings. These are given by the equations

HIGH-state time period $T_{HIGH}=0.69*(R_1+R_2)*C$

LOW-state time period $T_{LOW}=0.69*R_2*C$

The time period T and frequency f of the output waveform are respectively given by the equations

Time period $T = 0.69*(R_1 + 2*R_2)*C$

Frequency

$$F=\frac{1}{0.69*(R_1+2*R_2)*C}=\frac{1.44}{(R_1+2*R_2)*C}$$

Output voltage waveform of the realiaed circuit was studied using a CRO. The time period of the waveform was observed from the waveform and trace of the waveform was taken on the tracing paper.

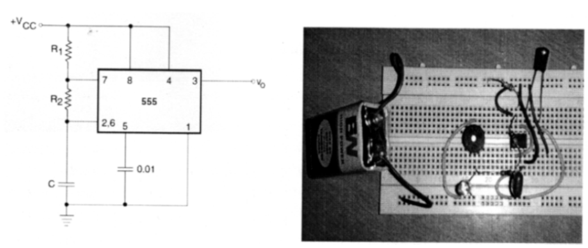

Fig 2: Circuit diagram of astable multivibrator and actual circuit realised

The traces of the waveforms for different values of R_1, R_2 and C are shown in fig. 3. The experimental values of the frequency of astable multivibrator were found to be in concordance with the theoretical frequencies.

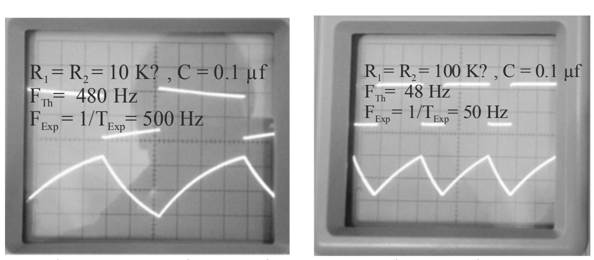

Fig 3: Waveform of output and capacitor charging and discharging cycles

The circuit of astable multivibrator was modified as shown in fig. 4. The components used were R_1, R_2, R_3, R_4= 1KΩ, C = 0.1 µf, C_1 = 0.01 µf, 9V Battery and Buzzer. The circuit was switched on with the beaker empty. The astable multivibrator was reset, since reset pin of 555 timer was connected to ground through 1KΩ resistance. The beaker was filled with water slowly till the water level rose to the level of the probes. As soon as water filled the beaker and probes were connected through water, reset pin of 555 was pulled high to V_{cc} and the astable multivibrator circuit started working and alarm was activated.

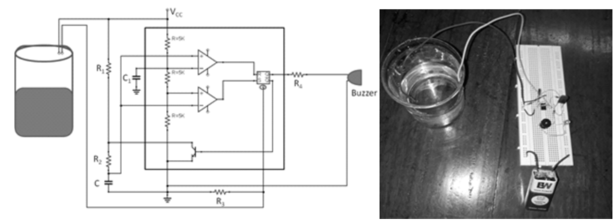

Fig 4: Ciruit diagram of Water level Alarm and actual circuit realised

CONCLUSION

The astable multivibrator was designed using 555 timer and its frequency was verified using CRO. The agreement of theoretical and experimental values of the frequency of waveform was very good. We were successful in applying the astable multivibrator as water level indicator. The multivibrator was off when water level was low and it was triggered after water level was raised to the level of the probes used for water level indicator. Initially the reset pin was connected to ground. When the water level was maximum, reset pin was given $+V_{cc}$ enabling the 555 timer to run in astable mode. The prepared multivibrator can also be used to provide timing clocks to digital circuits for their synchronous operation.

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DESIGNING OF BASIC MEMORY ELEMENTS : CLOCKED S-R AND D FLIP FLOPS

* **Anjali** * **Priti**

Presentation : 23.02.2018
Supervisor : **Ms. Sonu Rani**

ABSTRACT : *Flip flops are actually an application of logic gates. With the help of Boolean logic we can create memory with them. Flip flops can also be considered as the most basic idea of a Random Access Memory (RAM). When a certain input value is given to them, they will be remembered and executed accordingly. The most commonly used application of flip flops is in the implementation of a feedback circuit. As a memory relies on the feedback concept, flip flops can be used to design it.*

***Key word* :** *Flip flop, IC, LED, Logics Gates*

INTRODUCTION

Digital electronic circuit is classified into combinational logic and sequential logic. In Combinational logic output depends on the inputs levels, whereas in sequential logic output depends on stored levels and also the input levels.

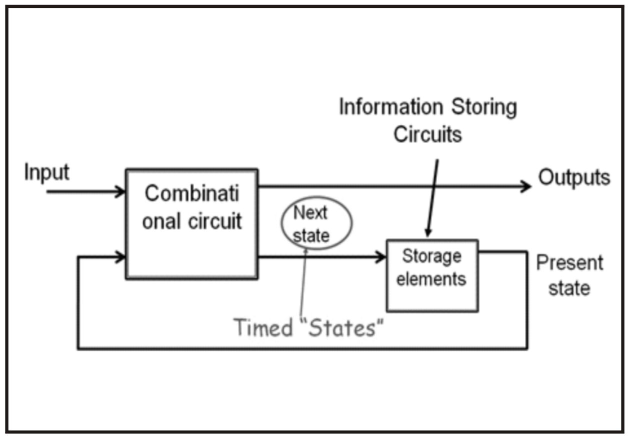

Fig.(1) Block Diagram of Sequential Circuit

The storage elements (Flip -flops) are devices capable of storing 1-bit binary information. The binary information stored in the memory elements at any given time defines the state of the Sequential circuit. The input and the present state of the memory element determines the output. Storage element's next state is also a function of external inputs and present state as shown in fig.(1).Flip flops are actually an application of logic gates. With the help of Boolean logic we can create memory with them. Flip flops can also be considered as the most basic idea of a Random Access Memory (RAM). When a certain input value is given to them, they will be remembered and executed, if the logic gates are designed correctly. Therefore

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for understanding the working of flip flops we have to first go through about the working of logic gates.

Pre-Experimental Discussion : For designing of flip flops we had used NAND gate which is a digital logic gate having two inputs A and B and one output Y as shown in fig. 2. NAND gate basically means NOT of AND. This gate works on the digital logic with truth table as shown in fig. 3. Here logic 0 means input is connected to the ground terminal and logic 1 means it is connected to the positive terminal of supply voltage(5 V battery).According to truth table if input A of logic gate is 0 and input B is 0, output of NAND gate is 1 which satisfies the rule of NOT of AND, rest of the truth table also follows this logic.

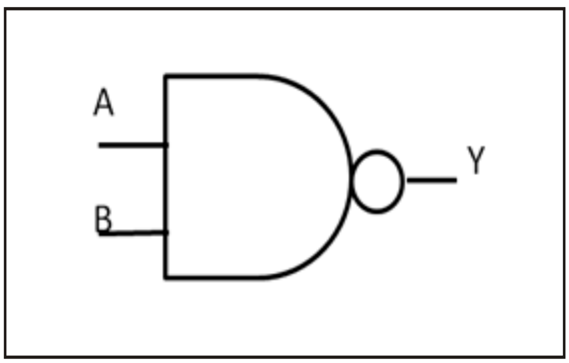

Fig. 2 Logic symbol of NAND gate

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

Fig. 3 Truth table of NAND gate

Since we had to use more than one NAND gates for the designing of Flip Flops so we had to use IC (Integrated Circuits) .The IC suitable for this purpose is 7400 which is a quad two input NAND gate IC as shown in Fig.(4)

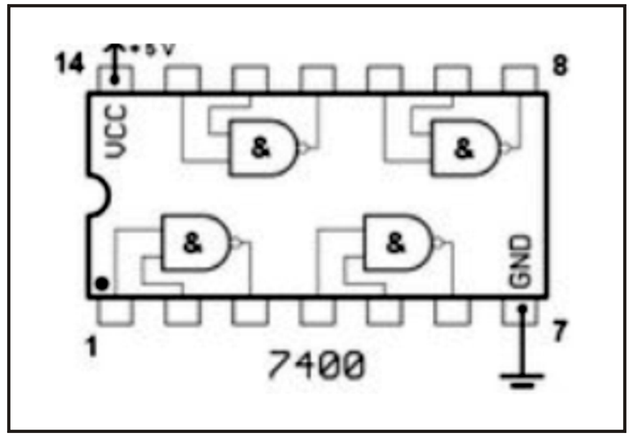

Fig. 4 : IC package : 7400-Quad two input NAND gate

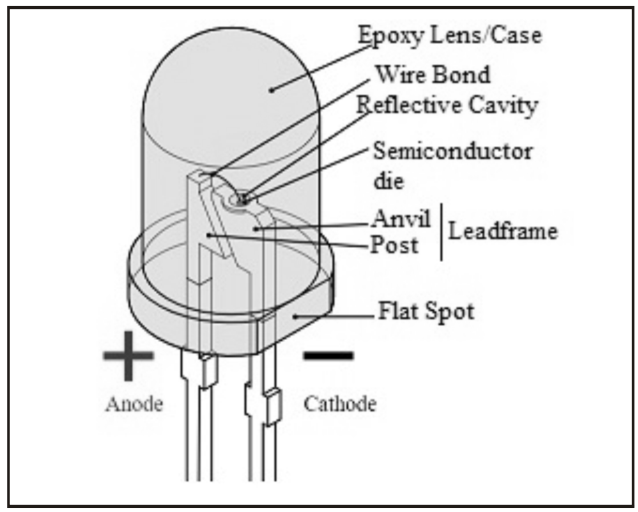

Fig. 5 : Construction of LED

For the judgement of the input and output condition of logic gates we had to use another component of electronics known as LED(light emitting diode) A light-emitting diode is a two-lead semiconductor light source as shown in Fig.(5). It is a p-n junction diode that emits light when activated. When a suitable voltage is applied to the leads, electrons are able to recombine with electron holes within the device, releasing energy in the form of photons. This effect is called electroluminescence, and the colour of the light (corresponding to the energy of the photon) is determined by the energy band gap of the semiconductor.

Theory : Flip-flops are synchronous bistable devices. The term synchronous means the output changes state only when the clock input is triggered. That is changes in the output occur in synchronization with the clock. A flip-flop circuit has two outputs, one for the normal value and one for the complement value of the stored bit. Since memory elements in sequential circuits are usually flip-flops. All flip -flops can be divided into four basic types: SR, JK, D and T. They differ in the number of inputs and in the response invoked by different value of input signals Out of these Flip Flop we had designed S-R Flip flop, Clocked S-R Flip Flop, and D Flip Flop.

S-R FLIP FLOP

The S-R flip-flop, also known as a Set Reset Flip Flop, can be considered as one of the most basic sequential logic circuit possible. This simple flip-flop is basically a one-bit memory bistable device that has two inputs, one which will "SET" the device (meaning the output = "1"), and is labelled S and another which will "RESET" the device (meaning the output = "0"), labelled R. Then the SR description stands for "Set-Reset". The reset input resets the flip-flop back to its original state with an output Q that will be either at a logic level "1" or logic "0" depending upon this set/reset condition.

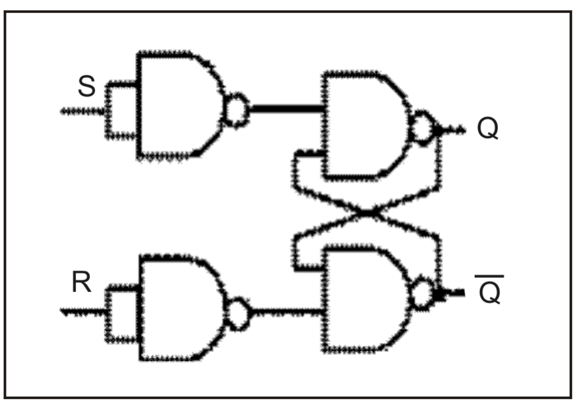

Fig.(6) S-R Flip Flop

A basic NAND gate SR flip-flop circuit provides feedback from both of its outputs back to its opposing inputs and is commonly used in memory circuits to store a single data bit. Then the SR flip-flop actually has three inputs, Set, Reset and its current output Q relating to it's current state or history as shown in fig.(6). The term "Flip-flop" relates to the actual operation of the device, as it can be "flipped" into one logic Set state or "flopped" back into the opposing logic Reset state.

THE SET STATE

Consider the circuit shown above. If the input R is at logic level "0" (R = 0) and input S is at logic level "1" (S = 1), the first NAND gate has at least one of its inputs at logic "0" therefore, its output Q must be at a logic level "1" (NAND Gate principles). Output Q is also fed back to input and so both inputs to NAND gate are at logic level "1", and therefore its output Q must be at logic level "0".Again NAND gate principals. If the reset input R changes state, and goes HIGH to logic "1" with S remaining HIGH also at logic level"1", NAND gate inputs are now R = "1" and another "0". Since one of its inputs is still at logic level "0" the output at Q still remains HIGH at logic level "1" and there is no change of state. Therefore, the flip-flop circuit is said to be "Latched" or "Set" with Q = "1" and Q' = "0".

The Reset State : In this second stable state, Q is at logic level "0", (not Q = "0") its inverse output at Q' is at logic level "1", (Q' = "1"), and is given by R = "1" and S = "0". As first NAND gate has one of its inputs at logic "0" its output Q must equal logic level "1" (again NAND gate principles). Output Q is fed back to input so both inputs to NAND gate are at logic "1", therefore, Q = "0". If the set input, S now changes state to logic "1" with input R remaining at logic "1", output Q still remains LOW at logic level "0" and there is no change of state. Therefore, the flip-flop circuits "Reset" state has also been latched and we can define this "set/reset" action in the following truth table. From the diagram it is evident that the flip flop has mainly four states. They are

- **S=0, R=0-Q & Q' = Remember**

If both the values of S and R are switched to 0, then the circuit remembers the value of S and R in their previous state

- **S=1, R=0-Q=1, Q'=0**

This state is also called the SET state.

- **S=0, R=1-Q=0, Q'=1**

This state is known as the RESET state.

In both the states we can see that the outputs are just compliments of each other and that the value of Q follows the value of S.

- **S=1, R=1-Q=0, Q'=0 [Invalid]**

This is an invalid state because the values of both Q and Q' are 0. They are supposed to be compliments of each other. Normally, this state must be avoided. The truth table of SR flip flop is shown in Fig.(7)

S	R	Q	Q'
0	0	No change	No change
0	1	0	1
1	0	1	0
1	1	Invalid	Invalid

Fig.(7) Truth Table of SR flip flop

CLOCKED S-R FLIP FLOP

It is also called a Gated S-R flip flop. The problems with S-R flip flops using NAND gate is the invalid state. This problem can be overcome by using a clocked S-R flip flop. Two types of clocked SR flip - flops are possible: based on NAND and based on NOR. The circuit of clocked SR flip - flop using NAND gates is shown in fig.(8). This circuit is formed by adding two NAND gates to NAND based SR flip - flop. The inputs are active high as the extra NAND gate inverts the inputs. A clock pulse is given as input to both the extra NAND gates. This extra conditional input is called an "Enable" input and is given the prefix of "EN". The addition of this input means that the output at Q only changes state when it is HIGH and can therefore be used as a clock (CLK=C) input making it level-sensitive as shown below. Hence the transition of the clock pulse is a key factor in functioning if this device. Assuming it is a positive edge triggered device, the truth table for this flip - flop is shown below. When the Enable input "EN" is at logic level "0", the outputs of the two NAND gates are also at logic level "1", regardless of the condition of the two inputs S and R, latching the two outputs Q and Q into their last known state. When the enable input "EN" changes to logic level "1" the circuit responds as a normal SR bistable flip-flop with the two NAND gates becoming transparent to the Set and Reset signals. This additional enable input can also be connected to a clock timing signal C adding clock synchronisation to the flip-flop creating what is sometimes called a "Clocked SR Flip-flop". So a Gated Bistable SR Flip-flop operates as a standard bistable latch but the outputs are only activated when a logic "1" is applied to its EN input and deactivated by a logic "0".The states of flip flop are,

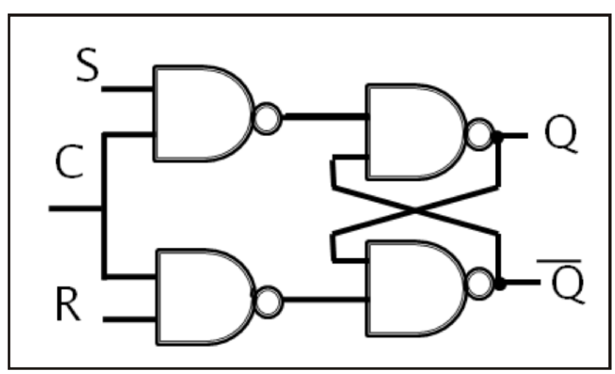

Fig.(8) Clocked S-R Flip Flop Using NAND Gates

- **C=0, S=X, R=X-Q & Q' = Remember**

If clock is also 0, then the circuit remembers the value of S and R in their previous state, whatever be the values of inputs Sand R, it acts like same as S-R Flip Flop.

- **C=1, S=1, R=0-Q=1, Q'=0**

This state is also called the SET state. The truth table of clocked SR flip flop is shown in fig.(9).

C	S	R	Q	Q’
1	0	0	No change	No change
1	0	1	0	1
1	1	0	1	0
1	1	1	Invalid	Invalid
0	X	X	No change	No change

Fig.(9) Truth Table of Clocked S-R Flip Flop

- **C=1, S=0, R=1-Q=0, Q'=1**

This state is known as the RESET state. In both the states we can see that the outputs are just compliments of each other and that the value of Q follows the value of S.

- **C=1, S=1, R=1-Q=0, Q'=0 [Invalid]**

This is an invalid state because the values of both Q and Q' are 0. They are supposed to be compliments of each other. Normally, this state must be avoided.

- **C=1, S=0, R=0-Q & Q' = Remember**

If both the values of S and R are switched to 0 and clock is 1, then the circuit remembers the value of S and R in their previous state, it acts like same as S-R Flip Flop.

D FLIP FLOP

We know that a simple SR flip-flop requires two inputs, one to "SET" the output and one to "RESET" the output. By connecting an inverter (NOT gate) to the SR flip-flop we can "SET" and "RESET" the flip-flop using just one input as now the two input signals are complements of each other. This complement avoids the ambiguity inherent in the SR latch when both inputs are LOW, since that state is no longer possible. Thus this single input is called the "DATA" input. If this data input is held HIGH the flip flop would be "SET" and when it is LOW the flip flop would change and become "RESET". However, this would be rather pointless since the output of the flip flop would always change on every pulse applied to this data input. To avoid this an additional input called the "CLOCK(C)" or "ENABLE" input is used to isolate the data input from the flip flop's latching circuitry after the desired data has been stored. The effect is that D input condition is only copied to the output Q when the clock input is active. This then forms the basis of another sequential device called a D Flip Flop.

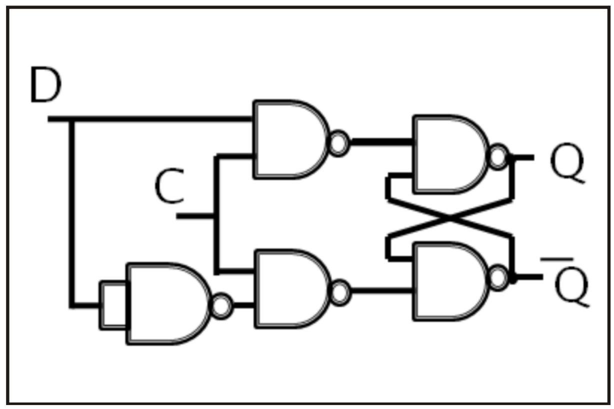

Fig.(10) D Flip Flop Using NAND Gates

The "D flip flop" will store and output whatever logic level is applied to its data terminal so long as the clock input is HIGH. Once the clock input goes LOW the "set" and "reset" inputs of the flip-flop are both held at logic level "1" so it will not change state and store whatever data was present on its output before the clock transition occurred. In other words the output is "latched" at either logic "0" or logic "1".It is also known as Data Latch, Delay flip flop, D-type Bistable, D-type Flip Flop or just simply a D Flip Flop as it is more generally called. The D Flip Flop is by far the most important of the clocked flip-flops as it ensures that ensures that inputs S and R are never equal to one at the same time.

The D-type flip flop are constructed from a gated SR flip-flop with an inverter added between the S and the R inputs to allow for a single D (data) input.

- **C =1, D=0-Q=0, Q'=1**

If clock is 1, then whatever be the value of input D, it get transferred to the output state.

- **C=1, D=1-Q=1, Q'=0**

If clock is 1, then whatever be the value of input D, it get transferred to the output state

- **C=0, D=X-Q & Q'= Remember**

If clock is 0 then whatever be the value of D, we don't care, the output will remain the same

D	C	Q	Q'
0	1	0	1
1	1	1	0
X	0	No change	No change

Fig.(11) Truth Table of D Flip Flop

Procedure and Observations: The designing of all the above said flip flops were done on breadboard which is a device used commonly to make and test electronic circuits. We had to first insert IC on the breadboard .Next step is to make the connections according to the prescribed diagram of IC 7400 and requirement of number of gates . Supply voltage was also connected. Next step was to verify the truth tables of all the flip flops that is we had to check the input and output states of each flip flop by glowing and non glowing of each LED which was connected at each input and output terminal of flip flop. The designed circuits of flip flops were shown in fig.(12) to fig.(14).

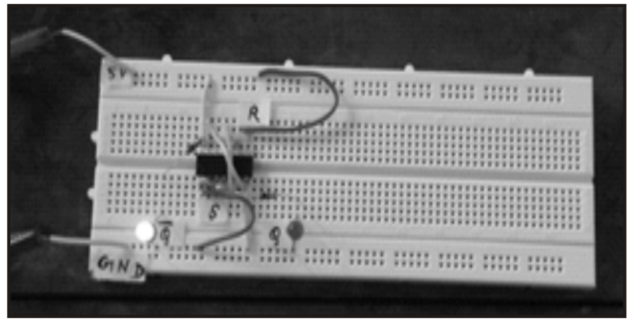

Fig.(12) Circuit of S-R Flip Flop

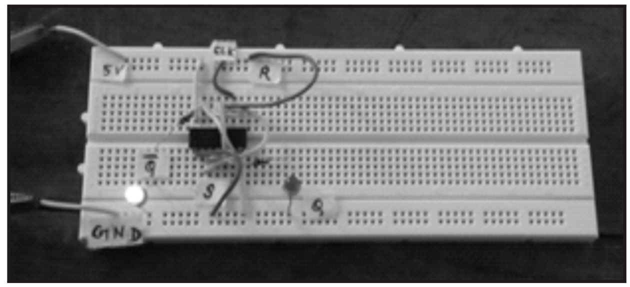

Fig.(13) Circuit of S-R Flip Flop

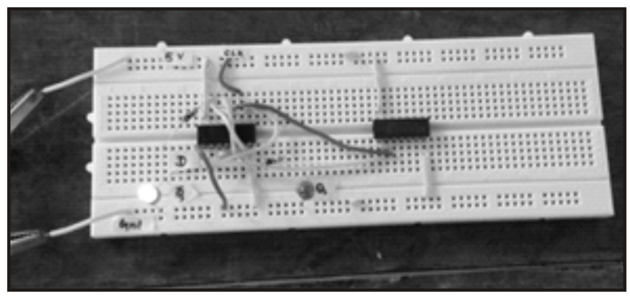

Fig.(14) Circuit of D Flip Flop

CONCLUSION

Flip Flops are the basic memory element of electronics circuit. In this project we had designed the S-R and D type flip flops using NAND gates and verified their truth tables.

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GENETIC SURVEY ON FREQUENCY OF TONGUE ROLLING AND FOLDING IN KAYASTHSA GIRLS OF PATNA

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* **Alankrita Kumari**

Presentation : 23.02.2018
Supervisor : **Dr. Maya Rani**

ABSTRACT : *The study depicts the distribution of tongue rolling and tongue folding trait across the three sub- castes of Kayastha girls namely Srivastva, Ambastha and Karan of Patna and attempts to find out the level of heterogeneity among them. The sample of present study includes girls randomly selected unrelated Kayastha girls.*

***Key word* :** *tongue rolling, tongue folding, dominant, recessive, allele, genotype.*

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INTRODUCTION

The study of inherited variation in population of an organism is called population genetics. There are large numbers of human traits which exhibit dominant, recessive relationship and follow a mode of inheritance as formulated by Mendel. The ability to roll and fold tongue in man has fascinated many workers since the frequencies of tongue rolling and folding vary from one population to other.

Sturtevant[5] [1940] described two classes, 'rollers' and 'non-rollers', the roller phenotype being dominant.

Hsu[1] [1948] described the ability to fold up the tip of the tongue.

Liu[4] and Hsu[1] [1949] and Lee [1955] demonstrated independence of the two traits.

The inheritance of the ability to roll tongue sides meet at the top of the tube upwards to form close tube, is due to dominant gene and inability is due to a recessive gene.

Hsu[1] [1948] described the ability to fold up the tip of the tongue as a recessive.

Lenz[3] [1919] was first to apply the idea of assessment of gene frequency in a population explaining the association between recessive traits and consanguinity.

Percentage (%) Distribution of Tongue Rollers their Calculated Allele And Genotype Frequency Of Kayastha Girls {p=Rollers, q=Non-Rollers}

Groups	N(Total Numbers)	No. of Rollers	% of Rollers	p	q	P^2	2pq	q^2
AMBASTHA	64	26	40.625	.232	.770	5.29	35.4	59.5
SRIVASTAVA	76	36	47.36	.25	.755	5.9	36.2	57.1
KARAN	78	32	41.02	.233	.767	5.2	34.9	58.9

Percentage (%) Distribution of Tongue Folder and Their Calculated Allele and Genotype Frequency in Kayastha Girls{p=Non-Folders=Folders}

Groups	N(Total Numbers)	No. of Rollers	% of Rollers	p	q	P^2	2pq	q^2
Ambastha	64	20	31.25	.441	.559	19.4	49.3	31.2
Srivastava	76	12	15.78	.602	.396	36.2	47.7	15.7
Karan	78	8	10.25	.679	.320	46.1	43.5	10.2

METHODOLOGY

Data collection was done during 2017. The subjects were asked to roll the tongue laterally and to fold the tongue without the aid of teeth or lips. One of the researchers who could both roll and fold her tongue was readily available to demonstrate to the participants. Those who could roll their tongues were regarded as *tongue rollers(R+)* while those who could not were called *tongue non-rollers(R-)*.

Those who could fold their tongue were *tongue folders (F-)* where as those who could not were *tongue non-folders (F+)*.

RESULTS

The incidence percentage of individuals having tongue folding ability varies from 10.25 to 31.25. The incidence percentage of individuals having tongue rolling ability varies from 40.625 to 47.36.

On comparing the frequency of tongue rolling and tongue folding traits of the present study with the previous studies of the same caste of Ranchi, the data comes closer to that of Kumari P.et al [2006].They have noted 44.51%, 52.56% and 42.70% tongue roller among Kayasthas of Ranchi where as frequency of tongue folder was -1.087% [Shrivastava] 2.564%, [Ambastha] and 2.247% [Karan].

CONCLUSIONS

Through this project we concluded that the tongue rolling trait was found to be highest in Srivastava among the other groups studied which was 47.31% and tongue folding was highest in the Ambastha 31.25%.We came to knew about the different existing traits in human population and their dominant and recessive nature.

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DEMONETISATION-ITS IMPACT ON INDIAN ECONOMY : A CASE STUDY OF PATNA TOWN

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* **Anshu Priya**

Presentation : 22.02.2018
Supervisor : **Dr. Sweta Sharan**

ABSTRACT : *Demonetisation is an act of removing the legal status of currency as Legal Tender, means old notes or even coins must be retired and replaced with new ones or completely new currency can be introduced like Rs. 2000 note which was not available earlier. On 8th November, PM Modi's announcement was the breaking news across India. Rs.500 and Rs. 1000 notes (currency) are made illegal from a stroke of midnight. One might think, why it's been done? Indian government's goal was to remove all counterfeit (fake) currency from the market which is used in tax evasion, corruption and even in funding terrorist activities. These two currency notes are the most used currency in the Indian market, it had 86% share in the market. This was a very big and risky decision and as some aptly said it is a "Masterstroke". Some even say it is a "Surgical Attack" on black money. In simple words, old Rs 500 and Rs. 1000 notes are worthless now, they are just a piece of paper. The original objectives were stated as: eliminating fake currency; inflicting losses on those with black money; and disrupting terror and criminal activities. Later, new objectives were tacked on: enabling growth in bank credit, turning India into a cashless economy. A cost benefit analysis suggests that the benefits were relatively small when compared with the costs.*

Key word : *Demonetisation, currency, legal tender, notes, terrorist activities, Masterstroke*

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INTRODUCTION

Motto of Demonetisation

- To track fake currency
- To cutoff the supply line money, arms and immunizations to terror funding
- To transform Indian economy into cashless economy
- To bring tax evasion to halt
- To unearth and curb the black money
- To curb illegal and unethical business activities such as, the black marketing, food adulteration, marketing of spurious goods, human trafficking, smuggling of gold and drugs

METHODOLOGY

The present report is based on both primary and secondary sources of data. A total of 50 households were selected to conduct a survey for evaluating the primary datas for the impact of Demonetisation. The study would be evaluative where primary and secondary data will be used. Data would be collected mainly from banks, local consumers, magazines and journals. The study of methodology can be discussed under three heads:-Design of study, data collection, analysis and reporting.

IMPACT OF DEMONETISATION

Elimination of counterfeit currency : It is not rocket science to understand that counterfeit currency is generally circulated in highest denomination notes to impact most. So, by demonetizing the highest currency notes India could almost eliminate 100% fake currency out of circulation in one stroke.

Abolish black money : People having black money generally keep their black money in highest denomination currency notes. This step would abolish black money from the economy as the owners will not be in a position to deposit the same in the banks. This step would make black money kept in cashwhich is generally used to create chaos and terror or is lying with terrorists, Maoists, naxalites, scrap.

Strengthen Indian Banking System : This will automatically lead to more amounts being deposited in Savings and Current Account. Cash laying out of economy flow is now coming into circulation. This in turn will enhance the liquidity position of the banks, which can be utilized further for lending purposes.

Financial inclusion for Jan Dhan account holders : Government opened Jan Dhan accounts for financial inclusion purpose, but people were reluctant to keep money in the bank, but after this step of government, people will start depositing their cash into banks thereby strengthening Indian banking system, citizen are and will become beneficiaries of financial inclusion.

Higher Tax Collection : This led to higher tax collection as business men are depositing cash lying with them as current year income with advance tax. Defaulters of bank, property tax, electricity bills and telecom bills are clearing their long pending bills and thus utilizing their old currency notes.

Deflation : Price level is expected to be lowered only marginally and temporarily due to moderation from demand side.Small vendors who generally deals in cash would now start using cashless modes for transactions or digital methods.

Price cut in Real estate : As we all know the hype in real estate prices is because of the circulation of black money in this market. Now from this step almost all that black money would get out of circulation from this sector. Eventually the sky touching prices of properties will come down to the reach of a common man. Finally a common man can buy his dream home soon.

A Speed Breaker for Corruption : This step of government will subdue corruption up to a certain level and for a considerable time period which in return will attract foreign investor to Indian market. Indian market has been the first choice of investors considering it's large size and huge number of consumers. Till now they were reluctant to invest in India because of prevalent corruption and red-tapism.

Bank Rate Cut : Larger money in circulation results in better condition of banks. Now banks will no longer for a considerable time from now face liquidity issues. That will result into lower Bank rates. You will have to pay less interest on EMIs.

Over Black Money : Black money is considered as cancer in the economy.It is a parallel economy, which weakens the foundation of any country. It is estimated that in India, the total amount of black money is ₹ 3 lakh crore. it is huge if we see that the total money in circulation is only ₹ 17 lakh crore. With this master stroke of demonetization all the black money will either come to account book or will be destroyed.

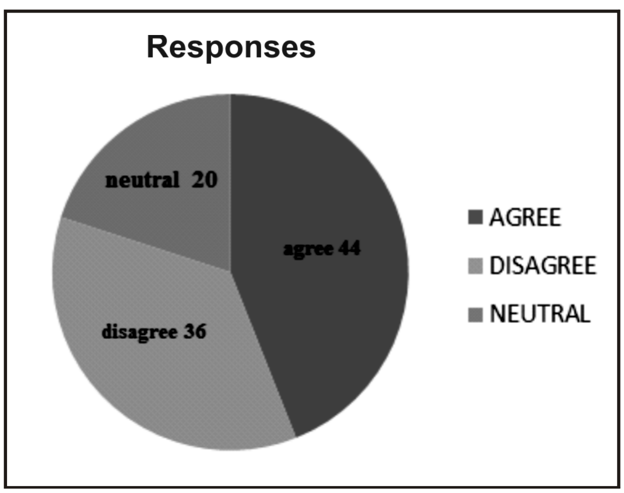
A survey has been done to know about the view point of Indian people on how much demonetisation would be successful in curbing black money from Indian economy.

Table 1 : Responses Regarding Black Money

RESPONSES	PERCENTAGE
Agree	44
Disagree	36
Neutral	20

Source: Field Survey

Figure : 1



Source: Field Survey

Greater Shift Towards Digitization : Today in metropolitan cities and even smaller towns it is hard to find a retail outlet that does not accept digital money. It could be credit cards, debit cards or even UPI platforms like paytm. The direct impact of this move has been that millions of people across India have become digitally - ready. When basic hygiene issues in online payments are addressed India is surely poised for an explosion in digital payments.

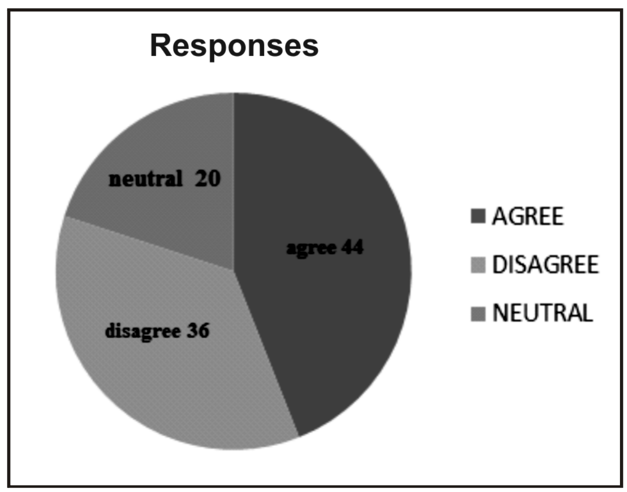
A survey has been done to know about how many people believe that demonetisation would be helpful in promoting digitalization.

Table 2 : Responses Regarding Impact on Digitalization

RESPONSES	PERCENTAGE
Agree	44
Disagree	36
Neutral	20

Source: Field Survey

Figure : 2



Source: Field Survey

OTHER IMPACTS

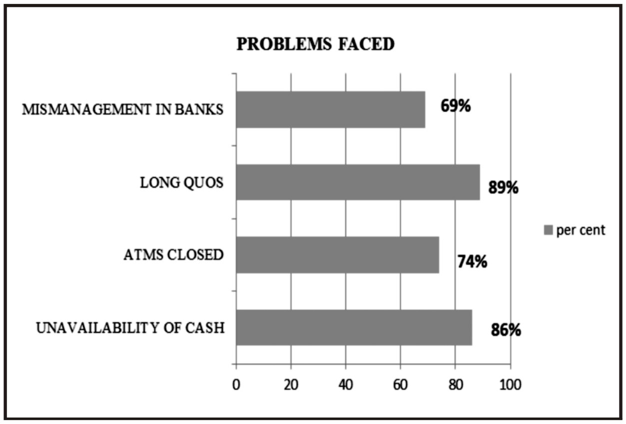
Cash Crunch-Demonetisation has direct impact on sectors dealing with cash vendors, auto rickshawallas, taxi drivers, daily wage earners, small traders, less cash leads to disruption in the flow

A survey has been done to know about the problems faced by common masses while depositing and withdrawing cash from banks after demonetisation

Table 2 : Problems Faced by Common Peopel

PROBLEMS	PER CENT%
Unavailability of cash at banks	86
ATMs closed	74
Long quos and waiting hours	89
Mismanagement in banks	69

Figure : 3



RECOMMENDATIONS

- Government need to be properly prepared for the post situation after taking such steps: Many post-demonetisation problems created chaos among common people like shortage of cash, long quos, closed ATMs, etc, which was totally a mismanagement of the government
- Set up of digital literacy booths outside banks: The need of the hour is to create digital literacy across all the sections of the nation as very small portions of the country is using internet and phone banking for their daily requirements
- More printing of smaller currency notes: Government should print more and smaller denominations so that there should be sufficient circulation of money in the market
- Subsidy scheme for smart phones: Government should come up with subsidized schemes for low cost smart phones which would make smart phones accessible to all and would help in spreading digital literacy among people. Further, this will boost Make in India programme since the positive impact will be seen on Indian mobile phone manufacturers.

CONCLUSION

The Demonetisation undertaken by the government is a large shock to the economy. The impact of the shock in the medium term is a function of how much of the currency will be replaced at the end and the extent to which currency in circulation is extinguished. While it has been argued that the cash that would be extinguished would be "black money" and hence, should be rightfully extinguished to set right the perverse incentive structure in the economy, this argument is based on impressions rather than on facts. While the facts are not available to anybody, it would be foolhardy to argue that this is the only possibility.

In other words, while the cash was mediating in legitimate economic activity, if this currency is extinguished there would be a contraction of economic activity in the economy and that is a cost that needs to be factored in while assessing the impact of the demonetisation on the economy and its agents. It is likely that there would be a spurt in the banking deposits. While interpreting the phenomenon, however, one has to keep in mind that a large part of their deposits were earlier used for transactional purposes. For example, if a small trader deposits 2lakh Rupees in the Jan Dhan account since the currency in which he held these balances in for transactional purposes has been scrapped, it would be incorrect to interpret this as success of the programme in bringing in people who were hiding black money. Nor can they be interpreted as additional balances that the banking sector can lend out on the same basis as earlier deposits, since the deposits now would remain in accounts for much shorter periods that deposits based on savings would be.

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Economics

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GST AND ITS IMPACT ON INDIAN ECONOMY

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* **Priyanka Binduljee**

Presentation : 22.02.2018
Supervisor : **Dr. Janardan Prasad**

ABSTRACT : *Goods and services tax (GST) is an indirect tax levied in india on the sale of goods and services.Goods and services are divided inti five tax slabs for collection of tax- 0% , 5%,12%,28%. he goods and services tax was launched at midnight on 1 July 2017 by the former president of India, Pranab Mukharjee, and prime minister of India, Narendra Modi. he tax came into effect from July , 2017 through the implementation of one hundred and first Amendment of constitution of India by Government of India. After its launch, the GST rates have been modified multiple times, the latest being on 18 Jan 2018, where a panel of federal and state finance ministers decided to raise GST rates on 29 goods and 53 services. Goods and services or GST as it is known is all set to be a game changer for the Indian economy Taxation system. GST evolved on all India " One nation on tax regime" It has now been more than a decade since the idea of national goods and services task (GSY) was mooted by KELAKAR task force in 2004.The task force strongly recommended fully integrated "GST" on national basis.*

Key word **:** *GST, constitution, federal, game changer, decade*

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INTRODUCTION

GST is a path breaking indirect tax reform which will create a common national market by dismantling inter - state trade barriers.

Within the 62 years of its advent about 160 countries across the world have adopted GST because this tax has the capacity to raise revenue in the most transparent and neutral manner.

Consistent with the federal structure of the country, the GST will have two components: one levied by the centre and other levied by the State. this dual GST model would be implemented through multiple statutes (one for CGST and

SGST statue for every state). However, the basic features of law such as chargeability, definition of taxation event and taxable person, measure of levy including variation provisions, basis of classification would be uniform across their statutes as far as practicable.

Ehteshan Ahmed and Satya Poddar studied "Goods and services tax Reforms and Inter governmental consideration in India" and found that GST introduction will provide simple and transparent tax system with increase in output and productivity of economy in India. But the benefits of GST are critically dependent on rational design of GST.

THE MAIN OBJECTIVES OF GST:

- To cognize the concept of GST
- To study the features of GST
- To evaluate the advantages and challenges of GST

GST is a tax on goods and services with value addition at each stage having comprehensive and continuous chain of sets of benefits from the producer's or services provider's point up to the retailer's level where only the final consumer should bear the tax. The main objective of the project is to understand about need, requirements, purpose, benefits and backlogs of the GST.

BENEFITS OF GST

The GST will greatly boost the GDP. Lesser taxes leads to lower price of goods and services. Lower prices lead to increase the purchasing power of the consumers. Increased purchasing power leads to more demand of the goods and services. More production leads to higher GDP. Hence, GST will boost the GDP.

The GST will facilitate " Make in India" by converting the geographical landscape of the country into a single market. Despite being one country , India in a union of 30 or more market. Too many taxes forming system like the Central Sales Tax (CST) on inter- state sales of goods, numerous intra- state taxes, and the extensive nature of countervailing duty exempted, favour imports over domestic production. GST would get rid of the CST and subsume most of the other taxes. And since, it will also be applicable on imports, the major tax factor working against " Make in India" will disappear , greatly boosting the production and in turn exports. This will ultimately help in bridging the current account deficit.

GST WOULD IMPROVE TAX GOVERNANCE IN TWO WAYS

Like the value added tax , it is a self- collecting and self - enforcing tax. What it essentially means it that the companies buying supplies from outside parties will insist on tax payment on goods supplied as without this they can not get setoffs on their final product sales.

Due to dual monitoring structure of the GST - one by the states and other by the center- it is difficult to evade tax. Even if one set of tax authorities overlook or fails to detect evasion, there is the possibility that- the other overseeing authority may not.

TAXES UNDER GST

CGST- CGST means central Goods and Services tax .CGST is a part of GST It is covered under state goods and services tax act 2016. Taxes collected under central goods and services tax is the revenue foe central Govt. Previous central taxes like central excise duty, additional excise duity, special excise duty, central sales tax , service tax etc. are subsumed under CGST.

SGST- SGST means state goods and services tax. It is covered under state goods and services tax act 2016. A collection of SGST will be the revenue for state Govt. All the states taxes like VAT, Entertainment tax ,Luxury tax, Entry tax etc. are now merged in SGST.

For example **:** If goods are sold or service are provide within the state then SGST will be levied on such transaction IGST- IGST means integrated goods and services tax. IGST falls under integrated goods and services tax act 2016. Revenue collected from IGST will be divided between states govt. as well as central govt. As per the rates specified by the govt. IGST is charged on the transfer of goods and services from one state to another state. Import of goods and services will also be deemed to be covered under inter- state transaction .

For example: if goods and services are transferred from Rajasthan to Maharashtra then the transaction will attract IGST.

UGST- UGST means union territory goods and services tax.UGST is a part of goods and services taking place in union territories like Andaman and Nicobar Island, Chandigarh, Dadra and Nagar Haveli, Daman and Diu, Delhi(National capital territory of Delhi) , Lakshadweep, Pondicherry.

SCOPE OF GST

The scope of this discussion is to study GST under indirect tax system and also to analyse its impact on the Indian economy.GST covers all goods and services except alcoholic liquor for human consumption. Is case of petroleum and petroleum products , it has been provided that these goods are not subject to levy of GST till a date notified on the recommendation , of the GST council.

The GST council examines issue relating to goods and services tax and make recommendations to the union and the states on parameters like rate exemption list and threshold limits. The council functions under the Chairmanship of Union Finance Minister and also with the State Union Minister as its members.

All goods and services are covered under GST Regime except Alcoholic liquor for Human consumption , Tobacco Products subject to levy of Goods and services and centre may also levy excise duty GST. GST council yet to decide the incidence and levy of GST on the following :

- Crude petroleum
- High Speed Diesel
- Motor Spirit(Petrol)
- Natural gas
- Aviation Turbine Fuel

IMPACT OF GST :

Increase FDI : The flow of foreign direct investment may increase due to imposition of GST because foreign companies will be encourage to come here with the motive of investment.

GROWTH IN OVERALL REVENUE

It is estimated that India can get revenue of $ 15 billion per annum by implementing the GST as it would promote exports, raise employment and boost growth. Over a period the dilution of the principles may see that only part of this is accuring.

SINGLE POINT TAXATION

Uniformity in tax laws will lead to single point taxation for goods and services all over India. This increase the tax compliance and more assesment will come into the tax net.

SIMPLIFIED TAX LAWS

This reduces litigation and waste of time of the judiciary and the assesses due to frivoious proceedings at various level of adjudication and appellate authorities. Present law appears to be much worse and an amalgam of the bad part of VAT/ST/CE.

LIST OF TAXES NOT COVERED UNDER GST

- Stamp duty
- Electricity Cess
- Extra Entertainment tax levied by local bodies
- Property tax
- Entry Fee at municipal corporation border
- Road tax
- Tall tax
- Extra Excise duty on tobacco products

LIMITATIONS

- GST rate is higher than VAT
- Some economist regarded GST as Old wine in new bottle.
- Higher tax for banking and insurance sectors.
- The registration process under GST is quite complicated.
- Launched during mid financial year creates complications and confusion.

CONCLUSION

From the above discussion, it is cleared that GST is basically an indirect tax that brings most of the taxes imposed on the goods and services, on manufacturer, sale and consumption of goods and services, under a single domain at the national level. The GST is consolidated tax based on a uniform tax of fixed rate for both goods and services and it is payable at the final point of consumption.

Since it is new so people are facing problem to understand it. But after sometimes it will become convenient for the people and the quote told by our P.M. Narendra Modi "GOOD AND SIMPLE TAX" will be true soon.

Therefore it can be say that GST will certainly change the economic scenario of the country under the one nation one tax regime.

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History

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ROLE OF ECONOMY IN THE MODERNISATION OF EUROPE (16th to 19th CENTURY)

* **Priya**

Presentation : 22.02.2018

Supervisor : **Dr. Lali Srivastava**

ABSTRACT : *Economy played a cruicial role in modernisation and development of any country.And it can be said as the ladder of economy raised Europe to its Pinnacle of power,till 20th century.The significance changes that tookm place in the different areas of economic field like Banking and Insurance Sector,financial exchange etc.from 16th century to 19th century,laid the foundation,on which the present economic building of Europe stands*

Key word **:** *Sea routes,Trade and commerce,bankd,wealthy nation,Free Trade,Capital,Mass Production,Industrial Society.*

INTRODUCTION

A new era dawned upon Europe,with the commencement of 15th century.The period from 15th to 19th century in European History is known as the `Phase of Modernisation`.The changes which signify development of humanism, importance of rationality over orthodoxy ,decline of feudalism, scientific inventions, discovery of new trade routes, economic development. And hence, is often termedas the `Period of Reason` as against the medieval `Period of Faith.`Europe came out of the Dark Age of medieval period.

The medieval European economy dominated by the feudal and nobles came to an end and new economic principlesbegan to took its shape.The period from the beginning of geographical discoveries till industrial revolution ,was charectereized by the significant changes in many realms of economy,that transformedthe face of Europe.The great geographical discovery was a landmark in the economic development of Europe.

The European economy ,from 16th century, was under the umbrella of Mercantillism.The mazor economic development of the 16th century,was the shift of economic cente from the Mediterranean Sea to the Atlantic Oceanwas due to the overseas expansion of the Atlantic Europe.Capitalism was the nascent form,during Mercantilism.From the beginning of 17th century, the capitalist economy flourished in Europe.The surplus capital accumulated by the capitalist,now began to be invested in the development of the

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factory system.This gave rise to the industrial Capitalism.The industrial Revolution completely changed the economic scenario of Europe.The machines produced goods at cheap rates. It raised the standard of living of the Europeans.

After the second word war Europe had been drained off economically and its importance and ascendancy.In order to overcame,the declining economy ,European Union waS formed in 1957,with the chief objective of economic unification of Europe.A common currency was devised in 1999 for the member states ,known as `EURO`which is regulated by the European Bank.

DECLINING OF MEDIEVAL EUROPE

The centuries old economic prosperity of Europe came to a halt in the 14th and 15th centuries. The middle ages of Europe was accustomed to periodic outbreaks of epidemics. The catastrophic famine known as the GREAT Famine of 1315-17, struck much of the North West Europe. Besides, the Black Death, a dire epidemic1347-52 decimated each sector of European economy. The lion`s share of Black Death`s effect was felt in the economy`s agricultural sector.

The famines, storms and growth of glaciers, destroyed many farmsteads which resulted in less tax revenues collected due to decreased value of the properties.

GEOGRAPHICAL DISCOVERIES

Geographical discoveries opened a new chapter in the annals of the economy of Modern Europe. The beginning of Geographical Discoveries, were boom years for Europe`s Economy.

Geographical discoveries encouraged maritime activities, between Europe, America and East. The Europeans on the other hand, exported manufactured goods to Asia, Africa an America where the various European powers had established their colonies. This enormous growth in commercial activities led to the creation of credit institution, commercial banks and other instruments. Geographical discoveries, led to the rise of Mercantile System.

Geographical Discoveries, led to the decline of Italy as a Commercial Power. The Darker side of Geographical Discoveries was that ``It gave birth to colonialism, rooted in exploitation, which later gave impetus to imperialism``.

The colonies provided raw materials to the Mother Countries. These raw-materials were converts into the manufactured articles and again sold in the colonies at high price to earn profit.

MERCANTILISM

A new period ushered in European economy, known as Mercantilism. The period of Mercantilism is a phase in the history of economic policy, which contains a number of economic measures designed to secure political unification and national power.

During the 17th and 18th centuries, the European nations believed that ``a state without capital could not achieve any form of power` `Mercantilism is not a unified theory. It varied in every country according to the local conditions and tendencies.

In Portugal, Marcantilism was centred at first on spice trade.

In Spain, Mercantilism was based largely on the possession of the American colonies.

Buillionism was minimised in Dutch mercantilism in the interest of aiding commerce.

The English founded overseas trading companies, like English East India Company to acquire much wealth. The French Mercantilism developed slowly from the later middle ages .Germany, being concerned in developing its own economic strength.

The principles of mercantilism ere buillionism, favovourable balace of trade,tariff,Acquisition of Colonies.

Mercantilism also create trade pattern ,such as the Triangular trade .Its best known example is the Transatlantic slave trade that operated among Europe,West Africa and the Americas in the 17th to 19th centuries.

CAPITALISM

A new economic system ushered in Europe in the 17th century,known s Capitalism.Capitalism is based preponderantly on the private ownership and use of capital for the production and exchange of goods and services with the aim of earning maximum profit.

The transation from Feudalism to Capitalism is regarded as an important stage in the rise of Capitalism.Karl Marx called this stage as `the pre -history of Capitalism`. State capitalism is an economic system in which the state undertakes commercial (for profit) economic activity and where the means of production are organized and managed as state owned business enterprises. Marxist literature defines state capitalism with ownership or control by a state .

The surplus capital accumulated by the capitalists now began to be invested in the industrial development.

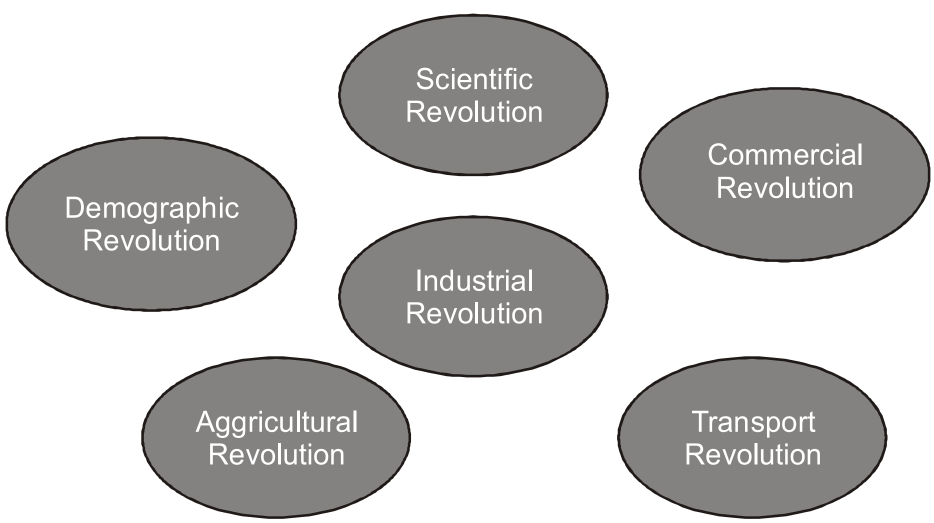
INDUSTRIAL REVOLUTION

Industrial revolution is the epoch making event of economic upheal throughtout the course of modern European history. It gradually and is changing the economic life of Europe as well as the whole world.

The seeds of industrial revolution germinated in Britain in mid 18th century as it possessed the favourable atmoshphere for industrial development and later spread its roto across whole Europe.

Domestic production system replaced by → workshop system

Manual labour replaced by → power operated machine



Impact of Industrial Revolution

Industrial Revolution brought a complete change in the class structure.Two new classes emerged in society such as -

a) Capitalist, who owned industries and held the reins of trade and commerce.

b) labour class, who worked for wages in the industries

Industrial Revolution tremendously affected the economic life

A).capitalism -the surplus wealth created by the industrial revolution owned by the capitalist brought massive changes in the economic setup

b)Policy of Free Trade or Laissez Faire-The British economic historian Asam Smith propounded the doctrine of Laissez faire i.e `` the principle of non-interference by the state in the economic affaires``.

This policy stimulated the growth of economy .However , the Swiss historian Leonard De-Sismonde strove hard to prove the policy of smith is lethal. According to him `` ``State should interfere in the field of economy in order to avert the evil results of social revolutions``

The Factory Act of 1819' The act enjoinedthat the children below 9 must not be put to work for more than 12 hours`

In the religious field ,Industrial revolution put an end to medival dogmas ,orthodoxy and superstitions.

Voting rights are sanctioned to both the rural and urban workers in 1867 and 1884 respectively by the government .Women also got the voting right.

More Than 40 factory acts were enacted in Britain only ,which made specific provisions for the fixation of working hours,minimum wages etc.

Industrial revolution changed the mindset of the people and gave them a specific outlook.

Spread of the Industrial Rrvolution in Europe

Mercantilism also create trade patterns such as the Triangular Trade.Its best known example is the Transatlantic slave trade that operated among Europe.West Africa and the Americas in the 17th and 19th centuries.Sugar in the form of molasses, was shipped from the Caribbean to Europe where it was distilled into Rum.Rum was then used to purched slavesin west Africa,who were subsequently shipped to the Caribbean and other locations in the Americas.New Englang replaced Europe`s role the triangle. The term describe the trade system and not the specific route.

The economic centre shifttowards UK,Netherlands ,France and Germany from Spain,Porugal and Italy .A shift away from central Europe.

The economy of Italy,Spain and Germany declined while the countries bordering the North Sea witnessed economic properity. The economy of England ,Holland,North-west Europe ,Netherlands bloosemed in the 17th century.The Batlicland was known as the the Granary of the west ,as it supplied materials for the western industries.

The economic condition of Europe in 16th and 17th century

16th century was a period of vigorous expansion in Europe .The various parts Europe were bounded together by an intricate network of economic and financial relations .The depressed conditions that had prevailed from the middle of the 14th century,were giving way the growth before1350 was being resumed.

The city of Antwerp was the financial and commericial centre.Antwerp had one of the first money exchanges in Europe ,aBourse where people could change currency.

Due to the development in international trade and the various means of banking and exchange ,commercial revolution took place in England and Holland between 1500 and 1700 .The commercial revolution later lead on to the industrial revolution.

Simple loan interest were gradually replaced by the bills of exchange in the internation trade

.The bills of Exchange were widely used and were employed for both internal as well as foreign trade.

Consumer credit underwent great expansion in the local economy during this period.They were also frequently used for the investment purpose.

Banking housesthe accuptedseposits came to issue deposits came to issue deposit receipt ,which might pass from hand to hand as money substitutes.The commercial properity of England in the 16th century laid the foundations of the London money market.

As a whole the significance of paper instruments and banking lay in their addition to money supply and even more to faculty they gave for transferring funds over long distance and between countries .Capital available for investment in business. It made it easier than before to deal in Money and Goods.

The 17th century Europe marked revolutionary changes in the economic sphere .In some parts the economy bloosemed while others witnessed the declining economy.An important innovation of the 17th century ,was the expansion of Banking.The Amsterdam exchange Vank,founded in 1609 was the first public bank in Northern Europe.The practice of endorsement developedin Antwerp in the 17th century and from there it spread to the other commercial centers of North west Europe.

The European trade andindustry was hit by depression but at different times.Besides there was also a crisis in the development of capitalism.This crisis was one of production in Europe. Consequently while other countries made no immediate advanve towards modern capitalism. The old feaudual structure was shattered and the forces of capitalism were able to triumph in England,owing to their greater development and representation in the Parliament.However ,in Spain the merchants misinventedthe accumulated capital in buying land,government offices,palaces and works of art.

The Europe`s economy was healthier than that of the centuries and more progressive when it recovered in the late 17th century that it had been earlier.

Conclusion'The signifint changes that tooks place in the different field of economy during 16th to 19th centuryEurope completely trandformed the face of Europe.The economic changes had far reaching impact in every sphere of the Europeans.Europe came out of the Dark age of Medieaval economy bases on exploitation and dominance of feaudals and nobles.International trade developed ,Banks and joints Stock Companies established. These steady development attained its great height during mercantile era. The excess influx of gold and silver into Europe resulted in the accumulation of capital an European began to invest this capital into banks and business .This developed and took the form of Capitalism in the 17th century Europe. Capitalism a new economic principle based on the free market economy and private ownership in which the government intervention is minimum.

As a whole it can be said that theeconomic development of this period created the platform for the present economic system of Europe.And thus Europe carved out a plce in the world economy.

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A STUDY OF FOOD PACKAGING MATERIALS

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Presentation : 22.02.2018
Supervisor : **Dr. Anju Srivastava**

ABSTRACT : *Food packaging plays a vital role in preserving food throughout the distribution chain. Without packaging, the processing of food can become compromised as it is contaminated by direct contact with physical, chemical, and biological contaminants. In recent years, the development of novel food packaging (modified atmosphere & active packaging) has not only increased the shelf life of foods, but also their safety and quality - therefore bringing convenience to consumers. Hence this study, exploratory in nature, was planned to understand the different aspects of packaging.*

***Key word* :** *Food Packaging, Labeling, Packaging materials*

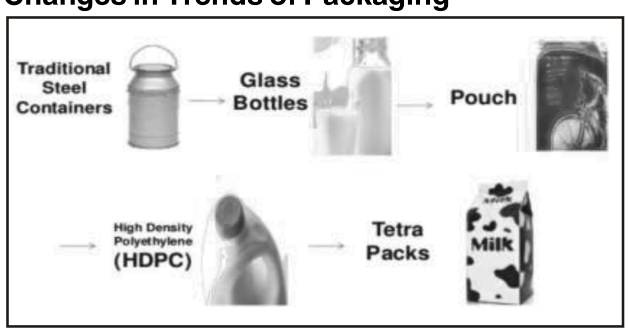
FOOD PACKAGING

Packaging Institute International (PII) defines packaging as the enclosure of products, items or packages in a wrapped pouch, bag, box, cup, tray, can, tube, bottle or any other container to perform one or more of the following functions: containment, protection, preservation, communication, utility and performance. If the device or container performs one or more of these functions, it is considered as package.

IMPORTANCE OF PACKAGING

A product's packaging communicates many things, from what the product can do for us to the company's value. Product packaging not only protects the product during transit from the manufacturer to retailer but it also prevents damage while the product sits on retail shelves. It also plays an important role in the creation of demand of that product by attracting the consumers.

Changes in Trends of Packaging



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FUNCTIONS OF PACKAGING

Primary Function
Presentation 

Secondary Function
Suitability 

Preservation 	Handling 
Convenience 	Containment 
Protection 	Labeling 
Economy 	Identification 

CLASSIFICATION OF PACKAGING

There are three types of packaging: primary, secondary and tertiary. Other types of packaging are:

Different types of packaging

Ampules

Blister packaging

Multiple packaging

Containers

Paper boat & cartons

Shrink packaging

Strip packages

Flexible packaging

TYPES OF FOOD PACKAGING MATERIALS

1) Metal 2) Glass
3) Paper & Paper board 4) Plastic
5) Wood 6) Cloth

ADVANTAGES OF DIFFERENT FOOD PACKAGING MATERIALS

	Metal	Glass	Plastic	Paper	Wood	Cloth
Visibility		✓	✓			
Light Weight	✓	✓	✓			✓
Strong	✓		✓		✓	
Economical		✓				
Flexible	✓		✓			
Security	✓	✓	✓	✓	✓	✓
No Risk of Breakage	✓		✓		✓	
Protection	✓	✓	✓	✓	✓	✓
Sturdy	✓					
High Resistance to Breakage	✓	✓	✓			

LIMITATIONS OF FOOD PACKAGING MATERIALS

	Metal	Glass	Plastic	Paper	Wood	Cloth
Easily Broken	✓	✓		✓		
Impermeable to light	✓				✓	✓
Heavy	✓	✓			✓	
Expensive		✓			✓	✓
Non-recyclable		✓		✓		
Weak		✓		✓		

LABELING OF PACKAGING

Label includes any tag, brand, mark, pictorial or other descriptive matter

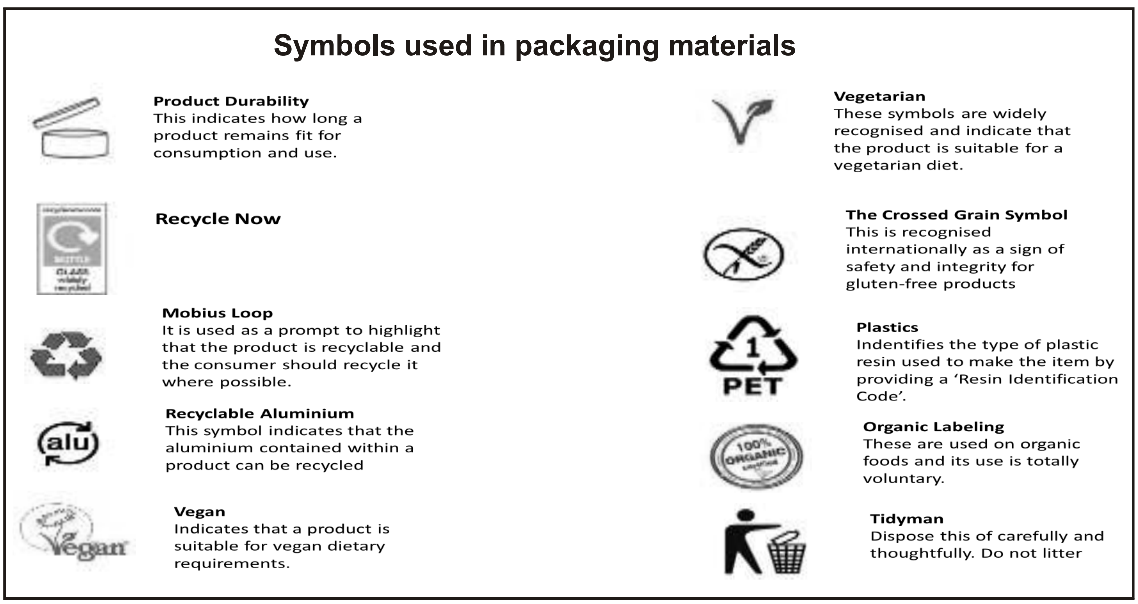
- Written
- Printed
- Embossed or impressed
- Attached to the item
- Inserted in its container

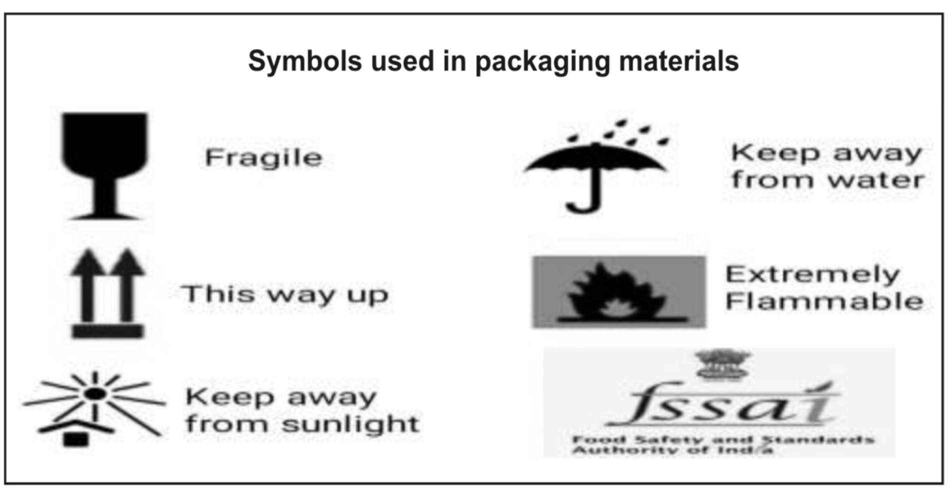
Contents in Food Label

As per the Indian regulations, a food label must have:

- Product name and category of food
- An ingredient list in descending order of weight
- Logo for Vegetarian/Non Vegetarian food
- Nutrition facts panel or information which includes energy, protein, carbohydrate (sugars) and fat
- Shelf life (use by or best before date)
- Storage conditions
- Name and address of the manufacture, packer and/or seller
- Country of origin (in case of imported foods)
- Weight
- Instructions for use

SYMBOLS USED ON PACKAGING





FACTS AND FIGURES REGARDING DISPOSAL OF PACKAGING MATERIAL

- Indian environmental protection agency says that every year 1.6 million metric tons of packaging material is dumped into landfills in India
- Packaging waste is about 30% of municipal waste by weight, 13% is due to plastic material which is not bio degradable
- The dumped packaging includes mainly plastic which reduces moisture and CO2 transfer rate of soil and deteriorates the quality of land
- Plastic is non bio degradable and is the biggest threat to the environment presently
- Edible packages can be a solution to these environmental problems

PRINCIPLES OF GREEN PACKAGING

BENEFITS OF GREEN PACKAGING

- Material Reduction
- Increase Recycled Content
- Waste Reduction
- Cleaner Production
- Energy Conservation
- Efficient Transport
- Increased Use of Renewable Materials

Consumers' Duty Regarding Disposal of Packaging Materials

What can be recycled?

- Glass
- Paper
- Steel and Aluminum Packaging
- Plastic Packaging

Where can it be recycled?

Many local authorities now provide curbside collections of recyclables. The materials that are collected will vary from one local authority to another. Contact the local authority for more information.

DISPOSAL OF DIFFERENT PACKAGING MATERIALS

- Steel cans are sorted using magnets. Aluminum, on the other hand, is separated with a device called eddy current separator. This means that the aluminum is given a specific magnetic charge and when it ends up in a magnetic field, it is rejected and thus separated from the steel.

- Steel and Aluminum are grounded and cleaned to make scrap metal that is ready to go into a melting furnace. Steel goes to the steel mill while aluminum goes to specialized forges.
- Steel is then usually added to pig iron in the blast furnace at a ratio of 40%. Steel mills with induction furnaces melt the steel so that up to 100% can be recycled without having to add pig iron. Aluminum is melted in special furnaces.
- Steel and Aluminum are then poured into moulds, ready to be used to make new products. Steel is poured into bars or cylinders and aluminum into ingots and cans.
- The metal is processed further into semi-finished products that are used in packaging industries.

CONCLUSION

The large losses from farm to plate are attributed to poor handling, distribution, storage and purchase, and consumption behaviour. Losses at almost every stage of the food chain may be reduced by using appropriate packaging. Hence producers and consumers should have the knowledge about proper packaging of products and it may be done through any formal and informal methods.

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MENSTRUAL HYGIENE AND ITS IMPACT ON WOMEN'S HEALTH - A STUDY OF PATNA TOWN

*** Preeti Bala * Saleheen * Priya Kumari**

Presentation : 22.02.2018

Supervisor : **Dr. Bandana Singh**

ABSTRACT : *Menstrual hygiene is an important issue that affects healthy adolescent girls and pre-menopausal adult women monthly. Around the world women have developed their own personal strategies to cope with menstruation, which vary from country to country and depend on economic status, the individual's personal preferences, local traditions and cultural beliefs and educational status .Often methods of management can be unhygienic and inconvenient, particularly in poorer settings. But the practice of menstrual hygiene was low in women. Thus there is need to bring the girls out of traditional beliefs, misconceptions and restriction regarding menstruation.*

Key word **:** *Menstruation, Unhygienic, Menstrual hygiene management (MHM), Poly-microbial syndrome, BV (Bacterial Vaginosis)*

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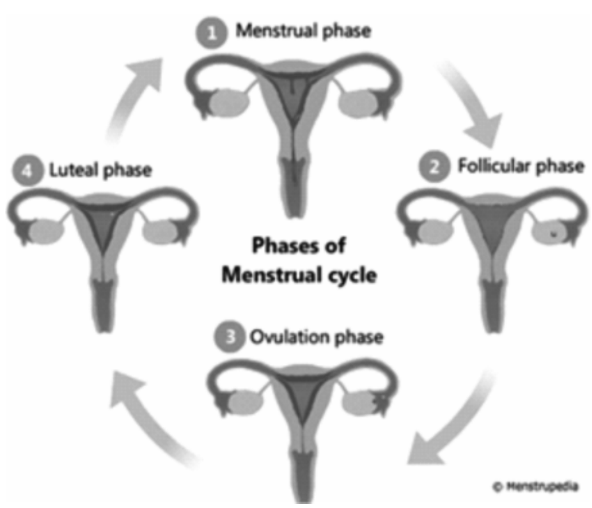
INTRODUCTION

Menstrual hygiene is an important issue that affects healthy adolescent girls and pre-menopausal adult women monthly. Around the world women have developed their own personal strategies to cope with menstruation, which vary from country to country and depend on economic status, the individual's personal preferences, local traditions and cultural beliefs and educational status.Often methods of management can be unhygienic and inconvenient, particularly in poorer settings. About 52% of the female population is of reproductive age and most of them are menstruating every month. The majority of them have no access to clean and safe sanitary products and private space in which they can change menstrual cloths or pads and to wash. Menstruation is supposed to be invisible and silent, and sometimes menstruating women and girls are supposed to be invisible and silent, too. Millions of girls and women are subject to restrictions in their daily lives simply because they are menstruating. Besides the health problems due to poor hygiene during menstruation, the lack or unaffordability of facilities and appropriate sanitary products may push menstruating girls temporarily or sometimes permanently out of school, having a negative impact on their right to education including their Reproductive health status. The best place to make an impact on improving the lives of girls and women is in water and sanitation. The time has come to promote - loudly and unashamedly - the role of good Menstrual Hygiene Management (MHM) as a trigger for better, stronger development of women and girls on the all fronts: personal, educational and professional level. There is also clear evidence to show that ignoring good menstrual hygiene is damaging not just women and girls directly but also for schools, businesses and economies. It was seen in a study that 79% of the adolescent girls used pads and 21% used clothes. The use of pads was higher which was probably due to the fact that availability was high in these areas and also due to influence of television which has increased awareness regarding availability and use of sanitary napkins. It was observed that the usual practice was to wash cloth with soap and water after use and dry it at some secret place like house corner. It was found that 40% girls washed their genitals with soap and water, 41% use only water and only 19% use water and disinfectant. Thus, personal hygiene practices were unsatisfactory in the studied population.

Alexander,Mc.M., et al (2008) in a cross sectional survey entitled "Study of knowledge, perception and attitude of adolescent girls towards STIs/HIV, safer sex and sex education: A cross sectional survey of urban adolescent school girls in South Delhi, India" a sample of 251 female students from two senior secondary schools was selected for the study reveals that more than one third of student in the study had no accurate understanding about the signs and symptoms of STI other than HIV/AIDS.



In India, between 43% and 88% of girls wash and reuse cotton cloths rather than use disposable pads. However reusable material may not be well sanitized because cleaning is often done without soap and with unclean water, and social taboos and restrictions force drying indoors, away from sunlight and open air .Unhygienic washing practices are particularly common in rural areas and amongst women and girls in lower socio-economic groups. Menstrual hygiene management (MHM) is also likely to be affected by contextual factors, such as access to places where women can manage menstruation-related washing in privacy and comfort. These factors are influenced by having access to water, hygiene and sanitation facilities at the household, and their link with MHM and with urogenital infections has never been studied in detail.

Poor MHM may increase a woman's susceptibility to reproductive tract infections (RTI). A limited body of evidence supports the premise that bacterial vaginosis (BV) may be more common in women with unhygienic menstrual hygiene management (MHM) practices ..As a girl progresses from puberty into womanhood, RTIs potentially triggered by poor MHM could affect her reproductive health. Studies have shown women with BV may be at higher risk of adverse pregnancy outcomes like preterm, acquisition of sexually transmitted infections and development of pelvic inflammatory disease (PID).

OBJECTIVES

- To assess the awareness about menarche and their sources of information.
- To ascertain the association of awareness of menstruation before menarche and practices for menstruation hygiene with educational status of respondent and their mothers.
- To find out the prevailing practices for menstrual hygiene among adolescent girl.

HYPOTHESIS

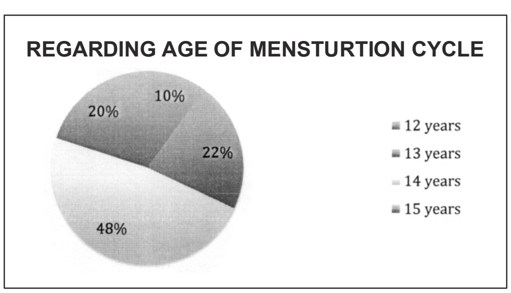
- Proper menstrual hygiene can protect the women from suffering from various gynaecological problems.
- Poor MHM may increase a woman's susceptibility to reproductive tract infections (RTI).
- To bring the girls out of traditional beliefs, misconceptions and restriction regarding their menstruation cycle and sexuality will help to improve their reproductive health.

METHODS AND MATERIALS

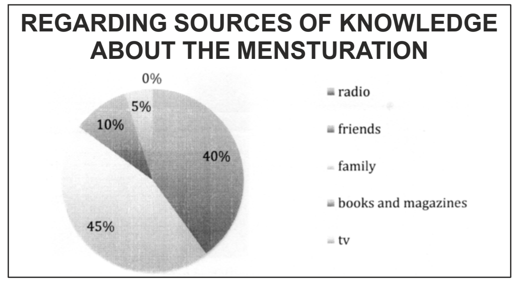
Area of study	:	LBS nagar , Raja Bajar , Danapur
Sample and sampling	:	50 adolescent girl were randomly Selected for the study. Purposive Sampling technique was used for his study.
Tools for data collection	:	Data were collected thoughQuestionnaire method.
Data Analysis	:	Data were analyzed in percentage.

RESULTS AND DISCUSSIONS

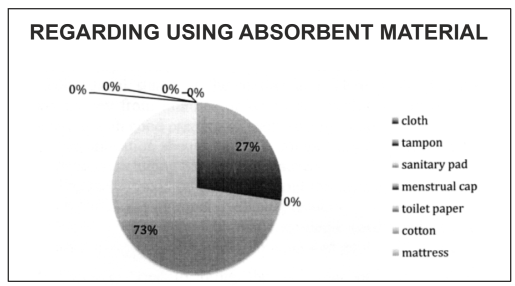
The analysis of data and the result of the investigation are presented and discussed in this chapter to draw meaningful interpretations'.



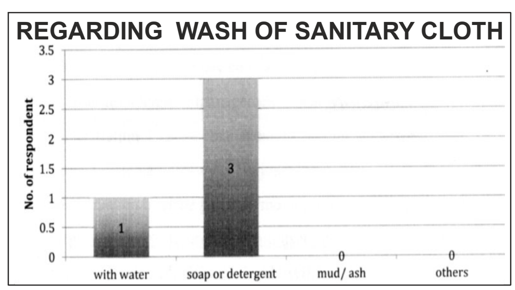
48% of respondent are of age of 14 years and 22% of respondent are of 13 years and 20% of respondent 15 years and only 10% of respondent age is 12 years



45% of respondent know about the menstruation from their family 40%of respondent from their friends, and10% from books and magazines and 5% from tv.



73% of respondent uses sanitary pads and 27% respondent were using cloths during their period.



In 4 respondent only 1 respondent wash the absorbent cloth with water and only 3 wash their absorbent material with soap and detergent.

CONCLUSIONS AND SUGGESTIONS

Half of the participants had good knowledge of menstruation and menstrual hygiene but the practice of menstrual hygiene was very low. Indeed, the findings showed a significant positive association between good knowledge of menstruation and educational status of the mother, The educational status of the mother and the earning of permanent pocket money from families or relatives revealed significant positive association with good practice of menstrual hygiene.

- Sex education should be made compulsory at each level for girls & boys including parents and teachers.
- The girls should be educated about the facts of menstruation and above all about proper hygienic practices during period.
- Sanitary pads should be made available easily at affordable price at schools, colleges and public places too.
- There is a need to bring the girls out of traditional beliefs, misconceptions and restriction. Menstruation should not be treated as dirty and it should not be a hindrance to daily activities.

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ROLE OF ELECTION COMMISSION IN STRENGTHENING DEMOCRACY IN INDIA

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Presentation : 22.02.2018
Supervisor : **Dr. Pushpalata Kumari**

ABSTRACT : *This research paper attempts to analyse the role of election commission in strengthening democracy in India. India today is considered as 'largest' democratic country in the world. Elections plays an important role to maintain, strengthen and stablise democracy. Elections are institutionalized forms of procedures for choosing the government. In general it serves as a ritual of people's choice for their representation. It offers scope to the people to crystallize their interests and give expression to them. But voter's choice and their voting behavior is not free from outside pressure. There are various pressures and counter pressure operating on voters. A voter is viewed not as totally objective and autonomous individual, but one whose voting preference is subjected to social and environmental factors. Under these constraints the role of election commission to conduct free and fair election on the one hand and strengthening democracy on the other hand is a big challenge. But besides many challenges we are surviving as a democratic nation. This study will throw light on importance of election commission in strengthening democracy in India.*

Key word **:** *Election, Election Commission, Democracy, Nation.*

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INTRODUCTION

Elections are foundation stone of any democracy. As the democracies in the modern times are mainly representative in character, they are shaped by the method of election. India has adopted the indirect or representative system of democracy. Besides, universal adult franchise, free, fair and periodic elections; independent election machinery is prominent among the features of Indian democracy. The conduct of free fair and impartial elections depends much upon the performance of the three elements which form a triangle. They are the independent and impartial electoral machinery; the political parties and candidates; and the electorate.

OBJECTIVE OF THE STUDY

- To generate meaningful discussion on such a pertinent issue of contemporary relevance
- To analyze how the Election Commission has maintain and develop democracy in India
- To underline the factors responsible for success of democracy in India
- To enumerate and analyse the problems and challenges facing the electoral machinery of India

- To provide suggestions to policy makers and Election Commission

HYPOTHESIS

- It was hypothesized that strong and dynamic institution like Election Commission of India has played a dominant role in strengthening democracy in India
- It was hypothesized that process of electoral reforms implemented by Election Commission time to time add impetus to a great extent in the stability of Democracy in India

METHODOLOGY

The study is based on information and data collected through both primary and secondary sources–

- A study of Primary and secondary sources especially publications, Government Reports, magazines, Journals, Official reports, paper clippings and books
- A study of the policies enforced by the central and state governments, their plans and programmes concerning the issue

ELECTIONS AND DEMOCRACY IN INDIA

Democracy rests on the will of the 'demos'. These wills are manifested more effectively at the time when representatives of the people are selected or elected. In a representative type of democracy, wills of the demos are temporarily transferred to their representatives for a specific period of time, with the consent of the demos. Montesquieu wrote in 1748 that since it was not possible in a large state for the people to meet as a legislative body, they must choose representatives to do what they could not do themselves. The representatives (to whom power is to be transferred) are selected by holding regular elections. A democratic political system must accept no other authority than the will of the people and their freely given consent as the basis of governance.

It is this freely given consent on certain intervals through elections that legitimizes the political system. Modern representative democracy, therefore, would not be possible without periodic elections. In fact, the very idea of representative system cannot be conceived without regular elections.

The authors of Democracy in Asia maintain that democracy denotes a system that meets three essential conditions. One of the conditions they cite is "a highly inclusive level of political participation in the selection of leaders and policies, at least through regular and free elections, such that no major (adult) social group is excluded". Competitive nature of elections is identified as one of the major requirements for functioning democracy by MyronWeiner in his 'Empirical Democratic Theory'. Elections create a sentiment of popular consent and participation in public affairs and provide for orderly succession in government by peaceful transfer of authority to new rulers. "The constitution of a country", says R.P.Bhalla, "has been called the vehicle of a nation's life". According to him the election is the process by which the people choose the instrument of government to conduct the nation's life.

In a democratic system power originates from the people. It is in this context that the Lok Sabha Speaker, Somnath Chatterjee says, "... democracy rests on the belief that the people are the source as well as the purpose of power in the polity. It is their consent expressed periodically through elections, either directly or indirectly legitimizes the decision-making process". He adds, "Through elections, we undertake the task of translating the consent of the people into the authority to govern. They are also an opportunity to test a country's health in terms of progress and development". The significance of elections in democracy is equally emphasized by T.N. Seshan, the former Chief Election Commissioner of India when he writes, "The only way in which you can establish democracy by the will of the people is by the conduct of a free and fair election." The successful working of formal democracy, according to Ramashray Roy, depends on a set of three basic conditions: First, the mandate for governance must come from the people and must be given freely. Secondly, political leaders and activists must agree on the democratic rules of the games and compete among themselves for capturing political power. And, lastly, there must exist a general acceptance of norms as well as institutional structure that will enable competing political parties to maintain and preserve democracy.

THE ELECTION COMMISSION OF INDIA

Election Commission of India is a permanent Constitutional Body, which was established in accordance with the Constitution on 25th January 1950. The Commission conducts elections in accordance with the constitutional provisions, supplemented by laws made by Parliament. The major laws include Representation of the People Act, 1950, which mainly deals with the preparation and revision of electoral rolls, the Representation of the People Act, 1951 which deals, in detail, with all aspects of conduct of elections and post election disputes.

The founding fathers of the Constitution of India gave the Indians a Constitution that envisages independent, neutral and apolitical institutions whose functioning, they visualized would ensure the preservation of the democratic character of the nation. The Election Commission of India was one of these institutions mandated to conduct free and fair elections in the country. The Constituent assembly was concerned about the inclusiveness of all eligible groups particularly the weaker section of the society.

Dr. B.R. Ambedkar sought for the inclusion of such groups based on the principle of equality. Participating in the Constitutional Assembly Debates, Dr. Ambedkar, the Chairman of the Drafting Committee, said:

It has been brought to the notice both of the drafting committee as well as Central Government that in these provinces the executive government is instructing or managing things in such a manner that those people who do not belong to them either racially, culturally or linguistically, are being excluded from being brought on the electoral rolls. The house will realize that franchise is a most fundamental thing in a democracy. No person who is entitled to be brought into the electoral rolls on grounds which we have already mentioned in our constitution, namely, an adult of 18 years of age should be excluded merely as a result of the prejudice of a local government, or whim of an officer. That would cut at the very root of democratic government.

The Constituent Assembly was faced with a dilemma: whether to have a centralized Election Commission or to allow the states to have their own separate Election Commissions. After a long debate it was finally decided to accept a unified election authority for the whole country to ensure uniformity of the election procedure and practice. The result was Article 324 in the Constitution of India, replacing Article 289 under Constituent Assembly Debates. Article 324(1) provides that the superintendence, direction and control of the preparation of the electoral rolls for, and the conduct of, all elections to Parliament and to the Legislature of every State and of elections to the offices of President and Vice-President held under this Constitution shall be vested in a Commission, the Election Commission. Clause (2) of Article 324 says that the Election Commission shall consist of the Chief Election Commissioner, and any number of other Election Commissioners, as the President may from time to time appoint. Till the appointment of two additional members to the Election Commission by an ordinance of the government in 1993. the Commission consisted of only the Chief Election Commissioner. Since 1993 the concept of multi-member Commission has been in operation, with decision making power by majority vote. The Rajiv Gandhi Government had also appointed in 1989 a multi-member Election Commission by including two additional members of the Election Commission. It was reverted to one-man Election Commission by the V.P. Singh Government in 1991. At present the Chief Election Commissioner is assisted in his functions by the two Election Commissioners, three Deputy Election Commissioners, and six Secretaries.

The Constitution does not prescribe any qualification for the Chief Election Commissioner or the Election Commissioners. The main concern of the makers of the Constitution was to have an Election Commission, independent of executive and political control. The President as per Article 324(2) appoints the Chief Election Commissioner and other Election Commissioners.

They have tenure of six years, or up to the age of 65 years, whichever is earlier. Since in a Parliamentary democracy the President functions on the advice of the Prime Minister, the actual power of appointment is with the latter. The independence of Election Commission in carrying out its functions and responsibilities is ensured by an express provision in Article 324(5) of the Constitution. It says that the Chief Election Commissioner shall not be removed from his office except in like manner, and on the like grounds as a Judge of the Supreme Court and the conditions of service of the Chief Election Commissioner shall not be varied to his disadvantage during his tenure. It means that the Chief Election Commissioner can be removed from office only through impeachment by Parliament. They enjoy the same status and receive salary and perks as available to Judges of the Supreme Court of India.

ELECTION COMMISSION AND THE SUCCESS OF DEMOCRACY IN INDIA

The Constitution of India provides for periodic elections, which ensure democratic transfer of political power from one set of representative to other. The Election Commission of India, a powerful non-partisan constitutional body, conducts the largest electoral exercise in the world. It is the responsibility of the Election Commission of India to conduct free and fair election in this land of more than 670 million voters with diverse socio-economic and political backgrounds. The Election Commission of India has been successfully conducting national as well as state elections since 1952. In recent years, however Election Commission started to play more active role to ensure greater participation of people in the political affairs. Late K.R. Narayanan, the former President of India praising the pro-active role of Election Commission said:

The Commission very quickly adapted itself to the changed political milieu that came about in the country. From a relatively passive role that it had played in the earlier years following our independence, it quickly responded and centre stage to play a vigorous, proactive role to ensure that the democratic process in the country remains, as was envisaged by all at the time of Independence, free and fair in both character and content.

The Prime Minister of India proudly declares that the Election Commission of India has no equals anywhere in the world. To quote him, When the United Nations and the Governments of other democracies reach out to our Election Commission seeking its assistance in conducting elections we feel a sense of pride in our democratic processes and institutions. Our Election Commission has no peers anywhere in the world.

The Election Commission and the Supreme Court are the two institutions that command high degree of respect from the citizens. Rudolf and Rudolf maintain that "the Election commission joined the Supreme Court in improving the legal conditions that make representative government and democratic participation possible". According to them Election Commission has also contributed to the making of a regulatory state in India. Election Commission's role in the success of India's Democracy is reflected in the writings of a political scientist, who says, "The Election Commission is the means to the end of a vibrant representative democracy". The Commission in the past was considered as a wing of the administration to complete the formalities of the election. A new dynamism was instilled in the Commission after T.N. Sheshan took over as the Chief Election Commissioner in 1991. "Starting with the tenure of T.N. Sheshan as Chief Election Commissioner the Election Commission gained a national prominence as a prime force in restoring and maintaining free and fair elections in India". T.N. Seshan gave teeth to electoral provisions and a model code of conduct was made to operate with great firmness, showing the "hitherto undiscovered and untapped power of the Commission hidden in the Constitution". The Commission since then has initiated various electoral reform measures. It is deeply concerned about criminalization of politics and participation of criminals in the electoral process as candidates.

The Commission had gone to the extent of disciplining the political parties with a threat of de-recognition if the parties failed in maintaining inner party democracy.

ELECTION COMMISSION AND THE PREPARATION OF ELECTORAL ROLLS

To maintain an accurate and up-to-date record of all eligible voters is the essential prerequisite of every functioning democracy, without which no free and fair election can be possible. The electoral rolls being the determinate of whose votes shall form the government are the foundation of modern democracy.

As mandated by Article 324 of the Constitution and Representation of People's Acts, the primary function of the Election Commission is to superintend, direct and control the preparation of Electoral Rolls Thus, Electoral Rolls of every Constituency, as desired by the Constitution makers, is prepared under the superintendence, direction and control of the Election Commission. The Commission plays an 'activist's role' to root out the bogus voters and enlist the genuine ones as it knows that more than two per cent error makes voter lists unacceptable. In the recent election to the Legislative Assembly of West Bengal the Commission considered the task of cleaning the electoral rolls as a "high priority" job. The names of 13 lakh "dead and shifted" voters have been removed and 21 lakh new voters added to the list.

The Commission has also taken bold initiative to ensure deletion of names of those voters against whom non-bailable warrants have been pending execution for over six months. It considers that if a warrant cannot be executed for more than six months, it should be presumed that the person is no longer residing in that place and so his name should not figure in the voters' list. Based on a communication from the Election Commission, controversial RJD MP from Siwan (Bihar) Mohamad Shahabuddin's name was deleted from the voters' list in 2005. In total 1.5 lakhs names were deleted from the voters' list in Bihar alone.

In order to protect the genuine voters, the Commission has been insisting since 1993 on photo identity cards to be issued to all eligible voters. The former CEC, T.N. Sheshan issued a warning by invoking Rule 37 of Representation of People's Act that the Commission would not notify elections after January 1, 1995 in those places where photo identity cards were not issued. The CEC's dictate of 'no identity cards-no elections' became slightly controversial. The order of the Commission was challenged in the Supreme Court saying that right to vote is an essential component of democracy and procedural provision cannot be constructed to deny the substantive right to vote.The matter was finally resolved when the Commission gave an undertaking before the Court that it would not withhold elections. The present Chief Election Commissioner is also insistence on photo identity cards. B.B. tendon made it clear before the recent Assembly election in West Bengal, Assam and Tamil Nadu that "those without photo identity cards will not be allowed to cast their votes in Assembly election"

ELECTION COMMISSION AND MODEL CODE OF CONDUCT

The Election Commission of India is regarded as guardian of free and fair elections. In every election, the EC issues a Model Code of Conduct for political parties and candidates to conduct elections in a free and fair manner. Model code of Conduct emerged out of a political consensus when in 1968 the Election Commission formulated, in consultation with political parties, the code that was intended to regulate the conduct of political parties and candidates for a healthy and peaceful election campaign. Election Commission of India defines Model code of Conduct as a set of guidelines to govern the conduct of political parties and candidates in the run-up to an election. It is intended to provide a level playing field for all political parties, to keep the campaign fair and healthy, avoid clashes and conflicts between parties, and ensure peace and order. The main aim of the Model Code is to ensure that the ruling party, either at the Centre or in the states, does not misuse its official position to gain an unfair advantage in an election. Unfortunately the code of conduct does not have statutory sanction. It was T.N. Sheshan who strictly enforced the code after taking over as the Chief Election Commissioner. Before that the code remained just on paper as the Commission did not realise that it had the power to enforce the code. T.N Sheshan forced the parties and candidates to take the EC's code of conduct seriously and succeeded to a good extent. The Sheshan's tradition continued and the successive Election Commissioners took serious note of any violation of the code.

ELECTION COMMISSION ON CRIMINALIZATION OF POLITICS

Criminalization of politics and politicization of crime very badly affect social and political life of the people. Presence of criminals in politics, many believe, stands on the way of democracy in India. The National Commission to Review the Working of the Constitution (NCRWC) has also recognised the fact that criminalisation has become a worrisome characteristic of India's politics and electoral system.The Commission notes that one possible explanation for the rapid criminalisation of the polity is that criminals have understood the mechanics of the electoral process and have themselves become contenders for power. Earlier, politicians used to patronise criminals and provided them protection from the law-enforcement agencies in exchange for the use of their muscle power during elections. Quoting unofficial studies the National Commission cited that in 1996 as many as 39 members of parliament, including four ministers, faced criminal charges, which included murder, rape, dacoity, abduction, assault and breach of peace. An investigation into the record of 500 persons who were candidates in the Lok Sabha elections of 1998 revealed that 72 of them had criminal proceedings pending against them. As per the estimate of G.V.G. Krishnamurthy, the former CEC some 700 of the 4000 odd MLAs in the country are "history-shetters" or had been charged in criminal cases. The former Chief Election Commissioner, G.V.G. Krishnamurthy, strongly pleaded for a new legislation to arrest criminalization of politics and political corruption with an aim that "no law breaker should ever be law maker". The Committee to Review the Working of the Constitution has recommended that candidates convicted of offences with a sentence of six months or more be barred from contesting elections for six years plus the length of their sentence, which would mark a change from the existing system where a six year ban might expire before a seven or eight year sentence. The Election Commission taking serious view of the increasing role of criminals in politics gave criminal un-friendly interpretation to Section 8 of Representation of People Act, 1951. The Commission ordered that no convicted person will be allowed to contest elections even if an appeal against the conviction was pending in a high court or the person was on bail. The exception was, however, given to sitting members of Parliament and State Legislatures. Accordingly, the Commission directed the returning officers to obtain sworn affidavits from candidates detailing whether the contestant had ever been convicted, nature of offence, punishment imposed, period of imprisonment and other relevant details. The returning officers were ordered to take note of the new legal position and decide about the validity of the candidature of contestants.

The Commission also recommended that when a person is accused of serious crimes and a court is prima facia satisfied about his involvement in the crime, he should be kept out of the electoral arena as it would be a reasonable restriction in the interest of the public. And those accused of criminal offences carrying a sentence of five years or more be automatically disqualified from fighting elections.

ELECTION COMMISSION ON INNER PARTY DEMOCRACY

It is often said that "the strength of India's parliamentary democracy is rooted in its multi-party system and the manner in which the political parties work". The centrality of the parties in a democratic system demands that some policing of their internal process of selecting leaders and representatives should definitely take place which will ensure that the exercise of authority within the party is based on a democratic culture and not an authoritarian one. The former CEC, T.N. Sheshan ordered in 1994 that political parties which had not constituted governing bodies according to their constitution would be derecognized. Later, he realized that the Parliament has not given the EC any power to scrutinize a party's constitution. The Commission, under M.S. Gill issued a direction to all those parties which conduct their internal business in "an entirely undemocratic manner" to ensure that the organisational elections are held regularly as per the party constitution. He, however, ruled out any "interference" by the commission in the internal political process of parties. J.M. Lyngdoh, the former Chief Election Commissioner agrees that a constitutional amendment that would make political parties adopt inner-party democracy could be one of the ways to ensure the effective functioning of democracy in the country.

REGISTRATION OF POLITICAL PARTIES

The party system is an essential feature of parliamentary democracy. However, there is no direct reference of political parties in the Constitution of India. The statutory law relating to registration of political parties was enacted in 1989 which was quite liberal. As a result, a large number of non-serious parties mushroomed and got registered with the Commission. Many of them did not contest elections at all after their registration. It led to confusion among electors as to whom to vote.

To eliminate the mushrooming of parties, the EC had to take some rigorous steps. The Commission now registers a party which has at least 100 registered electors as its members and is also charging a nominal processing fee of Rs 10,000 to cover the administration expenses which it will have to incur on correspondence with the parties after their registration.

In order to ensure that the registered political parties practice democracy in their internal functioning, the Commission requires them to hold their organisational elections regularly in accordance with their constitutional measures taken by the Election Commission to streamline the registration of political parties have shown effective results. These have lessened the headache of the administrative machinery, as well as confusion of the electorate.

LIMITS ON POLL EXPENSES

To get rid of the growing influence and vulgar show of money during elections, the EC has made many suggestions in this regard. The Commission has fixed legal limits on the amount of money which a candidate can spend during the election campaign. These limits have been revised from time to time. During 2004elections, the ceiling limits for Lok Sabha seats varied between Rs 10,00,000 to Rs 25,00,000. For Assembly seats, the highest limit was Rs 10,00,000 and the lowest limit was Rs 5,00,000. The EC, by appointing expenditure observers keeps an eye on the individual accounts of election expenditure made by a candidate during election campaign. The contestants are also required to give details of expenditure within 30 days of the declaration of the election results. However, political parties do not adhere to the financial Lakashman Rekha (limits) as huge amounts are spent by parties under the garb of their supporters.

Apart from this, the EC is also in favour of holding the Lok Sabha and the Assembly elections simultaneously, and to reduce the campaign period from 21 to 14 days. This, they feel, will lead to trim down the election expenditure. The Election Commission's attempt to impose these measures has been a move in the right direction.

MULTI-MEMBER ELECTION COMMISSION

There was a longstanding demand to make the EC a multi-member body. The Supreme Court in the S.S.Dhanoa versus Union of India case had observed: "When an institution like the Election Commission is entrusted with vital functions and is armed with exclusive and uncontrolled powers to execute them, it is both necessary and desirable that the powers are not exercised by one individual, however wise he may be. It also conforms to the tenets of democratic rule." With the 1993 Constitution Amendment Act, the Election Commission was made a multi-member body. The EC was made a multi-member body by the government in the wake of certain controversial decisions taken by the Chief Election Commissioner, T.N.Seshan. The Act provided that the decision of three members 'shall, as far as possible, be unanimous'. But in case of difference of opinion among three members, the matter 'shall be decided according to the opinion of the majority'. It was a significant step to remove a one-man show in such an important function as that of conducting elections. A single member EC would have no longer 'unbridled' powers. In view of the large size of the country and the huge electors, the Election Commission also made a proposal for the appointment of Regional Commissions to different zones to reduce its burden.

USE OF SCIENTIFIC AND TECHNOLOGICAL ADVANCEMENTS

The Election Commission of India has been trying to bring improvements in election procedures by taking advantage of scientific and technological advancements. The introduction of 'electronic voting machines' (EVMs) is one of the steps in that direction. The Election Commission has recommended the introduction of electronic voting machines with a view to reducing malpractices and also improving the efficiency of the voting process.

CONCLUSION

The paper elaborates how the Election Commission of India has been able to nourish India's Democratic health over the years by improving the quality of election management.

Over the years, the Election Commission has conducted a number of laudable electoral reforms to strengthen democracy and enhance the fairness of elections. These reforms are quite adequate and admirable. Undoubtedly, the election machinery, under the aegis of the EC, deserves credit for conducting elections in a free and fair manner. However, our system is still plagued by many vices. To win votes, political parties resort to foul methods and corrupt practices. Such maladies encourage the anti-social elements to enter the electoral fray. The problem is not lack of laws, but lack of their strict implementation. In order to stamp out these unfair tendencies, there is a need to strengthen the hands of the EC and to give it more legal and institutional powers. The EC must be entrusted with powers to punish the errant politicians who transgress and violate the electoral laws.

Our Election Commission tries its best to weed out the virus of malpractices. It is optimistic of strengthening and improving the working of democracy through free and fair elections. It has always devised better systems and is using advanced scientific technologies for maintaining the high reputation of the Indian elections. However, the success of reforms will largely depend upon the will of the political parties to adhere to and implement such reforms. An independent media and an enlightened public opinion have no substitute in pushing through reforms. If people vote according to their convictions and punish those who infract the rules, corrupt practices will automatically disappear. And this will go a long way towards enabling democracy to flourish and grow to its full capacity.

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PRESENCE AND LEVEL OF INTERNET ADDICTION ATTITUDE TOWARDS INTERNET AND SOCIAL NETWORKING SITES

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Presentation : 22.02.2018
Supervisor : **Ms. Nidhi Singh**

ABSTRACT : *The aim of the study was to evaluate the level and presence of Internet addiction and attitude towards Internet and Social Networking sites. In total 300 college going girls (aged between 18-24) were recruited. The presence of Internet addiction was assessed by the* ***NIHMANS Screener*** *and the Internet and social networking sites attitude scale by* ***Sarkar & Das,2012.*** *Convenient purposive sampling were used as a method in the research project.*

Key word **:** *Internet, Internet Addiction, Attitude, Social networking sites, college going girls*

INTRODUCTION

Internet is a global computer network providing a variety of information and communications facilities, consisting of interconnected network using standardized communication protocols. The Internet has made life a lot more easier by making information more accessible and creating connections with different people around the world.

Over the past decade, the concept of Internet addiction has grown in terms of its acceptance as a legitimate clinical disorder often requiring treatment. Most recently the American Psychiatric Association has decided to include the diagnosis of Internet addiction in the appendix in the DSM-V. **Internet Addiction Disorder**, most commonly called Problematic Internet use that interferes with daily life.

Addiction is defined by Webster Dictionary as a "compulsive need for and use of a habit forming substance characterized by tolerance and by well defined physiological symptoms upon withdrawal, broadly persistent compulsive use of a substance known by the user to be harmful."

Few types of Internet Addiction : Cybersex Addiction, Computer Addiction, Addiction of cyber relationship, Informational Addiction, Online compulsions.

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Few Symptoms of Internet Addiction: Backache, Headache, Weight gain or loss, Disturbance of sleep, Avoidance of work, Anxiety, Depression, Feeling of guilt, Social isolation, Unable to keep schedules, Poor time management and procrastination.

Social Networking Sites (SNS) is the fastest growing websites in the 21st century. A social networking site is an online place where a user can create a profile and built personal network that connects one users to another users. SNS is a platform to build social networks or social relations among people who shares interests, activities, background or real-life connections. SNS have created a new social dimension where individual can develop social awareness by keeping in touch with old friends or by making new friends.

Attitude is a psychological construct, a mental and emotional entity that characterizes a person. People adopt different positive and negative attitudes towards things and topics that they are involved in, including the internet as a communicative means with its visual and aural facets.

Danial Katz classified attitudes into four different groups based on their functions:-

- **Utilitarian :** provides us with general approach or avoidance tendencies.
- **Knowledge :** help people to organize and interpret new information.
- **Ego-defensive :** attitudes can help people to protect their self-esteem.
- **Value- expressive :** used to express central value or beliefs.

AIM:

The aim of this project is to check the presence and level of Internet addiction and attitude towards Internet and Social Networking Sites.

METHODS

Sample

300 female college going girls

Purposive sampling method used

TOOLS

- NIMHANS screener for Internet Addiction
- Internet and Social networking sites attitude scale by SARKAR & DAS, 2012

PROCEDURE

Informed consent was taken

Ethical consideration of privacy and confidentiality ensured

Socio-demographic details were obtained

Internet Addiction Screener was given

ISNSAS was filled up by girls

Data analyzed using descriptive statistics

RESULT

Table 1 : Internet Addiction Screener Analysis

Category	No. of students	%
High Internet Addiction	24	8
Internet Addiction	40	13.3
No Internet Addiction	236	79

Table 2 : ISNSAS Analysis : Attitude towards Internet

AREA - I	No. of students	Mean	SD	Meaning
Attitude towards Internet	300	78.74	10.38	Favourable attitude

Table 3 : ISNSAS Analysis : Attitude towards Social Networking Sites

AREA - II	No. of students	Mean	SD	Meaning
Attitude towards Social Networking Sites	300	77.74	9.58	Favourable attitude

DISCUSSION & CONCLUSION

The study included 300 college girls as a sample. Female college going girls and average English reading capacity were used as a inclusion criteria. All the 300 girls were having smart phones and all the 300 girls were having internet connection I their phones. From the data analysis we became aware about the presence of addiction and reached to a conclusion that, 8 percent of girls were having High Internet Addiction. It means that they need a quick tips to overcome from this problem and also if they are unable to do so, they should consult a clinical psychologists. 13.3 percent of girls were placed under Internet Addiction and 79 percent of girls were having no addiction. We had also analyzed the result in a statistical manner by calculating Mean and SD. The mean of Area - I i.e. attitude towards Internet is 78.74, it means that the girls are having Average favourable attitude and the SD comes out to be 10.38 and the mean of Area - II i.e. Attitude towards Social Networking Sites is 77.74, it means that the girls are having average favourable attitude towards Social Networking Sites and the SD is 9.58.

22 percent of girls were highly addicted to the Internet and needs to have psycho-educative session to overcome from this problem. Some of them requires quick tips and some of them need a session (1-2 session) to manage this problem. It can also have negative and psychological impact on young girls.

Mostly girls were having favourable attitude towards Internet and Social Networking Sites. Favourable attitude towards Internet and Social Networking Sites can have linkage to Internet Addiction.

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A COMPARISON OF EXAMINATION PHOBIA LEVEL ON +2 GIRLS STUDENTS AND UNDERGRADUATE GIRL STUDENTS

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Presentation : 22.02.2018

Supervisor : **Ms. Namrata**

ABSTRACT : *This paper focuses on the examination phobia among +2 girls and undergraduate girls students. Examination Phobia is an irrational fear that leads to avoidance of the feared situation or object which in turn increase the severity of the phobia . Examination phobia refer to the excessive worry about upcoming exams. The Lifestyle Issues, Negative thinking, Self criticism, Studying styles, psychological factors, fear of being evaluated, apprehension about the consequences is experienced by many normal students. It affect socially and leads to social withdrawal, avoidance of friends and family, self defeating thought, suicidal thoughts etc. The present investigation is aimed to study the examination phobia among +2 girls and undergraduate girls students. The following hypotheses were formulated for present research :*

- *There will be significant difference of examination phobia between +2 girls students and undergraduate girls student*
- *Age and phobia are negatively correlated*

The research was conducted on a sample of 100 students in which 50 +2 girls students was of St. Xavier's High school and 50 undergraduate students of magadh mahila college was taken. The finding reveal that stress and family pressure and fear of failure plays a vital role in examination phobia.

***Key word** : Phobia, Examination, +2 girls students, psychological factor.*

INTRODUCTION

Phobia : A phobia is an intense fear of something that in reality poses little or no actual danger . Common phobia includes fear for places, heights, highway driving, flying insects, snakes. Most phobia develop in childhood but they can also develop in adults. The experience is so nerve-wracking that you may go to great length to avoid it.

"NORMAL" FEAR Vs. PHOBIA

It is normal and even helpful to experience fear in dangerous situation. Fear is an adaptive human response. It serve a protective purpose,activating

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the automatic "flight-or-flight "response. But with phobia the threat is greatly exaggerated or nonexistent

DIFFERENT KINDS OF PHOBIAS

Social Phobias : Feeling scared of being embarrassed in front of other people The person may be excessively self conscious and afraid of humiliating herself in front of others.

Agoraphobia : Traditionally thought to involve a fear of public places and open spaces , it is now believed that agoraphobia develops as a complication of panic attack.

Claustrophobia is a fear of being in an enclosed space like an elevator, a tunnel or a plane.

Arachnophobia : fear of spider

Examination Phobia : Examination phobia refer to the excessive worry about upcoming exams. Lifestyle Issues, Negative thinking, Self criticism, Studying styles ,psychological factors, fear of being evaluated, Apprehension about the consequences is experienced by many normal students, it affect socially and leads to social withdrawal, avoidance of friends and family, self defeating thought, suicidal thoughts etc It is the painful experience for each student before and after exam. Before the exam students suspend pleasure oriented activities. They donot go to playground, cancel their picnic schedules, forget about going latest movies, busy with their books. They stick themselves to chair exam fever touches its point on the night before the examination. One gets disturbed sleep. One feels everything drained out of his brain in exam hall.

According to Sylvia (2005)Fear of examination is viewed as a state having considerable significance for academic performance.

D. Ruwan M. Jayatunge(2008) Examination phobias as aself damagind factor which negatively affect the student and their performance.The student is unable to to give maximum productivity and the end result would be critical.

Farhat parveen and sufiana khatoon(1997) in their study found that fear of examination effect the academic performance of the student in the examination and they could not perform according to their knowledge due to fear of examination a they forget the answer of some question due to nervousness and fear of examination.

PURPOSE

The purpose of the present study was to investigate whether or not there is any differences in level of examination phobia in +2 students and undergraduate girls students.

HYPOTHESIS

- There would be significant difference of examination phobia between +2 girls students and the undergraduate girl student
- Age and phobia are negatively correlated

METHODOLOGY

Sample : The Sample Comprise Of 100 Girls students in which 50 +2 and 50 are Undergraduate. The Incidental Sample Was Used In this research project.

TOOLS

In this study questionnaire on examination phobia scale were used which was taken from west side and personal data sheet was also used.

RESULTS AND DISCUSSION

The following table showed the measure of Mean, Median, Mode SD, SE ,t-ratio score of examination phobia among the students.

Students	n	Mean	Median	Mode	SD	SE	t-ratio	df	significance
+2 girls	50	74.4	77.27	68.66	14.34	2.04			
							4.75	98	0 .05
undergraduate	50	61	61.03	61.09	13.78	1.96			

The table shows that the obtained mean value of +2 girls and undergraduate girls students were 74.4 and 61 respectively. It means that +2 girls students are have more examination phobia than undergraduate students.

The standard Deviation of +2 girl student and undergraduate girl student are 14.34 and 13.78 respectively , which are quiet less to their mean.

The obtained t-value 4.75 with df 98 is significant at .05 level. Thus it can be said that it is marginally significant by chance.

Finally it could be said that the obtained result supports the hypothesis.

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INTERNET SOURCES

http://www.researchgate.net>publication

http://thepsychologist.bps.org.uk>exam

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EMOTIONAL INTELLIGENCE RELATED TO STRESS ON COLLEGE STUDENTS

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Presentation : 22.02.2018
Supervisor : **Dr. Khurshid Jahan**

ABSTRACT : *The study was undertaken to investigate the relationship between emotional intelligence and stress on college students. An incidental cum purposive sample of 100 undergraduate college students of Patna College and Magadh Mahila College, Patna, was selected for data collection. Emotional intelligence scale by Dr. Meena Jain and Dr. Madhu Jain was used and appropriate statistical analysis was done. Results indicate that there was a significant relationship between emotional intelligence and stress in both male and female students.*

Key word **:** *undertaken, investigate, Emotional intelligence, undergraduate, relationship, stress.*

INTRODUCTION

Emotional Intelligence (EI) is the capability of individuals to recognize their own, and other people's emotions, to discern between feelings and label them appropriately, to use emotional information to guide thinking and behaviour, and to manage and/or adjust emotions to adapt environments or achieve one's goal.

For most people, Emotional Intelligence (EQ) is more important than one's Intelligence (IQ) in attaining success in their lives and career. As individual's success and the success of the profession today depends on the ability to read others people's signals and react appropriately to them.

Therefore, each of the individual must develop the mature emotional intelligence skills required to better understand, empathize and negotiate with other people, particularly as the economy has become more global, otherwise will elude individual in their lives and career.

Emotional Intelligence was described formally by Salovey and Mayer (1990). They described it as " the ability to monitor one's own and other's feelings and emotions, to discriminate among them and use this information to guide one's by thinking and actions".

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Stress is an internal state which can be caused by physical demands of the body or by environment or by social situation which are evaluated as potentially harmful uncontrollable or exceeding our resources for coping life events and pressures of everyday.

Although stress has been defined in many ways, a common ground of most definition is that stress is caused by a stimulus, that the stimulus can be either physical or psychological and that individual respond to the stimulus in some way. The word ' stress ' is defined by the Oxford Dictionary as " a state of affair involving demand on physical or mental energy ." It is condition or circumstance (not always adverse), which can disturb the normal physical and mental health of an individual.

Salovey and Mayer's (1990) cited in Azman Ismail (2010) ability based model of emotional intelligence explains that the level of emotional intelligence will increase individual's competencies and this can increase their ability to decrease stress situations and increase positive attitudes and behaviors.

Lorenzo Fariselli, Joshua Freedman, (2008) found that emotional intelligence is emerging as valuable competence for work and life performances. EQ helps to improve performance by mitigating the negative effect of stress.

Bartwal and Raj (2014) conducted a research on" Academic Stress among School going Adolescents in relation to their Social Intelligence." Results of the study revealed that male and female students experienced same amount of academic stress. The high social intelligence level would have better degrees of coping with the academic stress. Social intelligence plays a vital role in reducing academic stress.

Goleman's (1998) cited in Azman Ismail (2010) emotional intelligence stresses that the level of emotional intelligence will increase individual's competencies and this may help them to decrease environmental strain and increase leadership effectiveness in organisation.

RELATION BETWEEN EMOTIONAL INTELLIGENCE AND STRESS

Emotional Intelligence should help us to handle stress better, for several reasons. Important parts of Emotional Intelligence are :

- Self- management
- Empathy
- Social skill

Self-awareness can help you notice when you are becoming stressed, which in turn make you better able to calm down before your reactions builds to an unmanageable level. Empathy and Social skill should allow you to be more effective in how you express yourself - including knowing how and when to be candid. But these skills need to be learned. Emotional Intelligence incorporates the important aspects of interpersonal and intrapersonal relationships, adaptability, moods and stress management skills which have a profound effect on the academic performance of students.

Today people are faced with complex and challenging work life. When we observes around in the work place, too many problems occur. That all problems can make all people down in stress. Small quantity of stress is good. It can motivate and help people more productive. However, too much stress or strong response to stress are harmful.

Now a days, Emotional Intelligence is the one of the major missing part in the human life. People with high emotional intelligence are likely to be more successful person in real world. Even people with good Intelligence Quotient they not able to succeed. The concept of emotional intelligence captures an extension collection of individual personal skills, professional skills and disposition. Emotionally intelligent person is skilled in identifying emotions, how to use emotions, understanding own and others emotions and regulating emotions. Emotional intelligence is taken as a major factor for career effectiveness, success and satisfaction.

PURPOSE

The purpose of the present research project was to study the relationship between Emotional Intelligence and Stress.

HYPOTHESES

Following Hypotheses were formulated for the present study :-

1. There will be significant relationship between Emotional Intelligence and Stress among girls.

2. There will be significant relationship between Emotional Intelligence and Stress among boys.

METHOD

Sample : The sample was comprised of 60 undergraduate college students, in which 30 were female students and 30 were male students.

TOOLS AND TECHNIQUES

Following tests were used to collect the data -

- **Personal Data- Sheet -** A personal data-sheet was prepared by the investigator to find out some basic information about the sample, such as name, age, educational qualification, etc.

- **Emotional Intelligence Scale -** The scale was developed by Dr. Meena Jain and Dr. Madhu Jain. The test consist of 18 scales, each scale has 5 items except general health scale. The general health scale has 3 subtests to physical, behavioural and emotional aspect of health. It consist of four types of responses - very simple, moderately well, a little and not at all. Scoring was done according to the manual of the scale.

- **Singh Personal Stress Source Inventory** This inventory was developed by Arun Kumar Singh, Ashish kumar Singh and Arpana Singh. The inventory consists of 35 items and three responses options were given which were - seldom, sometime and frequently. Scoring was done according to the manual of the scale.

PROCEDURE

The test was administered in two sessions. First of all, Personal data sheet was given to the respondents and relevant information were taken. After that, Emotional Intelligence Scale and Singh Personal Stress Source Inventory given to the respondents one by one with short interval. After 3-4 days, questionnaires were collected from the samples.

RESULTS

Table 1 : Strength of Association between Emotional Intelligence and Stress among Girls :

Group	Level of EI	Low Stress	High Stress	Chi-square	df	Level of Significance
	High	7	16			
Groups				6.52	1	P > 0.01
	Low	18	9			

Table-1 shows that the obtained Chi-square is 6.52 and df is 1, with regard to Emotional Intelligence and Stress is significant at 0.01 level of confidence suggesting that Hypothesis No-1 is accepted.

Table 2 :- Strength of Association between Emotional Intelligence and Stress among Boys :

Group	Level of EI	Low Stress	High Stress	Chi-square	df	Level of Significance
	High	19	9			
Boys				8.11	1	P > 0.01
	Low	6	16			

Table No. 2 shows that the obtained Chi-square is 8.11 and df is 1, with regard to Emotional Intelligence and Stress is significant at 0.01 level of confidence suggesting that Hypothesis No-2 is accepted.

DISCUSSION : It is found in the present study that there is a significant relationship between Emotional Intelligence and Stress in both girls and boys. When Emotional Intelligence is high, Stress is low and when Emotional Intelligence is low, Stress is high. So it can be said that there is a negative correlation between Emotional Intelligence and Stress which supports the findings of different previous studies.

CONCLUSION : On the basis of above result and conclusion it may be concluded that there is a negative correlation between Emotional Intelligence and Stress in both male and females.

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लिंग-भेद के सामाजिक प्रतिरूप

*** दिव्या वत्स** *** हर्षिता शुक्ला**

*** जर्रीन कमर**

Presentation : 22.02.2018
Supervisor : **प्रियंका कुमारी**

सारांश : लिंग स्त्री-पुरुष के बीच पाए जाने वाले शारीरिक अंतर को स्पष्ट करता है। जेंडर स्त्री-पुरुष की सामाजिक, सांस्कतिक रचनाएँ है जिसे समाज ने बनाया है। लिंग-भेद मुख्य रूप से लिंग के आधार पर किया जाने वाला भेद है, जिसका शिकार ज्यादातर महिलाएँ होती है। क्योंकि उन्हें सारे अधिकार नहीं दिए गए हैं। लिंग-भेद समाज में व्याप्त है और लोग लिंग के आधाार पर होने वाले भेद को समझ रहे हैं लेकिन फिर भी अनजान बने रहते हैं। लिंग भेद समाज में अनेक रूपों में देखने को मिलता है, इसके मुख्य कारक पितृसत्तात्मक, गरीबी, शिक्षा की कमी आदि है। लिंग-भेद को दूर करने के लिए कई ठोस कदम उठाने होंगे। महिलाओं को सशक्त करना होगा और उन्हें पुरुषों के कदम से कदम मिलाकर चलना होगा तभी उन्हें अपने परिवार एवं समाज में उच्च स्थान प्राप्त होगा।

शब्द कुंजी : लिंग, जेंडर, भ्रूण-हत्या, पितृसत्तात्मक, शारीरिक लक्षण।

दिव्या वत्स
बी.ए., द्वितीय वर्ष, समाजशास्त्र (प्रतिष्ठा) सत्र : 2016-2019
मगध महिला कॉलेज, पटना विश्वविद्यालय, पटना

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परिचय : लिंग-भेद का तात्पर्य लिंग के आधार पर महिलाओं के साथ भेदभाव है। परम्परागत रूप से पुरुषों को महिलाओं से श्रेष्ठ माना जाता है। महिलाओं को कमजोर वर्ग के रूप में देखा जाता है। वह पुरुषों की अधीनस्थ स्थिति में होते है। वो घर और समाज दोनों में शोषित, अपमानित, अक्रमित और भेदभाव से पीड़ित होती है।

प्रत्येक समाज और देश की कुल जनंसख्या में महिलाओं की कुल जनसंख्या में महिलाओं की आवादी आधे के बराबर या इससे कुछ ही कम है। परिवार, समाज, राजनीति, प्रशासन आदि सभी क्षेत्रें में महिलाओं की कुल जनसंख्या में उनके अनुपात या जो जब कभी भी उन्हें अधिकार देने की बात आती है, तो उनकी स्थिति द्वितीय श्रेणी की हो जाती है। महिला और पुरुष समाज में बराबर है, महिलाएँ घर की लक्ष्मी होती है इत्यादि बाते सिर्फ कहने के लिए होती है। महिलाओं के खिलाफ भेदभाव दुनिया में हर जगह प्रचलित है।

लिंग एक जैविक रचना है, जो किसी महिला या किसी पुरुष के बीच पाये जाने वाले शरीरिक अंतर को स्पष्ट करती है अर्थात् यह औरत या मर्द के जननांगों तथा

उससे जुड़े प्रजनन कार्यों को स्पष्ट करती है। इस प्रकार लिंग अनेक शरीरिक लक्षणों का उल्लेख करता है जिसे किसी व्यक्ति की पहचान एक औरत या मर्द के रूप में होती है।

जेंडर एक सामाजिक, सांस्कृतिक रचना है, जिसे समाज ने बनाया है, इसका संबंध पुरुषोचित, स्त्रियोचित गुणों, व्यवहार के तरीकों, भूमिकाओं अधिकारों आदि से है। सेक्स का प्राकृतिक लिंग कहा जाता है।

महिलाओं के समाज में निचला स्तर होने के कारणों में से अत्याधिक गरीबी और शिक्षा की कमी भी है। सिर्फ शिक्षा के क्षेत्र में ही नहीं, परिवार खाना की आदतों के मामले में भी वो केवल लड़का ही होता, जिसे सभी प्रकार का पौष्टिक और स्वादिष्ट भोजन प्राप्त होता है जबकि लड़की को वो सभी चीजें खाने को मिलता है जो परिवार के पुरुष खाने के बाद बचा देते है, जो दोनों ही रूपों में गुणवत्ता और पौष्टिकता में बहुत ही घटिया किस्म का होता है और यही बाद के वर्षों में उसकी खराब सेहत का प्रमुख कारण बनता है। महिलाओं में रक्त की कमी के कारण होने वाली बीमारी एनिमीया (अरक्त) और बच्चों को जन्म देने के समय होनेवाली परेशानियों का प्रमुख कारण घटिया किस्म का खाना होता है, जो उन्हें पिता के घर और ससुराल दोनों जगह मिलता है। इसके साथ ही असहाय काम का बोझ जिसे वो बचपन से ढ़ोती आ रही है।

लिंग-भेद के कारण :

वास्तव में लिंग भेद के कई कारण है परंतु इनमें से कुछ प्रमुख जिसकी चर्चा निम्न रूप से करते हैं :

1. **पितृसत्तात्मक व्यवस्था :**
   भारतीय समाज में लिंग-भेद का मुख्य कारण इसकी पितृसत्तात्मक व्यवस्था है। इस व्यवस्था ने अपनी वैधता और स्वीकृति हमारे धार्मिक विश्वासों से प्राप्त किया है।
2. **महिलाओं में जागरूकता का आभाव :**
   महिलाएँ अपनी जागरूकता के आभाव के कारण से नहीं जान पाती कि सामाजिक, आर्थिक और राजनीतिक ताकत उन पर कैसा प्रभाव डाल रही है तथा वे उनका लाभ कैसे लें।
3. **समाजिक नियम एवं मूल्य :**
   लिंग-भेद का एक कारण, सामाजिक नियम एवं मूल्य भी है, जो समाज द्वारा बनाया जाता है। जैसे-ये मानना कि महिलाएँ घर पर रहकर घर का काम करेंगी और पुरुष घर से बाहर जा कर पैसा कमाएँगा।
4. **सामाजीकरण की प्रक्रिया :**
   सामाजीकरण की प्रक्रिया के दौरान ही स्त्री-पुरुष भेद आरम्भ हो जाता है, जिससे हिंसा, उत्पीड़न, अत्याचार, शोषण उत्पन्न होने लगता है, जिनकी शिकार केवल महिलाएँ होती है।

इसके अतिरिक्त बेरोजगारी, विश्वास की कमी, सामाजिक लिंग-भेद आदि भी लिंग-भेद को बढ़ाते हैं।

लिंग-भेद के दुष्परिणाम :

लिंग-भेद के निम्नलिखित मुख्य दुष्परिणाम है :

1. **कन्या भ्रूण हत्या :**
   जिस समाज में पुरुषों की प्रधानता दी जाती है वहाँ जन्म से पूर्व गर्भ का पता लगाकर कन्या शिशु की हत्या कर दि जाती है।
2. **सती प्रथा :**
   इसके अंतर्गत पति की मृत्यु के बाद उनकी पत्नी को भी साथ में पति की चिता में जलाकर मौत की घाट उतार दिया जाता है।
3. **दहेज प्रथा :**
   पुरुष प्रधाान समाज में विवाह के समय लड़के वाले अनेक पैसों तथा समानों की माँग लड़की वाले से करते हैं।
4. **बाल विवाह :**
   इसके अंतर्गत लड़कियों का विवाह 18 साल से कम उम्र में कर दी जाती है, जिससे वे कम उम्र में माँ बन जाती है और उसकी मृत्यु हो जाती है।

कानून :

राष्ट्रीय स्तर पर लिंग-भेद को रोकने के लिए कई कानून बनाऐ गय है, जो इस प्रकार है :

1. **दहेज निषेध अधिनियम (1961) :** इस के लिए 1961 ई॰ में दहेज विरोध अधिनियम लाया गया। जिसके अंतर्गत देहज लेने या देने पर पन्द्रह हजार का जुर्माना और 6 माह का कारावास का प्रावधान किया गया।

2. सती विरोधी कानून (1987) :

कमीशन ऑफ सती (प्रीवेशन) एक्ट 1987 के तहत् यदि कोई महिला अपनी मर्जी से या किसी दबाव में सती होने का प्रयास करती है, तो उसे एक साल की सजा और जुर्माना हो सकता है।

3. प्रसव पूर्व निदानिक तकनीकी अधिनियम (1997) :

कन्या भ्रूण हत्या जैसे अपराध को रोकने के लिए भारत सरकार ने प्रसव पूर्व निदानिक तकनीकी अधिनियम 20 दिसम्बर, 1996 को पारित किया, जो कि 1 जनवरी, 1997 से जम्मू और कश्मीर को छोड़कर पूरे भारतवर्ष में लागू कर दिया गया है।

4. घरेलू हिंसा अधिनियम (2005) :

इस एक्ट को महिलाओं को संरक्षण हेतु काफी विवाद के उपरांत 20 अक्टूबर, 2005 को तैयार कर दिया गया और अंत: 26 अक्टूबर, 2006 को लागू कर दिया गया, जिसके तहत् कोई भी महिला यदि किसी पुरुष के साथ बिना विवाह के रह रही है या वह शादी-शुदा हो, तो पुरुष और उसके साथ-साथ उसके परिवार पक्ष के किसी भी सदस्य या मायके के कोई भी सदस्य के द्वारा यदि उस महिला को शारीरिक, मानसिक या आर्थिक रूप से शोषण किया जाता है, तो इसके विरोध वो न्यायालय में इस एक्ट के तहत् संरक्षण ले सकती है।

अध्ययन पद्धति :

अध्ययन पद्धति से तात्पर्य किसी ऐसी प्रणाली से है जिसमें एक या एक से अधिक प्रक्रियाएँ अपनाई जा सकती है। इस अध्ययन के अंतर्गत अधययन पद्धति को निम्नलिखित चरणों में विभाजित किया गया है :

- अध्ययन की इकाईयों का चयन,
- अध्ययन के क्षेत्र का चयन,
- अध्ययन के उद्देश्यों का निर्धारण,
- तथ्यों का संकलन (प्राथमिक एवं द्वितीयक स्रोत)

अध्ययन की इकाईयों का चयन :

इस शोध कार्य के दौरान सूचनाओं को प्राप्त करने के लिए शोध के अंतर्गत 25 महिलाओं और 25 पुरुषों को लिया गया है।

अध्ययन के उद्देश्य :

1. लिंग-भेद के बारे में जानकारी प्राप्त करना,
2. लिंग-भेद के कारणों की जानकारी प्राप्त करना,
3. लिंग-भेद के विभिक्त स्वरूपों की जानकारी प्राप्त करना,
4. महिलाओं के विरूद्ध होने वाले भेदभाव की पहचान करना,

तथ्यों का संकलन :

तथ्यों का संकलन दो स्रोतों के माध्यम से प्राप्त किया जाता है : -

1. प्राथमिक स्रोत : जिन स्रोतों से कोई सर्वेक्षणकर्त्ता प्रथम बार में ही स्वयं अपने द्वारा विभिक्त सूचनाओं और सामग्री को संकलित करता है उसे ही प्राथमिक स्रोत कहा जाता है।

2. द्वितीयक स्रोत : द्वितीयक स्रोत वे स्रोत है, जो किसी भी रूप में प्रकाशित अथवा अप्रकाशित समस्त लिखित सामग्री का प्रतिनिधित्व करते है तथा सर्वेक्षणकत्ता को तैयार माल के रूप में आवश्यक तथा महत्वपूर्ण सूचनाएँ उपलब्धा कराते हैं।

तथ्यों का वर्गीकरण :

इस शोध में कुल 50 युवा वर्ग का चयन किया गया जिसमें 25 महिलाएँ तथा 25 पुरुष उत्तरदाता जो 20-25 तथा 25-30 वर्ष आयु के है।

सारणी संख्या-1

लिंग से आप क्या समझते हैं?

विकल्प	महिला उत्तरदाता की संख्या	पुरुष उत्तरदाता की संख्या
स्त्री	10	15
पुरुष	15	10
कुल	**25**	**25**

उपर्युक्त सारणी से स्पष्ट होता है कि लिंग जिससे स्त्री-पुरुष को जैविकीय रचना माना है जिससे स्त्री-पुरुष की पहचान होती है।

सारणी संख्या-2

जेंडर से आप क्या समझते हैं?

विकल्प	महिला उत्तरदाता की संख्या	पुरुष उत्तरदाता की संख्या
स्त्री	—	—
पुरुष	—	—
सांस्कृतिक रचना	17	18
अन्य	08	07
कुल	**25**	**25**

उपर्युक्त सारणी से स्पष्ट होता है कि 17 महिला उत्तरदाताओं तथा 18 पुरुष उत्तरदाताओं ने जेंडर को स्त्री सांस्कृति रचना माना है जबकि 08 महिला तथा 07 पुरुष उत्तरदाता ने जेंडर के लिए अन्य को माना है।

सारणी संख्या-3

क्या महिलाओं को पुरुष के सामान्य अधिकार मिलना चाहिए?

विकल्प	महिला उत्तरदाता की संख्या	पुरुष उत्तरदाता की संख्या
हाँ	16	15
नहीं	9	10
कुल	**25**	**25**

उपर्युक्त सारणी से स्पष्ट होता है कि 16 महिला उत्तरदाताओं तथा 15 पुरुष उत्तरदाताओं महिला को पुरुष के सामान्य अधिकार देना चाहता है एवं 9 महिला उत्तरदाताओं तथा 10 पुरुष उत्तरदाताओं महिलाओं को पुरुष के सामान्य अधिकार देना नहीं चाहते।

सारणी संख्या-4

स्त्री-पुरुष के बीच भेद से आप क्या समझते हैं?

विकल्प	महिला उत्तरदाता की संख्या	पुरुष उत्तरदाता की संख्या
पुरुषों को अधिक प्राथमिकता मिलना	6	5
स्त्रियों को किसी भी तंत्र में निम्न समझना	5	6
घर और बाहर के कार्य के लिए स्त्रियों-पुरुषों को अलग कार्य देना	4	4
जन्म से ही बच्चे तथा बच्चियों के पालन-पोषण में होने वाले भेदभाव	4	5
उपरोक्त सभी	4	5
कुल	**25**	**25**

उपर्युक्त सारणी से स्पष्ट होता है कि 6 महिला तथा 5 पुरुष उत्तरदाताओं ने पुरुष को अधिक प्राथमिकता मिलने को 5 महिला तथा 6 पुरुष उत्तरदाताओं ने स्त्री को किसी भी तंत्र में निम्न समझने को 4 महिला तथा 4 पुरुष उत्तरदाताओं ने घर और बाहर के कार्य को अलग निर्धारण को 4 महिला तथा 5 पुरुष उत्तरदाताअें ने जन्म से ही बच्चे तथा बच्चियों में होने वाला भेदभाव को स्त्री-पुरुष के बीच भेद माना है।

सारणी संख्या-4

लिंग अधारित हिंसा के अंतर्गत हिंसा के कौन-कौन से प्रकार हैं?

विकल्प	महिला उत्तरदाता की संख्या	पुरुष उत्तरदाता की संख्या
शारीरिक हिंसा	10	7
मौखिक हिंसा	3	4
यौनिक हिंसा	5	6
आर्थिक हिंसा	2	3
उपरोक्त सभी	5	5
कुल	**25**	**25**

उपर्युक्त सारणी से स्पष्ट होता है कि 10 महिला तथा 7 पुरुष उत्तरदाताओं ने शारीरिक हिंसा, 3 महिला तथा 4 पुरुष उत्तरदाताओं ने मौखिक हिंसा, 5 महिला तथा 6 पुरुष उत्तरदाताओं ने यौनिक हिंसा, 2 महिला तथा 3 पुरुष उत्तरदाताअें ने आर्थिक हिंसा जबकि 5 महिलाओं और 5 पुरुषों ने उपरोक्त सभी प्रकार का हिंसा है।

सारणी संख्या-6

क्या स्त्री-पुरुष भेद लिंग अधारित हिंसा को उत्पन्न करती हैं?

विकल्प	महिला उत्तरदाता की संख्या	पुरुष उत्तरदाता की संख्या
हाँ	20	23
नहीं	05	02
कुल	**25**	**25**

उपर्युक्त सारणी से स्पष्ट होता है कि 20 महिला तथा 23 पुरुष उत्तरदाताओं ने माना है कि स्त्री-पुरुष लिंग आधारित हिंसा को उत्पन्न करता है, जबकि 5 महिलाओं और 2 पुरुषों उत्तरदाताओं ने माना है कि स्त्री-पुरुष भेद लिंग आधारित हिंसा को उत्पन्न नहीं करती है।

निष्कर्ष

प्रस्तुत शोध "लिंग भेद के सामाजिक प्रतिरूप" पर किया गया है, जो पटना शहर के अशोक राजपथ से सुल्तानगंज में रहने वाले लोगों के द्वारा साक्षात्कार अनुसूची के माध्यम से किया गया है।

इसके द्वारा प्राप्त जानकारी में यह पता चला है कि लिंग-भेद, लिंग के आधाार पर किया जाने वाला भेद है जिसका शिकार ज्यादातर महिलाएँ होती है। यह भेद समाज में आज भी व्याप्त है। जिसके मुख्य कारण स्त्री-पुरुष के बीच भेद है जिससे हर क्षेत्र में देखा जा सकता है। लिंग भेद के प्रति लोग जागरूक है लेकिन इसको दूर करने के लिए कोई ठोस कदम उठाना होगा तभी महिलाओं को समाज एवं परिवार में उच्च स्थान प्राप्त कर सकेंगी।

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शिक्षा में स्त्रियों की भूमिका : एक सामाजिक अध्ययन

*** श्रेया कुमारी** *** कोणिका कुमारी**

*** गुड़िया कुमारी**

Presentation : 22.02.2018
Supervisor : **डॉ. अंजनी कुमारी सिंह**

सारांश : शिक्षा समाज का दर्पण है। शिक्षा ही व्यक्ति को इस योग्य बनाती है, जिससे वह परिस्थितियों के अनुरूप अपने जीवन व समाज के लिए उचित कार्यों को उचित समय पर कर सके। किसी भी राज्य की उन्नति तभी संभव है, जब वहाँ के नागरिक शिक्षित और श्रेष्ठ हो और परिवार की उन्नति के लिए महिलाओं का शिक्षित होना आवश्यक है। किसी समाज का संगठन बहुत बड़ी सीमा तक वहाँ की स्त्रियों का सामाजिक आर्थिक स्थिति पर आधारित है और आर्थिक सामाजिक स्थिति का संबंध शिक्षा से होता है। शिक्षा किसी भी व्यक्ति के विकास का मुख्य मार्ग होता है।

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बी.ए., द्वितीय वर्ष, समाजशास्त्र (प्रतिष्ठा) सत्र : 2016-2019
मगध महिला कॉलेज, पटना विश्वविद्यालय, पटना

कोणिका कुमारी
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हमारे समाज में आज भी यह माना जाता है कि लड़की को ज्यादा पढ़ाने-लिखाने से उसके लिए दिक्कतें बढ़ेगी, उसकी शादी की उम्र बढ़ जाएगी, दहेज की माँग बढ़ेगी, हम उम्र लड़का नहीं मिल पाएगा। लेकिन स्वतंत्रता के पश्चात् स्त्री-शिक्षा में परिवर्तन हुआ है। इस तरह समाज में महिलाओं की शिक्षा-दीक्षा से कहीं अधिक उनके दहेज तथा विवाह के बारे में सोचा जाता है।

शब्द कुंजी : विद्यासमं, चक्षुर्नास्ति, समोगुरु, अंतर्राष्ट्रीय, निरक्षर, निरक्षरता, रूढ़िवादी।

परिचय : संस्कृत में यह उक्ति प्रसिद्ध है-"नास्ति विद्यासमं चक्षुर्नास्ति मातृ समोगुरु" इसका मतलब यह है कि इस दुनिया में विद्या के समान क्षेत्र नहीं है और माता के समान गुरु नहीं है। यह बात पूरी तरह सच है बालक के विकास पर प्रथम और सबसे अधिक प्रभाव उसकी माता का ही पड़ता है। बालक का यह प्रारंभिक ज्ञान पत्थर पर बनी अमित लकीर के समान जीवन का स्थायी आधार बन जाता है। वास्तव में कहा जाता है कि महिलाओं की शिक्षा किसी भी पुरुष की शिक्षा से कम महत्वपूर्ण नहीं है।

शिक्षा स्त्रियों के विकास के लिए एक आधार के रूप में विशेष रूप से महत्वपूर्ण भूमिका निभाती है। शिक्षा अन्य अधिकारों को सुरक्षित करने के लिए लड़कियों और महिलाओं को सक्षम करने में एक महत्वपूर्ण भूमिका निभाती है। अगर महिलाएँ शिक्षित हो, तो वे अपने घरों की सभी समस्याओं का समाधान कर सकती है। स्त्री शिक्षा

राष्ट्रीय और अंतर्राष्ट्रीय विकास में मदद करता है। महिला शिक्षा एक अच्छे समाज के निर्माण में मदद करती है। महिलाओं की शिक्षा गरीबी पर काबू पाने में एक महत्वपूर्ण कदम है। महिलाओं की शिक्षा से दहेज समस्या बेरोजगारी की समस्या आदि सामाजिक शांति से जुड़े मामलों को आसानी से हल किया जा सकता है।

भारत का सम्पूर्ण साक्षरता दर 74.04 प्रतिशत है। सम्पूर्ण भारत में महिला साक्षरता दर 65.46 प्रतिशत है। जबकि बिहार में महिला शिक्षा दर सिर्फ 53.33 प्रतिशत है। भारत की करीब 25 करोड़ निरक्षर महिलाओं को निरक्षरता और असमानता का बोझ जीवन भर ढोना होगा। सरकारी विद्यालयों में शिक्षा मुक्त दी जाती है, फिर भी आमतौर पर लड़कों को ही पढ़ाई के लिए भेजा जाता है, लड़कियों को नहीं। लड़कियों को छोटी उम्र से ही घरेलू काम सिखाया जाता है। वह मिडिल स्कूल से अधािक नहीं पढ़ पाती है। साक्षरता दर गाँवों की अपेक्षा शहरों में अधिक दिखाई देता है। गाँवों में आज भी महिलाएँ अशिक्षा के अंधकार में भटक रही है। इसका मुख्य कारण वहाँ की रूढ़िवादी मानसिकता है जो महिलाओं की शिक्षित होने से रोकती है।

निष्कर्षत: समाज और देश के विकास के लिए लोगों की मानसिकता को बदलना होगा, शिक्षा ही एकमात्र माध्यम है, जो लोगों की मानसिकता और दृष्टिकोण में परिवर्तन ला सकता है।

अध्ययन पद्धति

किसी भी अनुसंधान कार्य में अध्ययन पद्धति का महत्वपूर्ण स्थान है। अनुसंधान कार्य प्रारंभ करने के पहले समस्या में संबंधित अध्ययन पद्धति का चुनाव करना आवश्यक है। इस वैज्ञानिक पद्धति अर्थात् अवलोकन, परीक्षण, तथ्यों का संचालन, वर्गीकरण तथा सामान्यीकरण पर आधारित एक व्यवस्थित पद्धति को अपनाया जाता है।

प्रस्तुत अध्ययन का विषय "शिक्षा में स्त्रियों की भूमिका : एक सामाजिक अध्ययन" है। इस अध्ययन के अन्तर्गत इकाइयों का चयन करने के लिए और तथ्यों को संकलन करने के लिए साक्षात्कार अनुसूची का प्रयोग किया गया है। इस शोधा की अध्ययन प्रणाली पाँच चरणों पर आधारित है।

- अध्ययन की ईकाई का चयन,
- अध्ययन क्षेत्र का चयन,
- अध्ययन के उद्देश्यों का निधार्रण,
- तथ्यों का संकलन प्राथमिक एवं द्वितीयक स्रोत के द्वारा,
- तथ्यों का वर्गीकरण, सारणीयन एवं विश्लेषण दो आधार पर किया गया है।

अध्ययन की ईकाई का चयन

इसके अन्तर्गत 50 लड़कियों और 25 युवा पुरुषों को लिया गया है जिनकी आयु वर्ग 18 से 20 वर्ष तथा 20–22 वर्ष निर्धारित किया गया है। जिसकी शैक्षणिक स्तर स्नातक निर्धारित किया गया है।

अध्ययन क्षेत्र का चयन

इस शोध का अध्ययन क्षेत्र पटना शहर में स्थित मगध महिला कॉलेज, गाँधी मैदान को लिया गया है।

अध्ययन क्षेत्र के निम्नलिखित उद्देश्य

वर्तमान अध्ययन का उद्देश्य निम्न प्रकार से है :

- महिलाओं की शिक्षा में भागीदारी की जानकारी प्राप्त करना।
- समाज में महिलाओं की पदस्थिति को जानना।
- महिला स्वास्थ्य संबंधाी जानकारी प्राप्त करना।
- शिक्षित महिलाओं की भूमिका से ही समाज का विकास संभव है, जानना एवं बताना।

तथ्यों का संकलन

तथ्यों का संकलन प्रमुखत: दो स्रोतों के माध्यम प्राप्त किया जाता है :

1. **प्राथमिक स्रोत :** जिन स्रोतों से अनुसंधानकर्ता प्रथम बार स्वयं अपने द्वारा विभिन्न सूचनाओं और सामग्री का संकलन करता है, उसे प्राथमिक स्रोत कहा जाता है।
2. **द्वितीयक स्रोत :** द्वितीयक स्रोत वे स्रोत हैं, जो किसी भी रूप में प्रकाशित अथवा अप्रकाशित समस्त लिखित सामग्री का प्रतिनिधित्व करते हैं तथा अध्ययनकर्ता को तैयार माल के रूप में आवश्यक तथा महत्वपूर्ण सूचनाएँ उपलब्ध करते हैं। इसके अन्तर्गत किताबें, समाचार–पत्र, मैग्जीन, रिपोर्ट आदि आते हैं।

तथ्यों का वर्गीकरण, सारणीयन एवं विश्लेषण

तथ्यों के वर्गीकरण का तात्पर्य उस प्रक्रिया से है जिसके अन्तर्गत तथ्यों को उनकी समानता और भिन्नत के आधाार पर कुछ निश्चित वर्ग समूहों में रखते हैं। वर्गीकरण के बाद सारणीयन के द्वारा वर्गीकृत तथ्यों को व्यवस्थित एवं स्पष्ट किया जाता है जिससे वर्गीकृत तथ्य अधिक अर्थपूर्ण एवं स्पष्ट हो जाते हैं। तथ्यों का विश्लेषण सामाजिक शोध की एक–एक प्रविधि है जिसके द्वारा विभिन्न क्षेत्रें से गुणात्मक तथ्यों को इस प्रकार व्यवस्थित और श्रेणीबद्ध किया जाता है कि उसी आधार पर परिमाणात्मक निष्कर्ष प्रस्तुत किये जा सके।

सारणी-1

शैक्षणिक स्तर	महिला	कुल योग
बी०ए ० आर्ट्स	27	27
बी०ए ० साइंस	23	23
कुल	**50**	**50**

उपर्युक्त सारणी संख्या-1 में शैक्षणिक स्तर के आधार पर महिलाओं से पूछे गये सवाल पर 50 लड़कियों में से 27 लड़कियाँ बी०ए० आर्ट्स की थी और 23 लड़कियाँ बी०ए० साइंस की थी।

सारणी-2

आपके यहाँ पढ़ाई माध्यम क्या है?

उत्तरदाता	महिला	कुल योग
हिन्दी	26	26
अंग्रेजी	24	24
कुल	**50**	**50**

उपर्युक्त सारणी संख्या-2 में से 26 महिलाओं ने हिन्दी माध्यम से पढ़ाई की जबकि 24 महिलाओं ने अंग्रेजी माध्यम से पढ़ाई की थी।

सारणी-3

आपकी माध्यमिक शिक्षा किस स्कूल से हुई?

उत्तरदाता	महिला	कुल योग
सरकारी	40	40
गैर सरकारी	10	10
कुल	**50**	**50**

उपर्युक्त सारणी संख्या-3 में माध्यमिक शिक्षा किस स्कूल से हुई यह प्रश्न पूछने पर 46 महिलाओं ने सरकारी स्कूल का चयन किया जबकि 10 महिलाओं ने गैर सरकारी स्कूल का चयन किया, जिसे 50 उत्तरदाताओं से पूछा गया था।

सारणी-4

पढ़ाई में घर के लोगों

उत्तरदाता	महिला	कुल योग
हाँ	19	19
नहीं	31	31
कुल	**50**	**50**

उपर्युक्त सारणी संख्या-4 में पढ़ाई में घर के लोगों ने आपकी मदद की पूछे जाने पर 19 लड़कियों ने हाँ में जवाब दिया जबकि 31 लड़कियों ने नहीं में जवाब दिया।

सारणी-5

क्या आपको लगता है कि महिलाओं को शिक्षित होना बेहद जरूरी है?

उत्तरदाता	महिला	कुल योग
हाँ	20	50
नहीं	00	00
कुल	**50**	**50**

उपर्युक्त सारणी संख्या-5 में यह पूछे जाने पर की महिलाओं को शिक्षित होना बेहद जरूरी है। जिसमें 50 उत्तरदाताओं ने हाँ में जवाब दिया जबकि नहीं किसी ने भी नहीं कहा।

सारणी-6

क्या शिक्षा अधिकार अधिनियम, 2000 के बारे में जानती हैं?

उत्तरदाता	महिला	कुल योग
हाँ	46	46
नहीं	04	04
कुल	**50**	**50**

उपर्युक्त सारणी संख्या-6 "शिक्षा अधिकार अधिनियम, 2000" के बारे में पूछे जाने पर 46 प्रतिशत महिलाओं ने हाँ में जवाब दिया जबकि 4 प्रतिशत महिलाओं ने नहीं में जवाब दिया।

सारणी-7

महिला दिवस कब मनाया जाता है, आप जानती हैं?

उत्तरदाता	महिला	कुल योग
हाँ	36	36
नहीं	14	14
कुल	**50**	**50**

उपर्युक्त सारणी संख्या-7 में महिला दिवस कब मनाया जाता है, पूछने 36 प्रतिशत ने हाँ में जवाब दिया जबकि 14 लड़कियों ने नहीं में जवाब दिया।

सारणी-8

संविधान में महिलाओं को बराबरी का अधिकार और दर्जा दिया गया है, क्या जानकारी है?

उत्तरदाता	महिला	कुल योग
हाँ	35	35
नहीं	15	15
कुल	**50**	**50**

उपर्युक्त सारणी संख्या-8 में संविधान में महिलाओं को बराबरी का अधिकार और दर्जे के बारे में पूछने पर 50 उत्तरदाताओं में से 35 लड़कियों ने हाँ कहा जबकि 15 लड़कियों ने नहीं में जवाब दिया।

सारणी-9

आपको लगता है कि शिक्षित महिला परिवार, समाज, देश का विकास सही तरीके से कर सकती हैं?

उत्तरदाता	महिला	कुल योग
हाँ	50	50
नहीं	00	00
कुल	**50**	**50**

उपर्युक्त सारणी संख्या-9 में शिक्षित महिला ही परिवार समाज, देश के विकास में योगदान दे सकती है, पूछे जाने पर 50 लड़कियों में से 50 लड़कियों ने हाँ कहा जबकि नहीं में किसी ने भी जवाब नहीं दिया।

निष्कर्ष एवं सुझाव

निष्कर्ष किसी भी शोध-कार्य का एक महत्वपूर्ण पक्ष होता है। इसके द्वारा प्राप्त आँकड़ों को मोटे तौर पर विश्लेषण किया जाता है। इस शोध कार्य के लिए पटना शहर में स्थित मगध महिला कॉलेज, (जो गाँधी मैदान के पास स्थित है।) से उद्देश्यपूर्ण निदर्शन के द्वारा 50 उत्तरदाताओं का चयन किया गया।

प्रस्तुत शोध में "शिक्षा में स्त्रियों की भूमिका : एक सामाजिक अध्ययन" के संदर्भ में लोगों की जानकारी एवं जागरूकता का पता लगाने की सार्थक कोशिश की गई है।

नारी समाज व राष्ट्र की आधारशिला है इसलिए इन्हें शिक्षित होना बेहद जरूरी है। नारी शिक्षित होगी तभी वह अपने अधिकार को समझ सकती ले इसके संदर्भ में निम्नलिखित सुझाव दे सकते हैं :

- शिक्षा से संबंधित असमानता को दूर किया जाना चाहिए। लड़का और लड़की के लिए एक समान शिक्षा देनी चाहिए।
- लोगों की मानसिकता को बदलने की आवश्यकता है। लोग यह समझते हैं कि बेटी पराया धन है और इसे विवाह कर अपनी जिम्मेदारियों से मुक्त होना चाहते हैं। इसे पढ़ाने की आवश्यकता है।
- प्रशासन को भी चुस्त-व-दुरूस्त होना चाहिए ताकि महिला शिक्षा योजना से सम्बन्धित लाभ महिलाओं को मिल सकें।
- एक शिक्षित महिला अपने परिवार के आर्थिक स्थिति को भी बदल सकती है।
- शिक्षित महिला ही सरकारी या गैर-सरकारी किसी भी तरह के कार्य को समझ सकती है। इसलिए महिलाओं का शिक्षित होना बेहद जरूरी है।

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बाल-विवाह एक सामाजिक कुरीति

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*** रीमा सिंह**

Presentation : 22.02.2018
Supervisor : **डॉ. अंजु कुमारी**

सारांश : विवाह का एक अनिवार्य संस्था है, जिसके द्वारा व्यक्ति अपनी शारीरिक, मानसिक, सामाजिक, सांस्कृतिक तथा आर्थिक आवश्यकताओं की पूर्ति करता है। समाज परम्परागत हो या आधुनिक सरल हो या जटिल विवाह हर समाज में पाया जाता है अर्थात् वह एक सार्वभौमिक संस्था है विवाह वह आधाार है जो घर बसाता है और बच्चों के जन्म व पालन-पोषण तथा आर्थिक सहकारिता व सामाजिक उत्तरदायित्व की नींव बनाता है। विवाह से व्यक्ति यौन संबंधी आवश्यकताओं को भी पूर्ति करता है अर्थात् विवाह के माध्यम से व्यक्ति की यौन संबंधाी आवश्यकताओं की पूर्ति सन्तानोत्पत्ति तथा बच्चों का भरण-पोषण होता है। जिससे समाज की निरंतरता बनी रहे यानि यह व्यक्तिगत तथा सामाजिक दोनों आवश्यकताओं की पूर्ति करता है। विवाह एक ऐसी संस्था है, जिसके द्वारा व्यक्ति अपनी यौन व काम संबंधी आवश्यकताओं की पूर्ति करता है।

शब्द कुंजी : बाल विवाह, सार्वभौमिक, उत्तरदायित्व, समाजसुधारक, कुप्रथा, हिंसात्मक, सन्तानोत्पत्ति।

परिचय : विवाह एक सार्वभौमिक संस्था है। एक सार्वभौमिक संस्था के रूप में विवाह के द्वारा व्यक्ति की शारीरिक, मानसिक, सामाजिक, सांस्कृतिक तथा आर्थिक आवश्यकताओं की पूर्ति करता है। बाल-विवाह प्रगतिशील समाज के लिए एक अभिशाप है। कानूनी दृष्टिकोण से 21 वर्ष से कम आयु वाले लड़के और 18 वर्ष से कम आयु वाली लड़की का विवाह भारत में लड़कियों के स्वास्थ्य के लिए हानिकारक। नारी की प्रस्थिति को निम्न करने वाला मृत्यु दर बढ़ाने वाला विधवाओं की संख्या में वृद्धि करने वाला तथा अनैतिकता जैसी बुराईयों को प्रोत्साहन देनेवाला रहा है। इससे जनसंख्या में वृद्धि होती है व्यक्तित्व का विकास ठीक प्रकार से नहीं हो पाता। संताने निर्बल पैदा होती है तथा राष्ट्रीय औसत स्वास्थ्य स्तर में पतन होता

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मगध महिला कॉलेज, पटना विश्वविद्यालय, पटना

है। बाल-विवाह चाहे किसी लड़के का हो या किसी लड़की का वह मानव अधिकार का हनन है। लेकिन यह लड़कियों के अस्तित्व के हनन का प्रमुख माध्यम प्रतीत होता है। परिवार तथा मित्रों के अलगाव व सामाजिक दायित्व का कम-से-कम निर्वाहन एवं शिक्षा पाने के अवसरों का ह्रास इसके दुष्परिणाम जैसे बाल मजदूरी, दासता यौन शोषण व उनके साथ हिंसात्मक व्यवहार आदि क्योंकि न तो उन्हें सुरक्षित यौन संबंध का फायदा मिल पाता है और न ही संयोग से बच पाते हैं, जिसके फलस्वरूप वे असुरक्षित यौन रोग व कभी-कभी HIV AIDS जैसे भयानक बिमारियों के चपेट तथा असमय प्रसव क्रियाओं के चलते काल कलवित हो जाती है।

बाल-विवाह जैसी सामाजिक कुप्रथा को प्रोत्साहन देने में धार्मिक मनोवृत्ति का बहुत बड़ा योगदान रहा है। हिन्दू धर्मशास्त्रों में बाल-विवाह को आदर्श कहा गया है अनेक धार्मिक धारणाएँ यह है कि अपनी कन्या का गौरीदान अर्थात् रजोदर्शन से पूर्व विवाह करने वाले पिता या संरक्षक को स्वर्ग की प्राप्ति होगी। इसी कारण रूढ़िवादिता वाले लोग बाल-विवाह को धर्म का एक अंग मानकर पालन करना चाहते हैं। वर मूल्य प्रथा के कारण भी बाल-विवाह का प्रचलन बढ़ता है।

विभिक्त राज्यों में 18 वर्ष से कम आयु में विवाहित हो रही लड़कियों का प्रतिशत इस प्रकार है :

मध्य प्रदेश - 73 प्रतिशत, आंध्र प्रदेश - 71 प्रतिशत, राजस्थान - 68 प्रतिशत, बिहार - 67 प्रतिशत और उत्तर प्रदेश - 64 प्रतिशत।

इस प्रकार स्पष्ट होता है कि बाल-विवाह एक सामाजिक समस्या है क्योंकि इससे व्यक्ति के मानव अधिकार का हनन होता है।

बाल-विवाह के कारण :

बाल-विवाह के कारण कुछ इस प्रकार है :

1. आर्थिक स्थिति :

आर्थिक स्थिति से बाल-विवाह होता है क्योंकि भारत एक कृषि प्रधान देश है। यहाँ की कृषि प्रकृति पर निर्भर है जिसका बुरा प्रभाव खेती पर पड़ता है। जिससे लोगों की स्थिति प्रभावित होती है। फलत: माता-पिता अपने बच्चे को कम उम्र में विवाह कर देते हैं।

2. स्त्रियों की गिरी हुई दशा :

वैदिक युग के बाद ही स्त्रियों की दशा में अवनति होने लगे और स्मृतिकारों ने यहाँ तक निर्देश दिया कि स्त्रियाँ कभी भी स्वतंत्र रहने के योग्य नहीं है। बाल-विवाह इस सब मनोभाव की ही उपज है।

3. जीवनसाथी चुनने का सीमित क्षेत्र :

अंतर्जातीय विवाह पर प्रतिबंध जैसे-जैसे कठोर होते गए जीवनसाथी चुनने का क्षेत्र भी वैसे-वैसे सीमित हो गया। व्यवहारिक रूप में अंतर्विवाह के नियमों के कारण उपजातीय समूह के अंदर ही विवाह करना होता है इसलिए प्रत्येक को अपनी लड़की के लिए वर खोजना। इस कठिनाई से मुक्त होना चाहते थे। इससे बाल-विवाह करने की प्रवृति बढ़ती गई।

4. वर मूल्य प्रथा :

वर मूल्य प्रथा की समस्या धीरे-धीरे गंभीर हो गई कि प्रत्येक साधारण माता-पिता को अपनी कन्या का विवाह कर देना एक बहुत बड़ी समस्या हो गई। इस प्रथा के कारण लड़की का विवाह जल्दी-से-जल्दी करके अत्याधिक वर मूल्य से अपने को बचाने का प्रयत्न करने लगे।

5. धार्मिक मनोवृत्ति :

हिन्दू धर्मशास्त्रों में अनेक स्थानों पर बाल-विवाह को आदर्श कहा गया अनेक धार्मिक धारणाये यह है कि अपनी कन्या का गौरीदार अर्थात् रजोदर्शन से पूर्व विवाह का प्रचलन है।

बाल विवाह की समस्या :

बाल-विवाह एक सामाजिक समस्या है क्योंकि इससे व्यक्ति और समाज को अनेक हानियाँ होती है। बाल-विवाह की प्रमुख समस्या निम्नलिखित है :

1. स्वास्थ्य पर बुरा प्रभाव :

बाल-विवाह में वर-वधू शारीरिक दृष्टिकोण से भी वे विवाह योग्य नहीं होते उस अवस्था में यौन संबंध स्थापित होता है उसका बहुत ही बुरा प्रभाव उसके स्वास्थ्य पर पड़ता है।

2. दुर्बल संतान

आयुर्वेदशास्त्र के अनुसार पूर्ण आयु प्राप्त होने से पहले संभोग के द्वारा जो संतान उत्पन्न है वह कदापि हृष्ठ-पुष्ठ नहीं हो सकती। इस प्रकार बाल-विवाह आनेवाली पीढ़ी और जातीय स्वास्थ्य पर स्तर पर बुरा प्रभाव डालता है।

3. व्यक्ति के विकास में बाधा :

लड़कियों के संतानों का भार लद जाने पर फलस्वरूप शिक्षा प्राप्त करने और व्यक्तित्व का विकास करने में बाधा पहुँचती है।

4. अधिक माताओं की मृत्यु :

अल्प आयु में संतान होने के समय गर्भवती माताओं को अत्याधिक कष्ट सहन करना पड़ता है और प्राय: उनकी प्राण हानि हो जाती है। भारतवर्ष में प्रति वर्ष 50,000 महिलाओं की मृत्यु हो जाती है।

5. अधिक जनसंख्या :

बाल-विवाह का एक प्रभाव यह होता है कि दम्पतियों को संतान बहुत ही अल्प आयु में पैदा होने लगती है, जिससे देश की जनसंख्या में वृद्धि होती है।

6. बाल विधावाओं की समस्या :

भारतवर्ष में जहाँ कि आयुकाल बहुत थोड़ा है और बच्चों की मृत्यु सबसे अधिक होती है वही बाल-विवाह का परिणाम यही है कि बाल विधवाओं का संख्या बढ़ती जा रही है।

बाल-विवाह अधिनियम :

1. बाल-विवाह अधिनियम :

बाल-विवाह को रोकने के लिए सरकार की दृष्टि को बहुत सामाजिक कुरीति की ओर आकर्षित करने का श्रेय समाजसुधारकों को जाता है। इनके प्रयत्नों से सन् 1929 ई॰ में सबसे पहले बाल-विवाह को रोकने के लिए पहला अधिनियम आया।

2. बाल-विवाह अवरोधक अधिनियम :

राय हरविलास शारदा की सिफारिशों के फलस्वरूप बाल-विवाह अवरोध अधिनियम संक्षेप में शारदा एक्ट, 1929 ई॰ में पास हुआ। इस कानून के अंतर्गत विवाह के समय कन्या की आयु कम-से-कम 15 वर्ष और वर की आयु 18 वर्ष जरूरी है।

3. बाल-विवाह अधिनियम (2006) : बाल-विवाह अधिनियम 2006 के प्रावधान यदि 18 वर्ष से अधिक उम्र का कोई पुरुष किसी अवयस्क बच्ची से विवाह करता है, तो उसके लिए सजा का प्रावधान करता है। बाल-विवाह को प्रोत्साहित करने वाले जैसे - बिचैलियों, माता-पिता, अभिवावकों, सगे-संबंधियों तथा हलवाई, टेंटवाले, विवाह भवन के मालिक आदि बाल-विवाह में भाग लेने वाले जैसे-बराती-सराती, गाँव समुदाय के सदस्य आदि को सजा का प्रावधान है जिसके तहत् दो वर्ष तक के सश्रम कारावास या एक लाख रूपये तक का जुर्माना।

अध्ययन पद्धति :

प्रस्तुत शोध की अध्ययन प्रणाली निम्न चरणों पर आधारित है। अध्ययन इकाइयों का चयन उद्देश्यपूर्ण निर्देशन द्वारा किया गया है जिसके अंतर्गत 25 महिला तथा 25 पुरुष है जिनका उम्र 15-25, 25-35 वर्ष आयु, शैक्षणिक स्तर-मैट्रिक, इंटर स्नातक है। अध्ययन क्षेत्र के लिए पाटलिपुत्र के गोसाई टोला को लिया गया है।

अध्ययन का उद्देश्य :

- बाल-विवाह के बारे में लोगों की समझ क्या है? इसकी जानकारी प्राप्त करना,
- बाल-विवाह के कारण को जानना,
- बाल-विवाह से संबंधित समस्या को जानना,
- बाल-विवाह प्रतिशोध अधिनियम, 2006 के जागरूकता स्तर पर जानना,

तथ्यों का संकलन के स्रोत :

इसके अंतर्गत तथ्यों का संकलन दोनों स्रोतों प्राथमिक द्वितीयक का प्रयोग किया गया।

प्राथमिक स्रोत के अंतर्गत अवलोकन, साक्षात्कार, अनुसूची का प्रयोग किया गया। जबकि द्वितीयक स्रोतों के अन्तर्गत किताबें, पत्र-पत्रिकाएँ, डायरी, नेट इत्यादि का प्रयोग किया गया है।

तथ्यों का वर्गीकरण तथा विश्लेषण तथ्यों का वर्गीकरण किसी भी वैज्ञानिक पद्धति का महत्वपूर्ण चरण है। इसके बिना न तो तथ्यों का विश्लेषण किया जा सकता है और नही इसके द्वारा किसी निश्चित निष्कर्ष पर पहुँचा जा सकता है।

सारणी संख्या-1

कानून के अनुसार लड़का व लड़की के विवाह के लिए क्या उम्र निर्धारित की गई है?

विकल्प	महिला उत्तरदाता की संख्या	पुरुष उत्तरदाता की संख्या
18 व 15 वर्ष	01	0
19 व 16 वर्ष	01	01
21 व 18 वर्ष	22	23
22 व 19 वर्ष	01	01
कुल	**25**	**25**

उपरोक्त सारणी संख्या 1 में कानून के अनुसार लड़का व लड़की के विवाह के लिए क्या उम्र निर्धारित की गई है? प्रश्न पूछे जाने पर 50 उत्तरदाताओं में से 25 महिला तथा 25 पुरुष उत्तरदाताओं से पूछे गये तो सभी उत्तरदाताओं ने यह कहा कि कानून के अनुसार लड़का के लिए विवाह की उम्र 21 वर्ष और लड़की के लिए विवाह की उम्र 18 वर्ष निर्धारित की गई हैं

सारणी संख्या-2

आपके अनुसार बाल-विवाह का कारण क्या हैं?

विकल्प	महिला उत्तरदाता की संख्या	पुरुष उत्तरदाता की संख्या
अशिक्षा	06	04
दहेज	04	06
आर्थिक स्थिति	11	10
लड़कियों के प्रति होने वाले हिंसा	04	05
कुल	**25**	**25**

बाल-विवाह के कारण क्या है? प्रश्न पूछने पर 24 प्रतिशत महिलाओं ने अशिक्षा का 16 प्रतिशत महिलाओं ने दहेज के 44 प्रतिशत आर्थिक स्थिति एवं 16 प्रतिशत महिलाओं ने लड़कियों के प्रति होनेवाली हिंसा को कहा।

वहीं पुरुषों की संख्या में 16 प्रतिशत ने अशिक्षा में, 24 प्रतिशत दहेज तथा 40 प्रतिशत आर्थिक स्थिति एवं 20 प्रतिशत पुरुषों को लड़कियों के प्रति होनेवाली हिंसा को कहा।

सारणी संख्या-3

एक कुप्रथा के रूप में बाल-विवाह से क्या हानि होती हैं?

विकल्प	महिला उत्तरदाता की संख्या	पुरुष उत्तरदाता की संख्या
स्वास्थ्य पर प्रभाव	11	09
शिक्षा पर प्रभाव	02	03
महिला मृत्यु	02	02
आर्थिक-मनोवैज्ञानिक प्रभाव	02	01
ये सभी	08	10
कुल	**25**	**25**

उपर्युक्त सारणी संख्या 03 में एक कुप्रथा के रूप में बाल-विवाह से क्या हानि होती हैं के आधार पर वर्गीकरण किया गया है जिसमें महिलाओं की संख्या में 11 महिलाओं ने स्वास्थ्य पर प्रभाव 2 महिलाओं ने शिक्षा पर प्रभाव, 2 महिलाओं ने मृत्यु तथा 2 महिलाओं ने आर्थिक-मनोवैज्ञानिक प्रभाव एवं 8 ने इस सभी को माना है।

वहीं पुरुषों के आधाार पर 9 पुरुष ने स्वास्थ्य पर प्रभाव 3 ने शिक्षा पर प्रभाव, 2 ने महिला मृत्यु तथा 1 ने आर्थिक-मनोवैज्ञानिक प्रभाव एवं 10 ने इस सभी को माना है।

सारणी संख्या-4

क्या कम उम्र में विवाह प्रजनन स्वास्थ्य को प्रभावित करता है?

विकल्प	महिला उत्तरदाता की संख्या	पुरुष उत्तरदाता की संख्या
हाँ	25	25
नहीं	00	00
कुल	**25**	**25**

उपर्युक्त सारणी संख्या 04 में विवाह प्रजनन, स्वास्थ्य को प्रभावित करता के आधार पर वर्गीकरण किया गया है। इसमें 25 महिलाओं ने हाँ तथा 25 पुरुषों ने भी हाँ में जबाव दिया और किसी भी उत्तरदाताओं ने नहीं में जबाव दिया।

सारणी संख्या-5

क्या आप समाज की बाल-विवाह के प्रति अपना नजरिया बदलने के लिए प्रेरित करेंगे?

विकल्प	महिला उत्तरदाता की संख्या	पुरुष उत्तरदाता की संख्या
हाँ	23	24
नहीं	02	01
कुल	**25**	**25**

क्या आप समाज को बाल-विवाह के प्रति नजरिया बदलने के लिए प्रेरित करेंगे प्रश्न पूछने पर 92 प्रतिशत ने हाँ में तथा 08 प्रतिशत महिलाओं ने नहीं में जबाव दिया।

वही पुरुषों की संख्या 96 प्रतिशत पुरुषों ने हाँ में तथा 04 प्रतिशत महिलाओं ने नहीं में जबाव दिया।

सारणी संख्या-6

क्या आप बाल-विवाह प्रतिषेध अधिनियम, 2006 के बारे में सुना?

विकल्प	महिला उत्तरदाता की संख्या	पुरुष उत्तरदाता की संख्या
हाँ	04	06
नहीं	21	19
कुल	**25**	**25**

क्या आप बाल-विवाह प्रतिषेध अधिनियम, 2006 के बारे में सुना? प्रश्न पूछे जाने पर 16 प्रतिशत महिलाओं ने हाँ में तथा 74 प्रतिशत महिलाओं ने वही नहीं में जबाव दिया।

वहीं पुरुषों की संख्या में 24 प्रतिशत पुरुष ने हाँ तथा 76 प्रतिशत पुरुष ने नहीं में उत्तर दिया।

निष्कर्ष

प्रस्तुत शोध 'बाल विवाह' के बारे मे जागरूकता बढ़ाने के लिए सभी बच्चों को अपने मानवाधिकारों से कराया जाना चाहिए, यदि कही बाल-विवाह जैसी घटना हो रहा है, तो इसका विरोध करना चाहिए और तुरंत ही पुलिस को इसी सूचना देनी चाहिए इस जघन्य अपराध के प्रति जागरूकता पैदा करने में मीडिया को भी और अधिक सक्रिय भूमिका निभाने की आवश्यकता है तथा बाल-विवाह से वर-वधू दोनों का जीवन अंधाकारमय बन जाता है इसके प्रचलन से समाज में समस्याओं और विकृतियों का जन्म हो जाती है और आज में अपने पैर पसारे हुए है, क्योंकि लोग जागरूक नहीं है उनकी सोच आज भी रूढ़िवादी है और वो आज भी लड़कियों की शादी को बोझ समझते है जिस कारण सरकार ने भी बच्चों की शादी पर प्रतिबंधा लगाया है और अगर कोई बाल-विवाह करवाता हुआ पकड़ा गया, तो सख्त सजा दी जाएगी।

बाल-विवाह जैसी कुरीति को समाज से खत्म करने के लिए हमें लोगों को शिक्षित करना होगा, मीडिया और नुक्कड़-नाटकों के माध्यम से जागरूक करना होगा तथा इस समस्या से छुटकारा पाने के लिए लम्बी सामूहिक लड़ाई लड़नी होगी तभी हमारे समाज को बाल-विवाह जैसी कुरीतियों से छुटकारा दिलाया जा सकता है।

सुझाव

- बाल-विवाह की समाप्त करने का सबसे सरल उपाय अंतर्जातीय विवाह को प्रोत्साहित करना।
- लड़के और लड़कियों दोनों की समुचित शिक्षा देकर उन्हें आत्मनिर्भर बनाने का प्रश्त्न करना।
- बाल-विवाह को रोकने के लिए उचित कानून पास करने के साथ ही उनकी दृढ़तापूर्वक लागू करने के लिए प्रयास करना चाहिए।
- वर मूल्य प्रथा को समाप्त करना चाहि।
- दहेज प्रथा को खत्म करना चाहिए।
- महिलाओं के विरूद्ध अपराधों पर प्रभावपूर्ण रोक लगाई जाए, जिसमें उनमें असुरक्षा की भावना कम हो एवं हर क्षेत्र में आगे बढ़े।
- महिला शिक्षा की दिशा में ठोस प्रयास करना।
- मूल सामाजिक परम्पराएँ जो स्त्री की स्थिति को निम्न बनाती है उनका उन्मूलन किया जाए।
- इस क्षेत्र में जुड़े कानूनों का वास्तविक क्रियान्वयन हो पुलिस एवं प्रशासन को इसके लिए मनौवैज्ञानिक रूप से तैयार किया जाए।

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A STUDY ON ACCOUNTS RECEIVABLE AND SCHEME MANAGEMENT IN LG ELECTRONICS INDIA PVT. LTD.

* **Sameen Siddiqui**

Presentation : 08.03.2018
Supervisor : **Dr. Surendra Kumar Prasad**

ABSTRACT : *The topic of this project is "A Study On Accounts Receivable And Scheme Management In Lg Electronics India Pvt. Ltd." This project report studies and analyzes the accounts receivable condition and the period of turnover from company's various customers. The deal is negotiated with different categories of customers like dealers, distributors, MBOs (Multi Brand Outlets), LG Shoppe, etc.*

This report also covers the details of ***OD (Overdue), OS (Outstanding), credit days and credit limits*** *offered by the company to its various dealers and distributors.*

Key word **:** *Electronics, analyzes, receivable condition, turnover, various customers*

INTRODUCTION

Company gives a good credit limit to its trusted customers as well as grace days for repayment of OD. Where a customer fails to pay the amount within one month, the matter goes from branch office to head office. After a decided limit of days, if the customer still doesn't pay the amount, there is an insurance claim. No party can place any order unless he has cleared his OD. If any order is placed it goes into hold and the product cannot be sent until the hold is released. That is why parties try to make prompt payment to avoid hold. This has made the collection system easier for LG.

On the other hand, **AP (Accounts Payables)** is the amount that is with the vendor or the company in that case. AP has to be paid to the creditor and it also has certain discounts and conditions.

I found out that the company has full transparency in its working. Its dealing with the various **schemes** is very corporate. I studied how the schemes on daily basis are sent to the parties. When the parties receive the scheme they cross check it with the SPGM no. Whether they have received the same scheme as was communicated to them. Some of the schemes are

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sent on invoice while for others credit note is issued to the party. With such scheme management system, the party holds no grudges against the company. Company has a practice of settling claim on daily basis.

Based on the above studies, I concluded that LG not only creates value for its customers but also treats its employees justly. It has reached great heights because of its transparency that it maintains. It has made the customers worldwide to fall in love with the LG's symbol of smiling face. LG provides equal opportunity to all its employees based on their talent and ability. I found the work culture very conducive which helps in creative thinking among all the employees.

RESEARCH METHODOLOGY

Research Methodology is a systematic way to solve the research problem. It refers to search for knowledge, a scientific and systematic search for information.The study involves the identification of the effects of Scheme Management and Accounts Receivables in LG Electronics India Pvt Ltd. Consequently, the research will be designed to achieve the objectives set out for the study.

TYPES OF RESEARCH

The research design is Conclusive & Descriptive in nature. Descriptive research is also called Statistical Research. The main goal of this type of research is to describe the data and characteristics about what is being studied. The idea behind this type of research is to study frequencies, averages, and other statistical calculations. Although this research is highly accurate, it does not gather the causes behind a situation.

SOURCES OF DATA

To understand the various Schemes and AR in LG Electronics India Pvt Ltd and the difficulties faced in AR management and floating Schemes. The study will help to improve the effective and efficient management of Schemes and AR in LG Electronics India Pvt Ltd. For these, the data is quantitative in nature and will be collected from company reports and Commercial sources. Also, for determining the effective ways of improving various Schemes and Accounts Receivables (AR) in LG Electronics India Pvt Ltd, the data should be collected from field survey.

DATA COLLECTION METHOD

Data collection means collections of information, facts or figures for the study.

PRIMARY DATA COLLECTION

Structured questionnaires will be used to collect the primary data. This is firsthand information and the data collected from the expertise on this field.

SECONDARY DATA COLLECTION

Secondary data is collected by others already and the information will be used for the research purpose. Secondary data is collected from published reports, newspaper, websites, and journals, publications of national and international organization.

SAMPLE DESIGN

For the research we are using the Random probability sampling. Here we are deliberately choosing the sample from the population.

POPULATION

All the Distributor, Dealer, Sales & Service Dealer (SSD), Shoppe, Exclusive, Aircon Shoppe, Authorized Wholesale Dealer (AWD), IT Distributor, etc.

Sampling Frame : Patna (Bihar)

Sample Size : 25

Data Collection Method : Survey Method

DATA ANALYSIS

Software will be used as an analytical tool. It helps to compare, define and analyze the collected data. Cross tabulation, Factor analysis technique and Chi Square test (a statistical method assessing the goodness of fit between a set of observed values and those expected theoretically) will be done to find out the relationship and dependency of variables.

RESEARCH OBJECTIVE

Primary Objective :

- The primary objective of the project is to enhance the functioning of Scheme Management and Accounts Receivable in LG Electronics India Pvt. Ltd
- Encourage the retailers/traders of the Patna City

SECONDARY OBJECTIVE

- To study the effectiveness of various schemes offered by LG Electronic goods to the traders
- To evaluate the accounts receivables management practices adopted by LG Electronics India Pvt. Ltd
- To conduct a comparative analysis on different Schemes and Accounts receivable practices followed by LG Electronics with respect to the competitors in the market
- To identify the various factors involved in AR & Scheme Management that affects the credit rating of the traders of LG Electronics India Pvt. Ltd

LIMITATIONS OF THE STUDY

The study features certain limitations as well.

- This project report is not absolute and is not based on exact data.
- This study has data collected from Patna only. Therefore, the facts and figures may not be true for other states in India or other countries for that matter.
- The other limitation faced by me while completing this internship project was that of time. The facts and figures referred to in this project are subjected to the time provided to me and the data available with the company. As such, there may be variations when matched with the current data but this factor does not invalidate the project report in any circumstances.

SCOPE OF THE STUDY

The study focuses on gaining knowledge by assessing the impacts in management of schemes and the receivables offered to the traders in LG Electronics India Pvt ltd. Deduction in price given by the wholesaler/manufacturer to the retailer at the list price or catalogue price is the quantity discount. And reduction in price given by the creditor to the debtor is intended to speed payment and thereby provide liquidity to the firm is the cash discount. Trade credit thus creates receivable / book debts, which the firm is expected to collect in near future. Trade debtors are expected to be converted into cash within a short period and are included in the current assets. Since receivables often accounts for the significance portion of total assets, it requires careful attention and adequate management. Volume discount is one aspect of Scheme management that allows sellers and manufactures to rewards those who purchase a huge quantity of goods. They are sometimes used as a promotional device. So, it's mainly done to stimulate the sales turnover in the company and the findings of this study can be used in effective management of their different scheme policies and their accounts receivables, so that there will be a consistent cash flow into the company which on the other hand help them to retain their market share and maintain their day to day operation.

DATA ANALYSIS

1. How satisfied are you with the association of LG for these many years?

Analysis : This question seeks to find out the satisfaction level of various distributors and dealers in association with LG. This helps to figure out how LG is faring in the market.

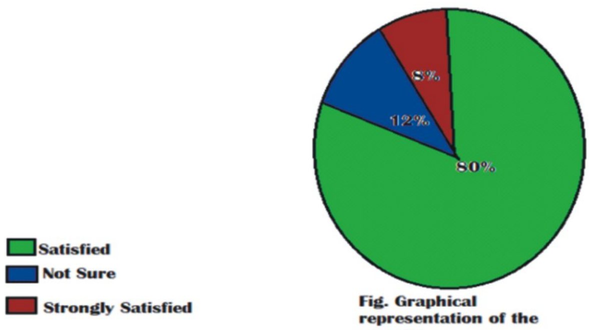

Fig. Graphical representation of the answer

Inference : The survey shows that 20 out of 25 participants have voted as satisfied, i.e. rating 4, 3 have rated 3 which means they are not sure and 2 have rated as strongly satisfied. This shows that LG products at their stores go stock out rapidly.

Q.2. How do you rate the satisfaction level on the clarity and quality of Scheme communication ?

Analysis : Schemes have to be communicated clearly and they have to be of good quality so that the receiver, i.e. the distributors and dealers understand and respond accordingly. This question seeks to find out the answers to the quality and clarity of schemes.

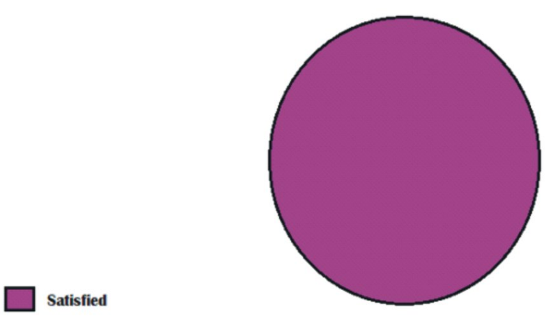

Fig. Graphical representation of the answer

Inference : When surveyed, all the participants rated it as 4. This means that everyone is satisfied with the clarity and quality of schemes transferred to them.

Q.3. How satisfied are you with the Scheme communication made on regular basis?

Analysis : Schemes have to be communicated frequently because of dynamism in the market. LG does it on a daily basis. The question is framed so as to find out whether the daily scheme communication is effective enough or not.

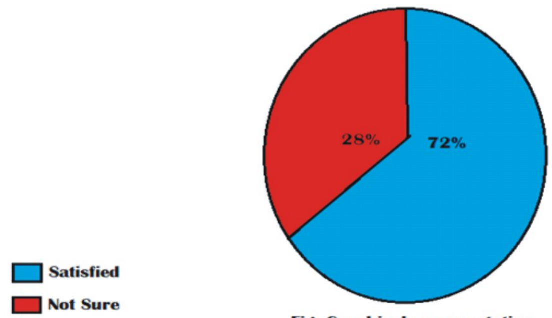

Fig. Graphical representation of the answer

Inference : After the survey, it is seen that 18 participants have voted as satisfied which means a rating 4. Whereas 7 rated number 3 which means they are not sure about it. When asked about vagueness in their answers, the inference was drawn that due to lack of competition in their area, daily scheme communication's effectiveness is not analyzed.

Q. 4. How satisfied are you with the monthly reconciliation of the LG Electronics for the scheme settlement?

Analysis : LG communicates the schemes to its distributors and dealers on a daily basis whereas the settlement of scheme is done monthly. The question aims at finding out the satisfaction level of the dealers/distributors about the scheme reconciliation process of LG.

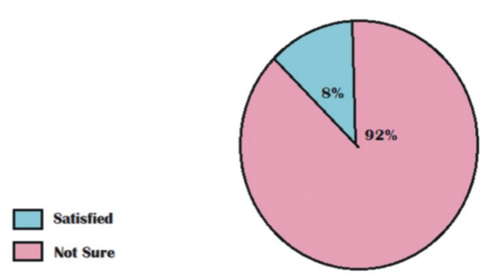

Fig. Graphical Representation of the answer

Inference : After the survey, it was figured out that 23 participants ticked the rating 4 on the questionnaire which gives a boost to the company, placing a high goodwill among the distributors/ dealers.

Q. 5. How satisfied are you with the Cash Discount offered as per company policy?

Analysis : Cash discounts refer to the discounts offered to the customers on prompt payment. The above question seeks to find out the satisfaction level of dealers/distributors on the cash discounts offered by the company.

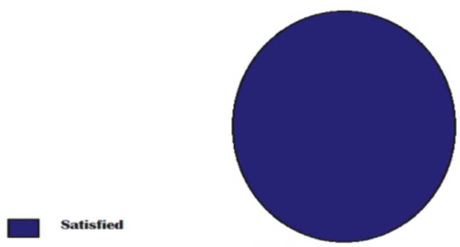

Fig. Graphical representation of the answer

Inference : The survey shows that all the participants are satisfied with the cash discounts scheme offered to them. They have marked 4 on the rating scale.

Q. 6. How satisfied are you with the daily communication of AR for better Cash Management?

Analysis : Accounts Receivables (AR) tends to show the dues and excess of cash with the company. The above question is based on this fact. LG Electronics focuses on the satisfaction level of the dealers on communication of Accounts Receivables for better cash management.

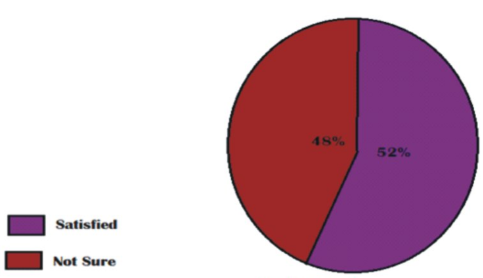

Fig. Graphical Representation of the answer

Inference : The result shows that 13 participants are not sure about this scheme whereas rest 12 participants are satisfied with it. This may be because LG's scheme for Accounts Receivable effectiveness is not recognized in many areas in Patna.

Q. 7. How do you rate the billing process in LG Electronics for the settlement of order?

Analysis. LG has been transparent with its schemes. After the settlement of the order, LG bills in the amount and sends the invoice to the dealers/distributors for the closure of deal. The above question is based on this.

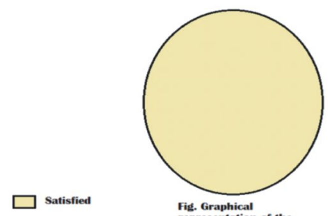

Fig. Graphical representation of the answer

Inference : Survey depicts that all the participants are satisfied with the process of LG Electronics. Everyone has marked 4 on the rating scale. This means that they have a belief in the billing process of LG Electronics.

Q. 8. How do you rate the AR balance confirmation report send by the company?

Analysis : Balancing the Accounts Receivables and sending the report to the respective dealers/distributors is the basis for this question. LG Electronics seeks to find out how satisfied are its various distributors on matters concerning confirmation of Accounts Receivables (AR).

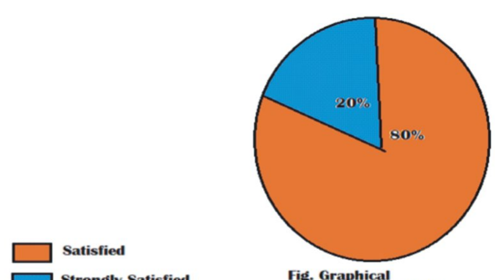

Fig. Graphical representation of the answer

Inference : 5 participants are strongly satisfied with this process as they have marked 5 on the rating scale. Rest 20 participants show satisfaction by marking number 4 on the rating scale, according to the survey.

Q. 9. How do you rate the AR settlements of LG Electronics with that of other companies in the market?

Analysis : This is a comparative question. Here, LG is trying to find out its performance in the field of Accounts Receivables settlement as compared to other companies in the industry from the satisfaction level of the dealers.

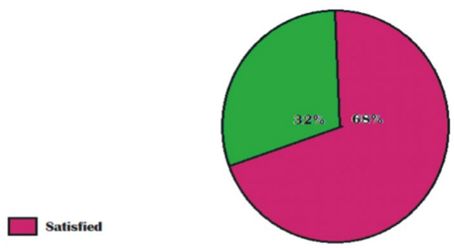

Fig. Graphical representation of the answer

Inference : 17 participants have marked as satisfied for this question by rating it 4. 8 of them are not sure about it. It maybe because they consider some other company to be of the same satisfaction level as LG Electronics.

CONCLUSION

Results of research on the effects of Accounts Receivable & Scheme management in LG Electronics India Pvt Ltd stipulated following conclusions:

- Accounts Receivables can be treated as one of the most important tools in the management of funds of an organization, necessitating more detailed analysis of its constituents and the impact of those constituents on the retailers
- Scheme management is another important aspect of the business in maintaining the cash flow into the organization, and the detailed analysis of various schemes creates a significant effect on the traders
- The variables of AR & Scheme management such as Cash Discount, Billing Process, Price change & Circulation, New product launch in the market, display discount, etc have an impact on the credit rating of the traders. Moreover the impact of these variables on the credit worthiness of the traders should be evaluated depending on various factors
- It has revealed that clarity & quality of scheme communication, regularity of scheme communication, and the scheme settlement process are the main elements in deciding the effectiveness of the scheme offered by LG Electronics India Pvt ltd
- It is also to be taken into account that the Daily AR communication, AR balances confirmation report, and the AR settlement process are the major tools that shows the effectiveness of AR practices adopted by LG Electronics India Pvt ltd

RECOMMENDATIONS

- On time billing should be done by the company so that the orders booked by the parties should be entertained on time. Order is punched depending upon the availability of stocks in the warehouse. So, it is necessary to have appropriate stocks to meet trader party's requirement
- To identify the parties who're losing the profit due to non attainment of cash discount. And based on this, Cash discount of the party should be done to avail them full discount

- Different categories are allotted to the trade partners based on their own time money settlement and maintaining a particular transaction limit. So, the company should work towards or helping them in improving the category level
- To identify the overdue amount of the trade parties and the company should ensure that all the trade partners should clear the payment within due time to avoid overdue amount
- The important elements of Scheme management such as clarity & quality of scheme communication, regularity of scheme commun- ication, and the scheme settlement process should be effectively done in order to provide satisfaction to the traders

To identify the variation caused on the certain categories of products due to the scheme made on invoice and the actual scheme to be offered should be identified and corrective measures should be taken by the company.

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INVENTORY MANAGEMENT

* **Kayenat Rahmat**

Presentation : 08.03.2018

Supervisor : **Dr. Surendra Kumar Prasad**

ABSTRACT : *Drug inventory management stresses on cost containment and improved efficiency. Each item may be considered critical and there is a perceived need to supply very high levels of service. There is no denying that stocking hospital pharmaceuticals and supplies can be expensive and tie up a lot of Capital, and brining efficiencies to such important cost drivers -often 30-40% of a hospital's budget -can present meaningful savings. Thus a hospital materials manager must establish efficient inventory system policies for normal operating conditions that also ensure the hospital's ability to meet emergency demand conditions .But it is impossible and unnecessary too to monitor drug used in the health system. High-cost and high-volume drugs come in priority, whose intervention is likely to cause the greatest clinical and economic impact. In the whole process,it is important to trace the costliest medicinal products first ,those that consume the major portion of the budget ,and then design a strategy to further study and identify their use pattern .the study of use pattern will help in designing appropriate corrective measures. Inventory management is a coordinated function responsible to plan for , acquire, store and control materials and final products to optimise usage of facilities , personnel ,capital funds and to provide customer service in line with corporate goals.*

***Key word* :** *Management, stresses, containment, ability*

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INTRODUCTION

Pharmacy is very essential in a developing country like India. As resources are limited, it is essential that the existing resources be appropriately utilized. With the existing drug budget, if rational drug use and improved drug management practises are followed, more number of patients can be served. It is essential that health managers use scientific methods to maximize their returns from investment at a minimum cost. Thus a hospital materials manager must establish efficient inventory system policies for normal operating conditions that also ensure the hospital's ability to meet emergency demand conditions .But it is impossible and unnecessary too to monitor drug used in the health system.

High-cost and high-volume drugs come in priority, whose intervention is likely to cause the greatest clinical and economic impact. In the whole process,it is important to trace the costliest medicinal products first ,those that consume the major portion of the budget ,and then design a strategy to further study and identify their use pattern .the study of use pattern will help in designing appropriate corrective measures.

Inventory management is a coordinated function responsible to plan for, acquire, store and control materials and final products to optimise usage of facilities, personnel, capital funds and to provide customer service in line with corporate goals.

AIM OF INVENTORY MANAGEMENT

- Right quality
- Right quantity of supplies
- At the right time
- At the right place
- For the right cost

PURPOSE OF INVENTORY MANAGEMENT

- To gain economy in purchasing
- To satisfy the demand during period of replenishment
- To carry reserve stock to avoid stock out
- To stabilise fluctuation in consumptions
- To provide reasonable level of clients services

OBJECTIVE OF INVENTORY MANAGEMENT

Primary Objective

- Right price
- High turnover
- Low procurement
- Storage cost
- Continuity of supply
- Consistency in quality
- Good supplier relations
- Development of personnel
- Good information system

Secondary Objective

- Forecasting
- Interdepartmental harmony
- Product improvement
- Standardisation
- Make or buy decision
- New materials and products
- Favourable reciprocal relationship

MATERIAL & METHODS

- Demand estimation
- Identify the needed items
- Calculate from the trends in consumptions during last two years
- Review with resource constraints

ABC ANALYSIS

ABC analysis is an inventory categorization technique. ABC analysis divides inventory into three categories-"A items" with very tight control and accurate records."B items" with less tightly controlled and good records and "C items" with the simplest controls possible and minimal records.

The ABC analysis provides a mechanism for identifying items that will have a significant impact on overall inventory cost.While also providing a mechanism for identifying different categories of stock that will require different management and controls. The ABC analysis suggests that inventories of an organisation are not of equal value. Thus the inventory is grouped into three categories (A, B and C) in order of their estimated importance.

'A' items are very important for an Organisation. Because of the high value of these 'A' items, frequent value analysis is required. In addition to that, an organisation needs to choose an appropriate order pattern (e.g. 'Just-in-time') to avoid excess capacity.

'B' items are important, but of course less important than 'A' items. Therefore, 'B' items are intergroup items. 'C' items are marginally important.

Class A : 10% of total inventories contributing towards 70% of total consumption value.

Class B : 20% of total inventories contributing towards 20% of total consumption value.

Class C : 70% of total inventories contributing towards 10% of total consumption value.

A ITEMS

Must Have :

- Small in numbers but consume large amount of resources

- Tight control
- Rigid estimate of requirements
- Strict and close watch
- Low safety stocks
- Managed by top management
- B items

MUST HAVE:

- Moderate control
- Purchase based on rigid requirements
- Reasonably strict watch and control
- Moderate safety

C ITEMS

Must have:

- Large in number but consume least amount of resources
- Ordinary control over
- Purchase based in usage estimation
- High safety stock

DATA OF ABC ANALYSIS

Summary of ABC Analysis

Items	Total Cost of Items	No. of Items	Percentage of Items	ABC Percentage
"A" Items	2827892.58	105	9.04	70%
"B" Items	807969.31	168	14.46	20%
"C" Items	403984.65	889	76.51	10%
Total	4039846.54	1162	100.00	100%

VED ANALYSIS

VED analysis attempts to classify the items used into three broad categories, namely vital, essential and desirable .The analysis classifies items on the basis of their criticality for the industry or company.

VED analysis is very useful to categorize items of spare parts and components. In fact, in the inventory control of spare parts and components it is advisable, for the organization to use a combination of ABC and VED analysis. Such control system would be found to be more effective and meaningful.

Vital : Vital category items are those items without which the production activities or any other activity of the company, would come to a halt, or at least be drastically affected. vital items which render the equipment or the whole line operation in a process totally and immediately inoperative or unsafe ,and if these items go out of stock or are not readily available . There is loss of production for the whole period.

Essential : Essential items are those items whose stock out cost is very high for the company. Essential items which reduce the equipment's performance but do not render it inoperative or unsafe; non availability of these items may result in temporary loss of production or dislocation of production work; replacement can be delayed without affecting the equipment's performance seriously; temporary repairs are sometimes possible.

Desirable : Desirable items are those items whose stock out or shortage causes only a minor disruption for a short duration in the production schedule. The cost incurred is very nominal. Desirable items which are mostly non-functional and do not affect the performance of the equipment.

VED analysis is very useful to categorize items of spare parts and components. It is advisable for the organisation to use a combination of ABC and VED analysis. Such control system would be found to be more effective and meaningful. The spares are split into three categories in order of importance. From the view points of functional utility , the effects of non availability at the time of requirement or the operation, process, production , plant or equipment and the urgency of replacement in case of breakdown.

Some spares are so important that their non availability renders the equipment or a number of equipment in a process line completely in operative, or even causes extreme damage to plant, equipment or human life.

On the other hand some spares are non-functional, serving relatively unimportant purpose and their replacement purpose and their replacement can be postponed or alternative methods of repair found. All these factors will have direct effects on the stock of spares to be maintained.

HML ANALYSIS

H-M-L analysis is similar to ABC analysis except the difference that instead of "Annual inventory turnover", cost per unit criterion is used.

The items under this analysis are classified based on their unit prices. They are categorized in three groups, which are as follows.

- H- High price items
- M-Medium price items
- L-Low price items

OBJECTIVES OF HML ANALYSIS

- Determine the frequency of stock verification
- To keep control over the consumption at the department level.
- To evolve buying policy, to control purchase
- To delegate the authority to different buyer

The items considered to be "active" may be reviewed regularly on more frequent basis.

Items whose stocks at hand are higher as compared to their rates of consumption.

Non-moving items whose consumption is "nil" or almost insignificant.

FSN ANALYSIS

In FSN analysis, items are classified according to their rate of consumption. The items are classified broadly into three groups : F- means fast moving, S- means slow moving, N- means non-moving . The FSN analysis is conducted generally on the following basis:

The last date of receipt of the items or the last date of the issue of the items, whichever is later, is taken into account.

The time period is usually calculated in terms of months or number of days and it pertains to the time elapsed seems that last movement was recorded.

ACKNOWLEDGEMENT

First of all, I am thankful to the Chairman of Ruban Emergency Hospital, Col. (Retd.) Dr. A.K.Singh for providing me opportunity for training as an intern in his reputed organization. I am also thankful for his support and creating such a wonderful environment for learning both soft and hard skills. I am really fortunate that, I had the kind association as well as supervision of Executive Assistant to Chairman, Shilpi Kumari & co-ordinator of BBA Dr. S. K. Pd. Their exemplary guidance, constant encouragement and careful monitoring throughout the internship are so great that, even my most profound gratitude is not enough.

I also take this opportunity to express a deep sense of gratitude to all the employees of Ruban Emergency Hospital for presenting such amazing experience. They are really wonderful people, and I will never forget these days of mine at Ruban.

Lastly, I would like to acknowledge all such sorts of society who helped me directly or indirectly by any means throughout the whole period. It would be great experience for me.

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ORACLE SIMULATOR

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Presentation : 08.03.2018

Supervisor : **Ms. Monica Ranjan**

ABSTRACT : *The main objective of our project is to create dynamic platform for the users through which user can easily maintain the database (oracle).This is the oracle simulator which is a software application for a personal computer. It allows the users to use features and perform DDL and DML operation as through it was perform in oracle. In Oracle Simulator lets the users to create the table, alter the structure of the table ,insert data in existing table, update the existing table, rename & drop the table and also shows the record through GUI (Graphical user interface). This project was very challenging because it has database of large and complex information about Oracle Simulator . We have to maintain large database for the software. To do all these we have used ASP.NET(c#), due to its user friendly tools to develop interface and Oracle 11g/SQL for maintaining large database as its secure, accurate and consistent perspectives. We have pride to make this software almost customized. Also we don't have to make any changes in Database. Everything is handled through the graphical user interface.*

***Key word* :** *Database, oracle, GUI, maintaining, software*

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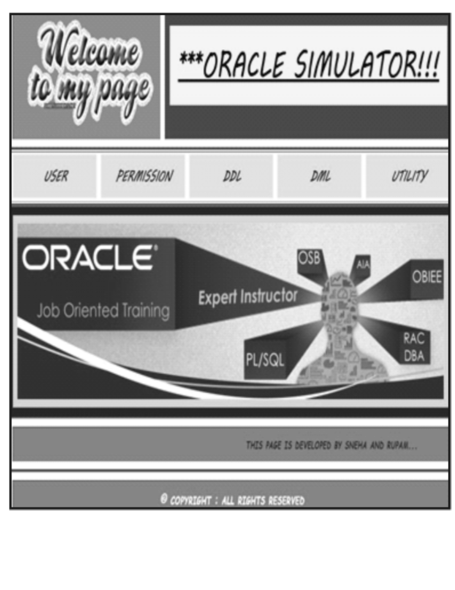
INTRODUCTION

Details of Project



Software testing is an investigation conducted to provide stake holders with information about the quality of the service under test. Software testing also provides an objective, independent view of the software to allow the business to appreciate and understand the risk at implementation of the software. Test techniques include, but are limited to, the process of executing a program or application with the intent of finding software bucks .So, system testing is vital to the success of the system. The first step in the testing is to prepare a plan that tests all aspects of a system in a way that promotes its credibility among potential user.

TEST PLAN

The test plan is an important, but often overlooked, application of software design. A test plan prescribes various kinds of activities that will be performed to demonstrate that the software meets its requirements.

TEST PLAN SPECIFIES

- **The Objective Of Testing**

It achieves error-free operation under stated conditions for the state period of time.

- **The Test Completion Criteria**

It helps to achieve a specified rate of error exposure, and a specified percent of logical path coverage.

- **The System Integration Plan :**

It helps to specify strategy, schedule and responsible individuals of testing.

METHOD TO BE USED

It defines method of the test plan such as walkthroughs, inspections, static analysis, dynamic tests, formal verification and the particular test cases to be used.

TESTING LEVEL

Three levels of testing were carried out in the each phase:

UNIT TESTING: IT TESTS A CODE FUNCTION

Integration Testing: It checks interdependency of different modules.

System Testing: It tests the applications' functionality as was specified in the detailed functionality detail.

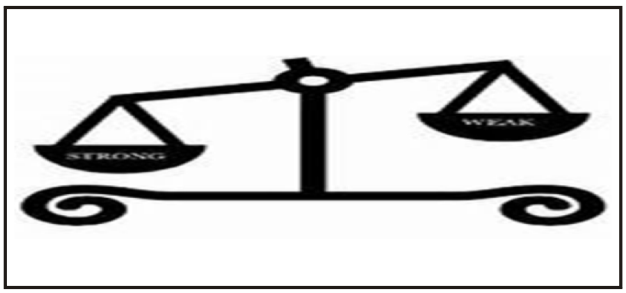
The testing level situation is illustrated below:

Coding and Debugging⇒Unit Testing⇒IntegrationTesting⇒SystemTesting

Unit testing comprises the set of tests performed by an individual programmer prior to integration of the unit into Oracle Simulator. It begins at the vertex of spiral and concentrates on each unit of the software as implemented insource code. It focuses verification effort on the smallest unit of software design of thesoftware componentormodule. The unit test is white box oriented, and the step can be conducted in parallel for multiple components.

TESTING CONSIDERATIONS

- Interface
- Local data structures
- Boundary conditions
- Independent paths
- Errors handling paths



The maintenance phase of the software life cycle is the time period in which software performs useful work. Generally, it takes 5 times or more time than development time. The maintenance activities involve making enhancement to software, adapting software to new environments and correcting problems.

This phase includes various activities, these are given below :

- Providing new functional capabilities
- Improving user displays and mode of interaction, upgrading external documents and internal documentation or upgrading the performance characteristics of a system.
- Adaptation of software to new environments may involve moving the software to a different machine, or for instance, modifying the software to accommodate a new environments.

Maintainability, like all high-level quality attributes, can be expressed in terms of attributes that are built into the software. The primary table attributes that contributes to software maintainability are clarity, modularity, and good internal documentation of the source, as well as appropriate supporting documents.

LIMITATIONS OF PROJECT

There is always a necessity for improvements and modifications in a project. This project also has some limitations and problems. These problems are listed below :

- Occasional long power failure may disturb the system
- This project like any other project may suffer from mishandling by the users in some cases
- First field of table must be primary key.

  Column size is fixed i.e. minimum and maximum column must be 10
- In alter, only size can be changed; only increment is done not decrement of any size
- Skilled man power is essential for this project

FUTURE SCOPE OF THE PROJECT

From the project point of view, it has several future scopes: After the system is found to be working successfully as per the requirement. Further enhancement could be made in one of the following direction. The project can be used in any organisation with some minor modification. These modifications may be of both Types, either hardware or software limitation or additional requirement made by the organisation.

There is always room for further enhancement of this system in the following areas.

- This project is very flexible for further modifications
- Column size can be changed i.e. minimum and maximum column may be of any sizes
- In alter, size can be changed; both increment and decrement of any size can be change

If there is requirement for any changes to be made in this project in near future for storing centralized database or distributed database further enhancement can be easily done in this project. Thus the project entitled "ORACLE SIMULATOR" has very bright and fruitful scope.

CONCLUSION

The answer to information technology is a theoretical and an empirical, hands-on discipline. The objective of this project is to give a dynamic platform to users, to create and to manipulate database. We get practical experience of working on a large project, has given us a chance to put into practice of the software development concepts that we have only been studied in theories. We are trained to work effectively as part of team, interacting with users, developing specification and documents developing prototypes and improving our writing and oral presentation skills. In this final year, we have developed ORACLE SIMULATOR SOFTWARE. During this project, we expect a chance to sharpen our skills on technical, analysis or interpersonal skills. This project is finished according to software development life cycle approach and through this approach we were able to learn more on practically how to work in a project whether individually or in a group.

On the early stage, we developed the problem project scope and objective to determine requirements to make the project successfully. There were a few types of models we used such as, Data Flow Diagram - Context Diagram and Level 1 Diagram, and to help.

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DESIGN AND ANALYSIS OF CIRCULAR PHOTONIC CRYSTAL

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Presentation : 08.03.2018

Supervisor : **Er. Shahli Tabassum**

ABSTRACT : *Photonic Crystal fiber is microstructure arrangement of low and high refractive index material. Photonic crystal fiber (PCF) is periodic arrangement of air holes with a defect that affect the motion of photons. PCF increase the capability of fiber optics. Such Fiber allow for extremely tight confinement of light in a small modal volume, giving rise to strongly enhanced nonlinear interaction between light and dielectric media. On the other hand, photonic crystal fibers also enable guiding of light in cores region. This dissertation explores new possibilities of going significantly beyond existing technology in terms of negative dispersion, confinement loss, birefringence, normalized frequency, effective area and in term of enhancing or suppressing nonlinearities. A numerical finite element method (FEM) is employed to calculate quantitative properties of the PCF and to optimize the design.*

First, the proposed design consists of circular air holes of circular shaped Photonic crystal fiber whose inner ring is filled with water. A circular PCF structure consist of five rings as cladding whose inner ring is filled with water and rest with air holes. Background material is selected as silica oxidedesign is carried out five times for five different diameters **d1=1μm, d2=1.2 μm, d3=1.5 μm, d4=1.8μm, d5=1.9μm.** *respectively, This design gives high effective area, low confinement loss and negative dispersion when the inner ring is filled with water with bubbles diameter 1.9μm.The proposed structure of C-PCF are simulated using the commercial RSOFT software.*

***Key word* :** *confinement loss, dispersion, effective area, Numerical finite*

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INTRODUCTION

Optical Fibers : Today, communication systems are playing the most important role for the development in every field and changing the life of the people in all corners of the world. Optical fiber was the trend setting revolution in the field of communication. In the late second half of the 20th century, the invention of Photonic Crystals Fibers

[1], one of the most significant technological achievements was realized and changed the scenario of modern optical communication and inspired researchers to explore another horizon, which was unknown just a few years back. Exchange of information via optical signal has already drastically changed people's day-to-day life. The large amount of bandwidth provided by the optical communication systems based on traditional optical fiber automatically speeds up the transmission rate with the use of signal multiplexing. These traditional optical fibers work on the principle of total internal reflection [2]. These were low loss fibers with higher bandwidth than copper cables. These fibers were manufactured from pure silica in furnace in the form of thin long strand with very small diameter and controlled geometry. The uses for optical fibers and fiber lasers are not limited to communications, but also find numerous applications particularly in medicine and for fundamental research into the nature of light. Optical fiber uses pulses of light to carry data along strands of glass or plastic [3]. An optical fiber is a flexible, transparent fiber made by drawing glass(silica) or plastic to a diameter slightly thicker than that of human hair. Optical fiber typically includes a transparent core surrounded by a transparent cladding material with a lower refractive index. Light is kept in the core by the phenomenon of total internal reflection which causes the fiber to act as waveguide [4]. Fibers that support many propagation paths or transverse modes are called multi-mode fibers (MMF), while those that support a single mode are called single-mode fibers (SMF). Multi-mode fibers have a wider core diameter and are used for short distance communication links and for application where high power must be transmitted. Optical fibers can be used as a medium for telecommunication and computer networking because it is flexible and can be bundled as cables. It is particularlya-dvantageous for long-distance communications, because light propagates through the fiber with little attenuation compared to electrical cables, this allows long distances to be spanned with few repeaters[5].

PHOTONIC CRYSTAL FIBER

Photonic crystal fibers are a new class of optical fibers. The development of Photonic Crystal Fibers (PCFs) and their large number of potential application have attracted a lot of interest since the middle of nineties. Photonic Crystal Fibers are commonly referred as micro structured fibers (MFs), micro structured optical fibers (MOFs) or holey fibers (HFs). The word microstructure refers to the cross sectional structure of the fiber that typically consists of a periodic high-index contrast structure of silica and air on the length scale of the wavelength. The aforementioned terms are often used to describe an index-guiding PCF in which light is confined to a high-index core surrounded by an air- silica cladding with a lower effective refractive index. They can guide light not only through a well-known total internal reflection mechanism but also using photonic bandgap effect. Photonic crystal fibers (PCFs) are fibers with an internal periodic structure made of capillaries, filled with air, laid to form a hexagonal lattice. Light can propagate along the fiber in defects of its crystal structure. A defect is realized by removing one or more central capillaries.Photonic Crystal Fibers possess combined properties of optical fibers and photonic crystals and they also possess a series of unique properties which is impossible to achieve in conventional fibers. Conventional optical fibers perform very well in telecom and non-telecom applications, but there is a series of fundamental limits related to their structures. The fibers have rigid design rules to fulfill which includes limited core diameter in the single-mode regime, modal cut-off wavelength, limited material choice (thermal properties of core glass and cladding glass must be the same). The design of PCFs is very flexible [6]. There are several parameters to manipulate including lattice pitch, air hole shape and diameter, refractive index of the glass, and type of lattice. Freedom of design allows one to obtain endlessly single mode fibers, which are single mode in all optical range and a cut-off wavelength does not exist. The idea of a photonic crystal fiber was presented for the first time by Yehetal in 1978. They proposed to clad a fiber core with Bragg grating, which is similar to 1D photonic crystal. A photonic crystal fiber made of 2D photonic crystal with an air core was invented by P. Russell in 1992 and the first PCF was reported at the Optical Fiber Conference (OFC) in 1996 . A short overview of PCF development is presented in the Table.

1978	Idea of the Bragg fiber
1992	Idea of the photonic crystal fiber with air core
1996	Fabrication of a single-mode fiber with photonic coating
1997	Endlessly singe mode PCF
1999	PCF with photonic bandgap and air core
2000	Highly birefringent PCF
2000	Super-continuum generation with PCF
2001	Fabrication of a Bragg fiber
2001	PCF laser with double cladding
2002	PCF with ultra-flattened dispersion

The air-hole microstructure which constitutes the PCF cladding is a two-dimensional photonic crystal that is a material with periodic dielectric properties characterized by a photonic band gap,where light in certain wavelength ranges cannot propagate. The PBG effect can be alsofound in nature since it is responsible, for example, of the beautiful and bright colors seenin butterfly wings. PCFs with a low index core are created by introducing a defect in thephotonic crystal structure, for example, an extra air-hole or an enlarged one, and light isconfined because the PBG makes propagation in the micro structured cladding regionimpossible. This guiding mechanism cannot be obtained in conventional optical fibersand it opens a whole different set of interesting possibilities. In particular, light can beguided in air in PCFs with a hollow core thus providing numerous promising applications such as low-loss guidance and high-power distribution without the risk of fiber damage.Moreover air-guiding PCFs are almost insensitive to bending even for small bendingdiameter values and they present extreme dispersion properties, highly dominated by thewaveguide component. Finally, when filled with proper gases or liquids, hollow corePCFs can be successfully employed in sensor applications or for nonlinear optics.In 1996, a new kind of optical fiber was reported which, instead of having acladding region formed from one glass, had a cladding region comprising an array ofmicroscopic air holes running along the fiber length [12-14]. This became known asphotonic crystal fibre (PCF) and is represented schematically.

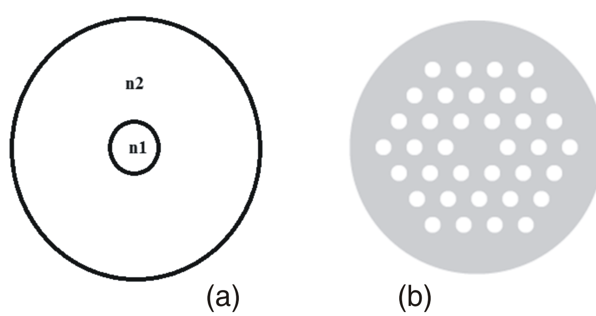


Figure 1.2: Schematic representations of cross sections through (a) a conventional optical fiber and (b) a solid core photonic crystal fiber .

In figure 1.2 (a) the darker grey region represents acore consisting of a glass of slightly higher refractive index than that of the claddingregion shown in a lighter grey. In (b) the white regions in the cladding represent an arrayof air holes running the length of the fiber [14].In Fig. 1.2 (b) the array of air holes in the cladding gives PCFs significantly differentguidance properties from conventional TIR guiding fibers. This is because the indexcontrast between the core (typically pure silica) and the cladding can be varied by alteringthe size of the cladding air holes, which changes the effective refractive index of thecladding region. Control of the effective refractive index allows significant engineering of fiber properties such as dispersion and nonlinearity. PCFs can also display propertieswhich are not observed in conventional fibers. For example, with certain hole size to holeseparation (pitch) ratios, they can only ever support the fundamental guided mode,regardless of wavelength. PBGs can be obtained in photonic crystals. PBG, originallypredicted in 1987 by Sanjeev John, from University of Toronto, and Eli Yablonovitch, from Bell Communications Research, has become the really hot topic in optics in the early 1990s. The idea was to build the right structures, in order to selectively block thetransmission of photons with wavelengths corresponding to the PBGs, while allowingother wavelengths to pass freely. Moreover, slight variations in the refractive indexperiodicity would introduce new energy levels within the PBG, as it happens with thecreation of energy levels within the bandgap of conventional semiconductors. Unfortunately, building the right structures has proved extremely difficult.The first PBG material was created in 1991 by Yablonovitchand his colleagues by drilling holes with a diameter of 1mm in a block of material with a refractive index of3.6 Since the bandgap wavelength is of the order of the spacing between the air-holes inthe photonic crystal, this structure had a bandgap in the microwave region. In 1991,Philip Russell, got an idea that light could be trapped inside a fiber hollow core bycreating a two-dimensional photonic crystal in the cladding. The first fiber with aphotonic crystal structure was reported by Russell and his colleagues in 1995. Even if itwas a very interesting research development, the first PCF did not have a hollow core and consequently, it did not rely on a photonic bandgap for optical confinement [15].

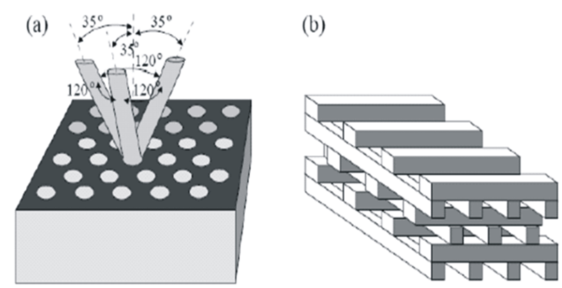


Figure 1.3: (a) Yablonovite is fabricated by covering a slab with a mask that has holesarranged in a hexagonal lattice and drilling through each hole in three specific directions.

(b) Woodpile structure is composed of tiny rods that are arranged periodically [16].

In 1995 Russell's group could produce fiber with the necessary air-holetriangular lattice, but the air-holes were too small to achieve a large air-filling fraction,which is fundamental to realize a PBG. Moreover, the first PCF had very low intrinsiclosses, due to the absence of doping elements in the core. In 1999, the first single-modehollow-core fiber, in which confinement was due by a full two-dimensional PBG. It hasbeen realized that the photonic bandgap guiding mechanism is very robust, since lightremains well confined in the hollow core, even if tight bends are formed in the fiber.However, it is highly sensitive to small fluctuations in the fiber geometry, for example,variations in the air-hole size [17].

The main drawback which affects this new kind of fibers is related to theattenuation, which is higher than that of conventional optical fibers. The different lossmechanisms are thus studied for both solid and hollow-core photonic crystal fibers. Ingeneral, a loss reduction for PCFs can be obtained by improving the fabrication process.The stack-and draw process is described with other fabrication techniques [19]. Oncereached the technological maturity, the advantages offered by PCFs with respect toconventional fibers could be completely exploited for different applications.

GUIDING MECHANISM IN PCF

In order to form a guided mode in an optical fiber, it is necessary to introducelight into the core with a value of ?, which cannot propagate in the cladding. The highest? value that can exist in an infinite homogeneous medium with refractive index n is ? =nk0, where k0 is the free-space propagation constant [20]. All the smaller values of ? areallowed. A two-dimensional photonic crystal, like any other material, is characterized bya maximum value of ? which can propagate. At a particular wavelength, this ? valuedefines the effective refractive index of the material.

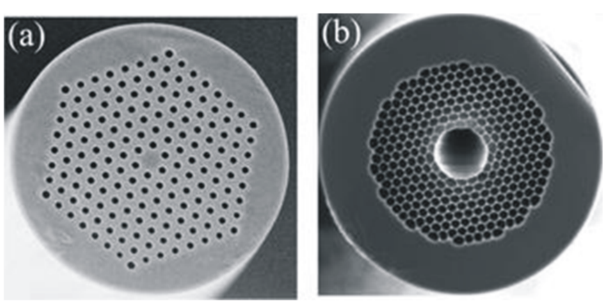


Figure 1.5: Solid and Hollow Core PCF[20]

Modified Total Internal Reflection

If the defect of the structure is realized by removing the central capillary, then guiding ofan electromagnetic wave in a photonic crystal fiber can be regarded as a modified totalinternal reflection mechanism. It is possible to use a two-dimensional photonic crystal asa fiber cladding, by choosing a core material with a higher refractive index than thecladding effective index [21]. An example of this kind of structures is the PCF with asilica solid core surrounded by a photonic crystal cladding with a triangular lattice of airholes.These fibers, also known as index-guiding PCFs, guide light through a form oftotal internal reflection (TIR), called modified TIR.

PHOTONIC BAND GAP GUIDANCE

When the central defect is realized by inserting a central air capillary, which has adiameter different than other capillaries (usually bigger), then a photonic bandgap (PBG)is obtained. Light guidance is then an analogue of a mechanism known in solid statephysics as the electron conduction mechanism in materials with an energy-band structure. Few central capillaries can be removed from a hexagonal lattice leaving a large hole filledwith air for guiding of light in an air (hollow core PGB guidance) [22]. Periodically distributed air core can form an artificial 2D photonic crystal structure with latticeconstant similar to the wavelength of light. In the 2D crystal structures photonic band gapsexist that prevent propagation of light with a certain range of frequencies. If periodicityof the structure is broken with a defect (lack of air cores or large air core) a special regionwith optical properties different from the photonic crystal is created. The defect regioncan support modes with frequencies falling inside photonic band gap, which prevent themfrom penetration of photonic crystal. The modes are strongly confined to the defects andguided along them through the fiber. Since photonic band gap is responsible forconfinement of the light in the core, it is not required that the defect region has a higherrefractive index than the surrounding.

FABRICATION OF PCF

Optical fiber fabrication typically includes two stages, preform fabrication andfiber drawing. A preform is a large-scale replica of the fiber normally 50cm in length and20mm in diameter (for PCFs). A preform is drawn down to micro-scale dimensions on a fiber drawing tower (see Fig. 2.1). The inner/outerdiameter of the initial tube determines the ratio between the hole diameter and the latticepitch in the drawn fiber. The capillaries are stacked on a horizontal ring in a close-packedarrangement which reproduces the structure that is to be obtained in the final fiber. Thesepackages are then inserted into a jacket tube and packing silica rods of different diametersare carefully inserted to ensure mechanical stability of the structure. A rod placed in thecenter of the stack as the solid core of index- guiding PCFs and a tube is inserted if ahollow-core PBGF is to be achieved. The resulting PCF preform is then drawn down tocanes of few millimeters diameter.

SIMULATION AND MODELING

PCF shows a number of unusual properties which were not possible withconventional optical fiber. So the commonly used methods for modeling of optical fibercannot be implemented successfully in case of photonic crystal fiber. PCF have a highrefractive index contrast and a periodic structure that is comparable to the wavelength oflight and effective index of these PCF depends on the wavelength used. Thereforemethods used for the modeling of both photonic crystal and electromagnetic waves areadapted for the modeling of photonic crystal fibers. Numerical modeling and simulationplays an important plays an important role for the effective designing of a structure.

LOSSES IN PHOTONIC CRYSTAL FIBERS

Optical fibers are used to transference light over distances ranging from meters tothousands of kilometers. Over such spaces, even small imperfections can lead tosubstantial effects. Conventional silica fibers have attained such an amazing degree ofperfection that their losses (only about 0.2dB/km at 1.55?m) are limited by a mixture ofintrinsic material absorption and scattering from microscopic density fluctuations. Atlonger wavelengths, on the other hand, such as the 10.6?m large-power lasers used forvarious industrial and medical applications, silica and other common fiber materials arenot transparent at all. Interestingly, not all losses are bad. As they have seen, most of theproposed hollow-fiber designs have been multi-mode. They support multiple guidedmodes that propagate at different speeds. Unchecked this results in modal dispersion:since it is impossible to avoid exciting multiple modes, the differing velocities causepulses to spread and information transmission to be scrambled. However, this problem isreduced in a hollow core fiber by differential attenuation: some modes have much lowerlosses than others, and thus transmission in everything but the lowest-loss mode will befiltered out after propagation over a long distance. Three main loss mechanisms areassociated with the amount of field penetration into the cladding: material absorption,radioactive leakage due to the finite crystal size, and scattering from disorder. All of thesewill tend to reduction as the core radius R increases. Of these three loss mechanisms, thesimplest one to analyze is material absorption. This can be defined by a small imaginarypart that is added to the real refractive index n. Because for transparent materials, one canobtain essentially exact results for the loss by starting with the Eigen mode of the lossless structure and employ-in perturbation theory. Therefore, a useful dimensionless figureof merit for a hollow-core fiber mode is the ratio a/a0 this is called the absorptionsuppression factor, the factor by which loss is decreased due to the portion of light in air.

CHARACTERISTICS OF PHOTONIC CRYSTAL FIBER

Transmission loss :

In recent years, the attenuation level of photonic crystal fibers (PCFs) has been reduced dramatically. This is both true for fibers relying on index guiding as well as those based on the Photonic bandgap effect, though the second type even needs to meliorate with nearly two orders of magnitude in order to have lower loss than the index guiding fibers. The transmission characteristics of the fibers havebeen improved over the past few years due to the rapid development of the PCF manufacture. We can reduce the fiber loss by reducing the surface roughness of the holes as well as by raising the structural uniformness of the fiber in both longitudinal and transversal direction. The loss of the state-of-the-art index guiding PCFs is 0.28 db/km at 1550 nm [42]. Whereas conventional single mode fibers exhibit a loss of less than 0.2 db/km at 1550nm. Air guiding PBFs have potential to exhibit even lower losses than SMFs as most of the light is guided in an air core and therefore, losses are not limited by Rayleigh scattering and silica absorption in the same way as in convention optical fibers. The loss of PBFs, losses are mainly caused by leakage loss, light scattering and coupling to the surface andcladding modes while the limiting loss mechanism is surface capillary waves.

EFFECTIVE AREA (AEFF)

Spot size or mode field diameter (MFD) is the distance from the core at which the electric and magnetic field strength of the guided mode reduces to 1/e of its peak value. Or we can also define it as the diameter at which the power density of the guided mode reduces to 1/e2 of its peak value. The spot size of the Photonic crystal fiber can be given by:

$$Wpcf = \sqrt{2}\,\frac{\mathrm{J1(Ueff)}}{\mathrm{Weff\ J0\,(Ueff)}} \quad (2.1)$$

Where J0 and J1 are the Bessel functions.

Effective area is an important parameter in the photonic crystal fiber that is used to define non-linearity effects in the fiber. Effective area is given by:

$$Aeff = \pi(\mathrm{W_{pcf}})^2 \quad (2.2)$$

Where (Wpcf) is the mode field diameter calculated from spot size.

DISPERSION

In optics, dispersion is the phenomenon in which the phase velocity of a wave rest on its frequency, or otherwise when the group velocity depends on the frequency. Media having such a property are termed dispersive media [43]..

CONFINEMENT LOSS

The confinement loss of PCF is the measure of amount of power leakage from its core to the cladding [45]. As the confinement loss decreases the mode area also decreases but due to finite number of air holes present in the fiber structure all the PCF guidedmodes are leaky. Confinement loss is the light ability within the core region. As the core and matrix material are generally the same and hence have same refractive index. The confinement loss Lcwith unit of db/m, is obtained from the imaginary part of neff as follows:

$$Lc = 8.686K0Im[neff\,]$$

with the unit db/m, where Im (neff) is the imaginary part of the refractive index. K0 = 2 ? ? is the wave number in free space.

NORMALIZED FREQUENCY

Normalized frequency is a unit of measurement of frequency equivalent to cycles/sample. In digital signal processing (DSP), the continuous time variable, t, with units of seconds, is replaced by the discrete integer variable, n, with units of samples. The optical power is low for low V-number and reaches 90% near cut off at V=2.405. V-number can be calculated using formula .

$$V = \frac{2\pi\rho}{\lambda}(n_{co}-n_{cl})^2$$

Where nco is the core refractive index nclis the cladding refractive index.

DESIGN AND ANALYSIS OF CIRCULAR PHOTONIC CRYSTAL FIBER

Leaky Mode :

A leaky mode or tunneling mode in an optical fiber or other waveguide is a mode having an electric field that decays monotonically for a finite distance in the transverse direction but becomes oscillatory everywhere beyond that finite distance. Such a mode gradually "leaks" out of the waveguide as it travels down it, producing attenuation even if the waveguide is perfect in every respect. In order for a leaky mode to be definable as a mode, the relative amplitude of the oscillatory part (the leakage rate) must be sufficiently small that the mode substantially maintains its shape as it decays.Leaky modes correspond to leaky rays in the terminology of geometric optics. The propagation of light through optical fibre can take place via meridional rays or skew rays. These skew rays suffer only partial reflection while meridional rays are completely guided. Thus the modes allowing propagation of skew rays are called leaky modes.

FINITE ELEMENT METHOD (FEM)

A finite element method (abbreviated as FEM) is a numerical technique to obtain an approximate solution to a class of problems governed by elliptic partial differential equations. Such problems are called as boundary value problems as they consist of a partial differential equation and the boundary conditions. The finite element method converts the elliptic partial differential equation into a set of algebraic equations which are easy to solve

INTRODUCTION DESIGNED STRUCTURE

Photonic Crystal fiber is microstructure arrangement of low and high refractive index material. Photonic crystal fiber is periodic arrangement of air holes with a defect that affect the motion of photons. In this paper, dispersion, confinement loss, normalized frequency, effective area, nonlinear coefficient and numerical aperture are shown for different fluids. The proposed design consists of circular air holes of circular shaped Photonic crystal fiber whose inner ring is filled with water. A circularPCF structure consist of sfive ring whose inner ring is filled with water whose refractive index is 1.33. The background material is silicahaving refractive index 1.45. Despite the fact that the refractive index of water is lower than that of silica, we found an optimal range of waveguide parameters to ensure light guidance through the core in fundamental mode, maximizing the interaction over desired wavelength range and comparing the various parameter of the proposed structure.

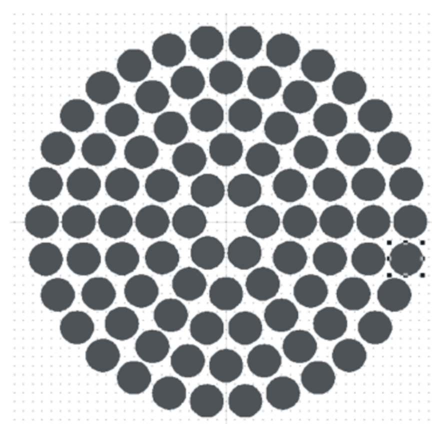
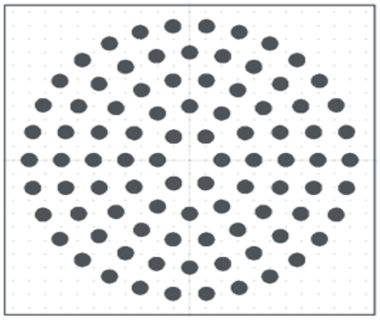


Figure 4.1: Cross-sectional view of solid core dual cladding structure with inner ring filled with water.

Confinement of light in different structure using different diameter of bubble in solid core C-PCF with inner ring field with water and sio2 as background material . Pitch is 2μm



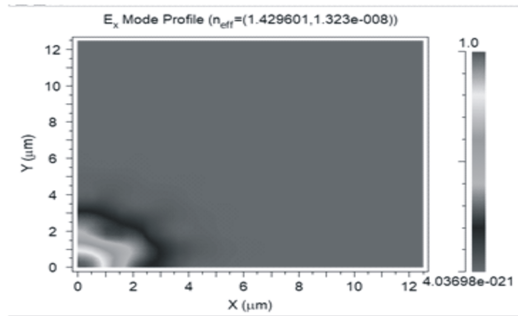
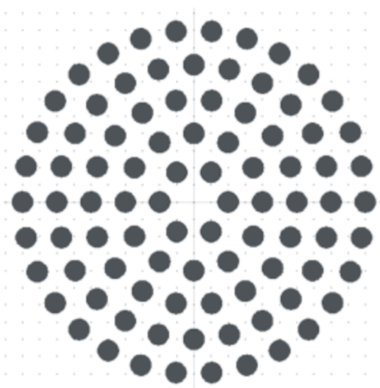


Figure 4.2 structureFigure 4.3 confined light

When the diameter of air bubbles and water is 1μm



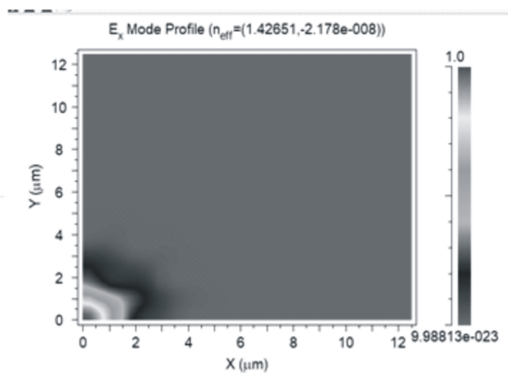
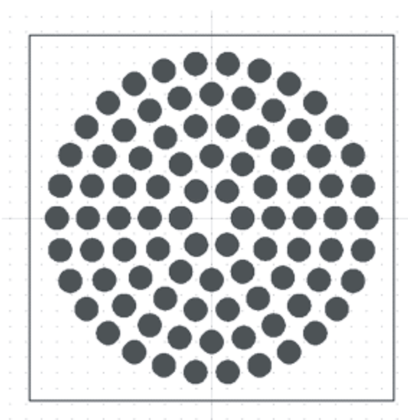


Figure 4.4structureFigure 4.5 confined light

When the diameter of air bubbles and water is 1.2μm



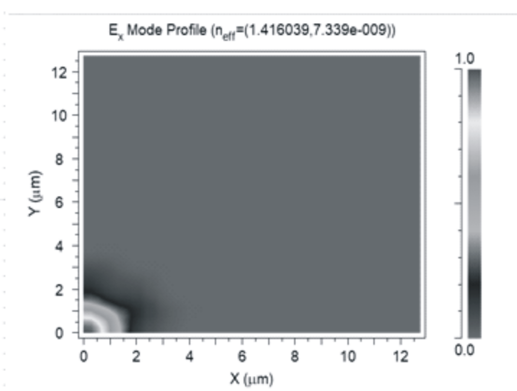
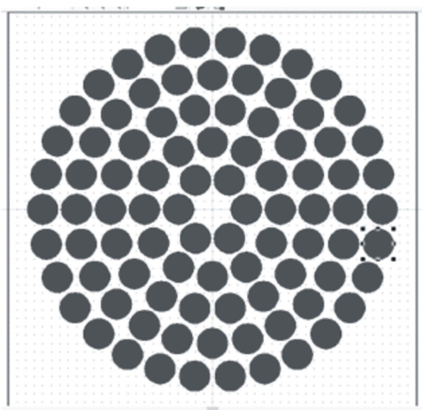


Figure 4.6structureFigure 4.7 confined light

When the diameter of air bubbles and water is 1.5μm



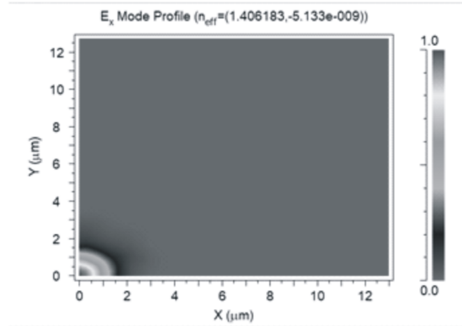
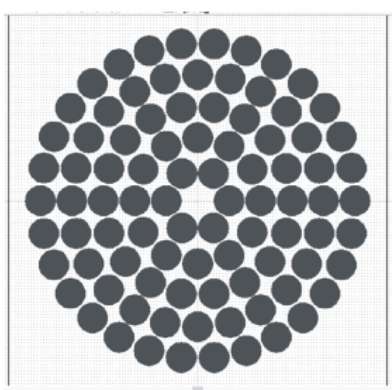


Figure 4.8 structureFigure 4.9 confined light

When the diameter of air bubals and water is 1.8μm



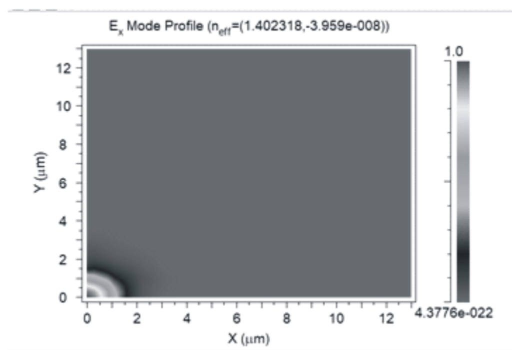


Figure 4.10structureFigure 4.11 confined light

When the diameter of air bubbles and water is 1.9μm

NUMERICAL ANALYSIS

To simulate the design of C- PCF, a software tool named R-SOFT is used which is graphical user interface and can also interface with third party tool. Figure shows the wavelength dependence of effective refractive index of proposed PCF for different fluids. The five different diameter used have entirely different properties as listed below in table 1.

S.No	Diameter	Normaliszed frequency	Mode Field Diameter	Effective area	Effective refractive index	Dispersion (dB/km)	Confinement loss
1.	1	0.491234	0.484716	0.73812	1.429601	1.4532	0.46583* 10^-6
2.	1.2	0.658710	0.586890	1.08209	1.424483	1.4539	0.02584* 10^-6
3.	1.5	0.948507	1.475930	6.84000	1.416039	1.4512	1.14397* 10^-6
4.	1.8	1.290640	1.793975	10.1107	1.406183	1.4591	0.18073* 10^-6
5.	1.9	1.420195	1.908404	11.4420	1.402318	1.4599	1.39397* 10^-6

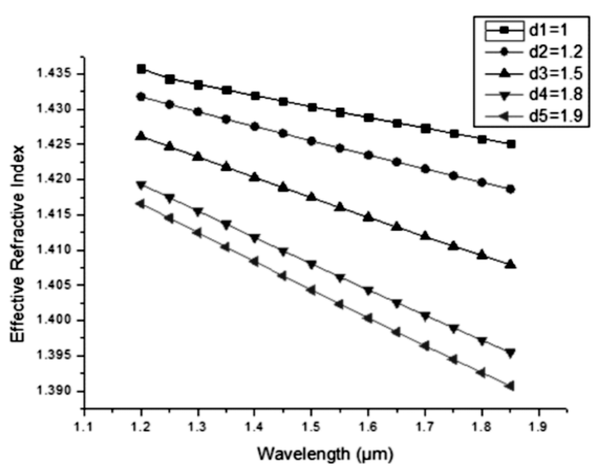


Figure 3. 12: Effective refractive index graph..

The effective refractive index is related to phase constant $\boxed{?}$ as well as the wavelength λ.

$$nef\,f = \frac{\pi\beta}{2\pi}$$

At wavelength λ =1.5μm, the effective refractive index, when inner ring is filled with water and diameter d1=1, d2=1.2, d3=1.5, d4=1.8, d5 =1.9,. The effective refractive index will be used for an investigation of dispersion properties of the designed PCF. The fundamental idea behind this work was to evaluate the periodically repeated air holes in the background material of silica of the core and then inner ring of cladding is filled with five different fluids and their results are compared.

EFFECTIVE AREA

Effective area increase with increasing wavelength and it is an important parameter used to calculate nonlinear coefficient. Effective area is directly proportional to mode field diameter r(MFD). MFD is the distance from center of the core to the distance where the electric and magnetic strength of the guided mode reduces to 1/e of its peak value. From above graph the high value of effective area at wavelength 1.5μ is 10.665μm^2 is obtained when the inner ring is filled with carbopol 940.

$$A_{eff} = \mu \times (MFD)^2$$

Where MFD is mode field diameter or spot size. Larger spot size has larger depth of penetration. Peterman I and Peterman II states that spot size have physical meaning and they are related to losses in an optical fiber. The effective area when the inner ring is filled with carbopol940, ethanol, methanol, water and propylene glycol at wavelength λ =1.5µm are 10.6652µm^2, 6.1576µm^2, 7.2823µm^2, 5.445µm^2 and 6.42µm^2 respectively.

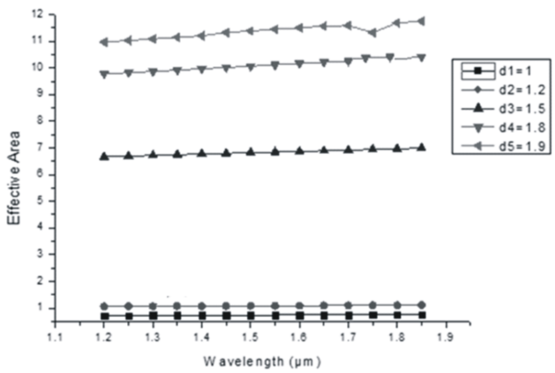
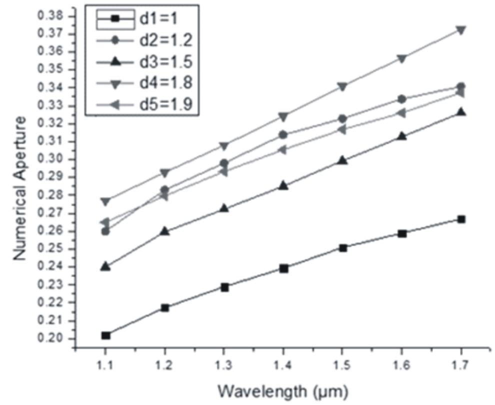


Figure 3. 11: Effective area graph

NUMERICAL APERTURE

The numerical aperture is an important parameter of optical fiber, and the fiber with high numerical aperture can be well used in fiber laser and laser-induced fluorescence system. The numerical aperture of the photonic crystal fiber is different from that of traditional step optical fiber, which is closely related to the wavelength. William.J. et. al. " Very high numerical aperture fiber" IEEE photonics technology letter vol.16 no 3 march 2004 proposed a fibers showing the highest NA reported of 0.88 over a 41-m length at a wavelength of 1.1nm, rising to NA>0.9 at 1.54nm, and decreasing to NA 0.65 at450 nm. The H-PCF with Carbopol in the inner ring shows low numerical aperture of 0.2509 at wavelength λ =1.5µm. The NA can be calculated using formula



$$NA= \left(1+\frac{\pi Aeff}{\lambda X \lambda}\right)^{-1/2}$$

Figure 3. 13: Numerical Aperture Graph

When the inner ring is filled with carbopo l940, ethanol, methanol, water and propylene glycol at wavelength λ =1.5µ are 0.2509,0 .3228, 0.2993, 0.341 and 0.3168 respectively.

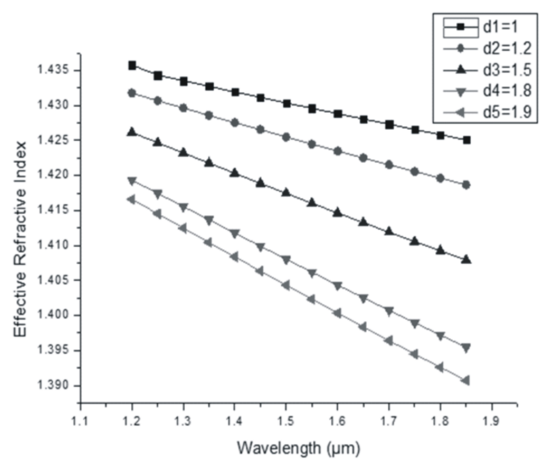


Figure 3. 14: Effective Refractive Index Graph when $d_2/?_2$=0.6454 and $d_3/?_3$=0.70.

CONCLUSION

In this paper various optical parameters has been calculated using different diameter and their results are compared. Table II- Comparison tables of optical properties of C-PCF having inner ring filled with water at different wavelength λ =1.5µm, and diameter =1.9.

S.No	Wavelength	Confinement Loss(dB/m)	Normalized Frequency	Affective Area(µm2)
1.	1.25	2.03*10-6	1.52199	11.023
2.	1.35	1.78*10-6	1.48743	11.141
3.	1.45	0.70*10-6	1.45352	11.321
4.	1.55	1.39*10-6	1.42019	11.442
5.	1.65	1.51*10-6	1.38750	11.563

The development of Photonic Crystal Fiber has a lot of future scope. This thesis work has been done to analyze the characteristics of Photonic crystal fiber

- Occasion

  We observed negative dispersion
- Low confinement loss and low normalised frequency.
- Low sensitivity towards external environmental condition
- Designed fiber cable works well at mono mode
- Normalizedfreq s always <=2.4
- Low power required
- It has high effective area .

FUTURE SCOPE

- It can be used in temp sensors
- It can also be used as gas sensor to measure pollution
- It makes easier to design step index fibre

  Single mode polarisation is supported by this design
- It is well suited for high power transmission

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मध्यवर्गीय परिवार में युवा की स्थिति एक सामाजिक तथा आर्थिक अध्ययन : पटना जिले के संदर्भ में

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Presentation : 08.03.2018
Supervisor : **कुमारी सत्या**

सारांश : युवा वह होता है जो 15-20 वर्ष के बीच के अंत है। इस बात को एक्ट-1 में रखा गया है। यह परिभाषा युनाइटेड नेशनल जनरल एसेम्बली के अनुसार राष्ट्रीय स्तर पर बनाई गई जिसे 1985 ई. में मान्यता मिली। जिसमें विभिन्न विषयों के बारे में, नौकरी और स्वास्थ्य के बारे में भी बहुत अच्छी तरह व्याख्या की गई है।

अधिकांश देशों में यह कानून बनाया गया है कि सभी युवाओं को एक जैसा अधिकार और समानता मिले। जिसके लिए एक समूह बनाया गया है। जिसका नाम 'एज ऑफ मेजोरिटी' रखा गया है।

मध्यवर्गीय परिवार में एक शोध के बाद यह साबित किया गया है कि क्या यह सत्य नहीं कि पहले भी हम स्वयं ही अपने बच्चों को जरूरत से ज्यादा छूट देते हैं पैसा देते हैं और भूल कर भी उनकी गतिविधियों पर नजर नहीं रखते। लेकिन बाद में उन्हीं बच्चों को कोसते हैं कि वे बिगड़ गए।

युवाओं की सामाजिक स्थिति एक किशोर बालक की तरह होता है और तब तक वे अपने माता-पिता पर निर्भर होते हैं उनकी समस्या तब पूरी होती है जब वह कोई नौकरी, धंधा या व्यवसाय करके धन अर्जित करने लगता है।

युवाओं की आर्थिक स्थिति व्यवसाय के चुनाव व उसे आगे बढ़ाने की अवस्था है। इस अवस्था तक युवाओं अपनी स्कूली पढ़ाई पूरा करके कॉलेज में पढ़ने लगता है। वह उच्च शिक्षा ग्रहण करने के लिए देश-विदेश के नामी संस्थानों में अपना प्रवेश ले लेता है उसके अनुसार विद्यार्जन करता है। तत्पश्चात् अपनी पढ़ाई पूरी करके नौकरी, धंधा, व्यवसाय या व्यापार में अपनी जड़े जमा लेता है।

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शब्द कुंजी : युवा, मध्यवर्गीय परिवार, सामाजिक और आर्थिक स्थिति

परिचय :

हमारे समाज में अभी भी पुरुष को ज्यादा महत्व और महिला को कम मिलता । उनको हर काम अपने मन से करने का आदेश नहीं होता है। प्राचीन काल में भारत में महिलाओं का बहुत सम्मान किया जाता था। परन्तु जैसे समय बीतता गया महिलाओं की स्थिति में भीषण बदलाव आया। महिलाओं के प्रति लोगों की बीच सोच बदलने

लगी थी। बहुविवाह प्रथा, सती प्रथा, दहेज प्रथा, कन्या भ्रूण हत्या आदि जैसे मामले उजागर होने एक आम बात बनने लगी थी।

युग चाहे कोई भी हो स्त्री के लिए सबसे अधिक आवश्यकता आर्थिक निर्भरता की है। क्योंकि नारी को पीढ़ी दर पीढ़ी का युवा दर आधुनिक और पारम्परिक दोनों समाजों में मुख्य रूप से पुरुषवादी सोच से ही जड़ना पड़ता है। पूँजीवादी और पुरुषवादी समाज में महिलाओं पर लगातार आर्थिक, मानसिक या सामाजिक हमले हो रहे हैं, जिससे हर हाल में नारी की आत्म-निर्भरता कहीं खो रही है।

आमतौर पर मध्यवर्गीय परिवार में वैश्वीकरण के दौर में स्त्री का ग्लैमर तो बढ़ा है लेकिन गरिमा नहीं। अधिकतर स्त्रियों की दशा में कोई बदलाव नहीं आया है और इन सबके पीछे जो तथ्य है। वह यह है कि स्त्रियाँ 21वीं सदी में भी अशिक्षित है। अशिक्षा के कारण आज भी पुरुष प्रधान समाज में स्त्री को कमजोर व लाचार समझा जाता है।

युवा महिलाओं की स्थिति से तात्पर्य यह है कि समाज में विशेष रूप से स्त्रियों का क्या स्थान है उन्हें पुरुषों से ऊँचा से ऊँचा बराबर या नहीं माना जाता है।

आज नारी समाज की मुख्य धारा से जुड़े रही है भारत समेत विश्व में कईऐसे देश है। जहाँ युवा महिलाएँ बखूबी देश का नेतृत्व कर रही है। उनकी समष्टिगत चेतना का विकास परिस्थितिजन्य नहीं है बल्कि इसके बीच तो पूर्वकाल से ही अंकुरित हो रहे थे। रजिया सुल्तान, बेगम नूरजहाँ, महारानी इलिजाबेथ, मारग्रेट थ्रेचर आदि ऐसे नाम है। जिन्हांने इतिहास के पन्नों पर अपनी अमिट छाप छोड़ी है।

मध्यवर्गीय परिवार में युवाओं की स्थिति

मध्यम वर्ग सामाजिक पदानुक्रम के बीच लोगों का एक वर्ग है। सामाजिक-आर्थिक दृष्टि से, मध्यम वर्ग समकालीन समाज में लोगों का व्यापक समूह है, जो सामाजिक-आर्थिक रूप से 3 श्रमिक वर्ग और ऊपरी वर्ग के बीच आते हैं।

युवाओं की सामाजिक स्थिति के कारण

एकल माता-पिता परिवार—समस्याएँ हर शुरू होती है। एकल माता-पिता के घ्रों की संख्या में लगातार वृद्धि हुई है। आज 28 लाख बच्चों के लिए 14 लाख एकल माता-पिता जिम्मेदार है। एक बच्चे की स्थापना करना दो माता-पिता के घर में काफी मुश्किल है। खासकर कठिन आर्थिक परिस्थितियों में स्थिति केवल जब भी एक ही माता-पिता है, तब भी सख्त है।

औषध/अल्कोहल का दुरुपयोग—एक समय था जब युवा को बच्चों का आनंद था आज यहाँ तक की शुरूआती उम्र में भी युवा गंभीर परिणामों के साथ व्यस्क गतिविधियों में भाग ले रहे हैं। आज के युवा अल्कोहल और ड्रग्स जैसे नशीले पदार्थों का सेवन कर रहे हैं। उसके साथ लिंग एक बहुत ही लोकप्रिय और चित्रित विषय है। फिल्मों, टी.वी., इंटरनेट, अनिवार्य रूप से हर जगह एक बच्चे ने उसे यौन-सुझावों के साथ बमबारी कर दिया है।

युवाओं में जीवन साथ चुनाव की समस्या

विवाह करने का उपयुक्त समय युवावस्था ही है। यही समय है, 'उपयुक्त जीवन-साथी के चनयन का' जब बालक युवा हो जाता है तथा पढ़-लिखकर नौकरी करने लगता है। इसकी प्रमुख समस्याएँ कुछ इस प्रकार हैं-

युवा महिलाओं की आर्थिक स्थिति—युग चाहे कोई भी हो स्त्री के लिए सबसे अधिक आवश्यकता आर्थिक निर्भरता की है क्योंकि नारी को पीढ़ी-दर-पीढ़ी का युग दर आधुनिक और पारम्परिक दोनों समाजों में मुख्य रूप से पुरुषवादी सोच से ही जोड़ना पड़ता है।

युवाओं महिलाओं की सामाजिक स्थिति—युवा महिलाओं की स्थिति से तात्पर्य यह है कि समाज में विशेष रूप से स्त्रियों का क्या स्थान है उन्हें पुरुषों से ऊँचा से ऊँचा, बराबर या नहीं माना जाता है।

विद्वानों के द्वारा शोध कुछ इस प्रकार हैं-

(i) कमला भसीन, 'भला यह जेण्डर क्या है' संस्करण-2000

इन्होंने अपनी पुस्तक में लिखा है कि औरतों की परिस्थिति से तात्पर्य है, उनका पोषण स्तर, उनका स्वास्थ्य, बुनियादी जरूरतों व शिक्षा आदि तक पहुँच।

(ii) सेंडरोविटल जे (1998) एडोलेसैंड हेल्थ : रीअसेसिता द पैसेज टू एडजट हूड वाशिंगटन डी.सी. वर्ल्ड बैंक-

यह रिपोर्ट युवाओं के स्वास्थ्य समीक्षा के बारे में है। जिसमें स्वास्थ्य प्रजनन के बारे में ज्यादा जोर दिया गया है।

अध्ययन पद्धति—प्रस्तुत शोध की अध्ययन प्रणाली निम्न चरणों पर आधारित है। यह एक सामाजिक घटनाओं सामाजिक जटिलताओं सामाजिक जीवन के बारे में नवीन तथ्यों की जानकारी प्राप्त करना सामाजिक शोध है।

अध्ययन का उद्देश्य

- मध्यवर्गीय परिवार की पारिवारिक संरचना को समझना।
- मध्यवर्गीय परिवार में पुरुष की स्थिति को जानना।

- वर्तमान समय में मध्यवर्गीय परिवार में पुरुषों की भूमिका की समीक्षा करना।
- वर्तमान में महिलाओं की पद स्थिति को जानने की कोशिश करना।

तथ्यों का संकलन के श्रोत—इसके अंतर्गत तथ्यों का संकलन दोनों स्त्रोतों प्राथमिक द्वितीयक का प्रयोग किया गया है।

प्राथमिक स्त्रोत के अंतर्गत अवलोकन, साक्षात्कार, अनुसूचि का प्रयोग किया गया है। जबकि द्वितीयक स्त्रोतों के अन्तर्गत किताबें, पत्र-पत्रिकाएँ, डायरी, नेट इत्यादि का प्रयोग किया गया है।

सारणी-1

आपकी पारिवारिक संरचना

उत्तर का स्वरूप	उत्तरदाताओं की संख्या	प्रतिशत
एकल परिवार	40	80%
संयुक्त परिवार	10	20%
अर्द्ध संयुक्त परिवार	00	00%
कुल	50	100%

मैंने 50 युवाओं से पूछा कि क्या आपकी पारिवारिक संरचना कैसी है ? तो 40 प्रतिशत युवाओं का जबाव था एकल परिवार और मात्र 10 प्रतिशत युवाओं का जबाव था संयुक्त परिवार था।

इससे स्पष्ट होता है कि आज के युवाएँ अधिकतर एकल परिवार के साथ ही रहते हैं।

सारणी-2

परिवार में निर्णय कौन लेता है

उत्तर का स्वरूप	उत्तरदाताओं की संख्या	प्रतिशत
माता	10	20%
पिता	35	70%
माता-पिता	4	8%
अन्य	01	2%
कुल	50	100%

मैंने 50 युवाओं से पूछा कि क्या आपकी परिवार में निर्णय कौन लेता है ? तो अपना उत्तर था 20 प्रतिशत माता, 70 प्रतिशत पिता, 8 प्रतिशत माता-पिता दोनों तथा 2 प्रतिशत अन्य।

इससे स्पष्ट होता है कि आज भी हमारे मध्यवर्गीय परिवार में निर्णय लेने के अधिकार पुरुष को ही मिलता है।

सारणी-3

बाहर के कार्य

उत्तर का स्वरूप	उत्तरदाताओं की संख्या	प्रतिशत
माँ	06	12%
पापा	24	48%
भाई	17	34%
बहल	03	6%
कुल	50	100%

मैंने 50 युवाओं से पूछा कि क्या आपके घर में बाहर के कार्यों को कौन करता है? तो उनका उत्तर था 12 प्रतिशत घरो

में माँ, 48 प्रतिशत घरों में पापा, 34 प्रतिशत घरों में भाई तथा 6 प्रतिशत घरों में बहन बाहर का कार्यों को करती है।

निष्कर्ष

हमारा प्रस्तुत शोध का शीर्षक 'मध्यवर्गीय परिवार में युवा की स्थिति एक सामाजिक तथा आर्थिक अध्ययन : पटना जिले के संदर्भ में' जो एक समाजशास्त्रीय अध्ययन है। इस शीर्षक के तथ्यों का संकलन, विश्लेषण हेतु प्राथमिक एवं द्वितीयक स्रोत का प्रयोग किया गया है जिसके आधार पर यह निष्कर्ष निकलता है कि समाज एवं मध्यवर्गीय परिवार में आर्थिक और सामाजिक स्थिति आज भी वर्तमान समय में भी काम है। जो मध्यवर्गीय परिवार में युवाओं की आधारभूत इकाई होती है, जो समाज को आरम्भिक आधार प्रदान करती है।

सुझाव - (1) मध्यवर्गीय परिवार के शैक्षणिक स्थिति के बारे में जानकार और प्रत्यनशील होना चाहिए।

(2) मध्यवर्गीय युवाओं को रोजगार में तकनीकी और प्रौद्योगिकी शैक्षणिक के बारे में जानकार और प्रयत्नशील होना चाहिए।

(3) मध्यवर्गीय युवाओं को रोजगार में तकनीकी और प्रौद्योगिकी शैक्षणिक के बारे में जानकारी देना चाहिए।

(4) मध्यवर्गीय परिवार में युवाओं को सामाजिक तथा आर्थिक स्थितियों में अपने परिवार को सर्वांगीण विकास में सहायता करनी चाहिए।

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- www.google.com/research

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हमारा संदेश (OUR MESSAGE)

जागृति (Awareness),

मैत्री (Universal Brotherhood),

प्रगति (Progress)

मगध महिला कॉलेज

पटना विश्वविद्यालय