PROCEEDINGS OF TWO DAY NATIONAL CONFERENCE ON

ADVANCES IN LIFE SCIENCES

5th & 6th December 2019

Convener
Dr.V.Krishna Reddy

Co-Convener
Dr.B.V.Appa Rao
Dr.J.V.ShanmukhKumar
Dr.G.Sunita sundari
Dr.S.Lavanya

Organized By
FRESHMAN ENGINEERING DEPARTMENT

Two Day National Conference on ADVANCES IN LIFE SCIENCES (AILS-2019)

5th& 6th December 2019

SOUVENIR

Convener

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Dr.G.Sunita sundari

Dr.S.Lavanya

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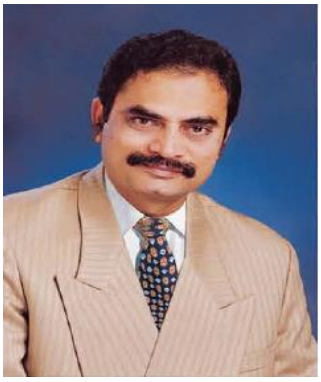
By

Freshman Engineering Department

K L E F
KONERU LAKSHMAIAH EDUCATION FOUNDATION
(Deemed to be university estd, u/s, 3 of the UGC Act, 1956)
(NAAC Accredited "A" Grade University)



PRESIDENT'S MESSAGE

An engineer needs to use mathematics and apply science for engineering solutions to many types of problems pertaining to different disciplines.

Proper knowledge of mathematics is the prime requisite requirement for engineering various kinds of applications. An engineer must know general purpose mathematics and mathematics related to a specific discipline. An engineer having clear knowledge of the mathematics will be able to engineer solutions to the problems that are to be solved with least cost and time.

I am happy that the department of Mathematics, KLEF is organizing two day national conference on "Advances in Life Sciences(AILS-2019)" which is quite apt for every engineering and also non engineering student. Various discussions and presentations on this topic should bring out various present day usages of mathematics using which one will be able to find solutions to complex problems.

I wish the organizers good luck for successfully conducting the National Conference and come out with the proceedings and recommendations which can be circulated to all the engineers for their knowledge and usage of the findings.

Er. KONERU SATYANARAYANA

PRESIDENT

VICE-CHANCELLOR'S MESSAGE

I extend my warm welcome to all the participants and appreciate the Department of Mathematics, K L University for their commitment and superb drive in organizing this "Advances in Life Sciences(AILS-2019)"Conferences are the platforms for academic discourse. I am certain that this platform proves to be a great opportunity for the researchers, postgraduate students and industrial people for strengthening their academic and research aspirations. I believe in the virtual discussions and findings which can be generated only through these kinds of research and development (R&D) activities.

The deliberations of the delegates will undoubtedly generate lots of interesting and innovative concepts which pave the way to industrial commercialization. I extend my best wishes to the students and faculty who are a part of our University and to those who seek to join us in this conference for sharing and creating knowledge. I am sure that you will feel proud of sharing your academic excellence in our vibrant campus and wish you all a grand success.

PROF. L. S. S. REDDY

VICE-CHANCELLOR

REGISTRAR'S MESSAGE

It gives me pleasure to know that the department of freshman Engineering, Koneru Lakshmaiah Education Foundation (KL Deemed to be University) is Organizing "Advances in Life Sciences(AILS-2019)". This programme will be useful for the researchers ,Post -graduate students and Industrial People for their research Programs . The discussions during the Programme will help to solve various Problems which arises indifferent disciplines. I extend my wishes to the delegates who are coming from various parts of India

I wish the Programme to be a grand success

PROF. R.R.L. KANTHAM
REGISTRAR

DIRECTOR'S MESSAGE

I congratulate the Department of Freshman Engineering of K L University in organizing this***Two Day National Conference*** "Advances in Life Sciences(AILS-2019)". I am sure that this conference becomes a right platform for the students, researches and industrial delegates to come up with innovative deliberations. Sciences has become more and more international, and solidarity across countries which has been increasing at a fast pace. It is not just a language of science, but it is also a science of formulating theories for other sciences.

I whole heartedly appreciate the efforts of the organizers of the Department of FED for coming forward with such a challenging theme of contemporary relevance. I hope that this conferencewill definitelybecome a landmark event infacilitating knowledge exchange and research discourse. I wish all the participants of the conference to come up with useful research deliberations.

PROF.A. JAGADEESH

CCO & DIRECTOR-FED

CONVENER'S MESSAGE

It is quite gratifying to note and with great pleasure, I would like to state that the Department of Freshman is hosting its Two day National conference on "Advances in Life Sciences(AILS-2019)" on 5th&6th December, 2020. Organizing such an event at this point of time reinforces our objective of developing an environment for the exchange of ideas towards technological developments. I wish the conference would be able to deliberate on current issues of national and international relevance, particularly in the field of Mathematics Modelling in Ecology, Rough Set Theory and its Application, Game Theory Models and Application WSNs, Life with Mathematics and Integration of Technology in Education. There have been unprecedented numbers of quality papers that are to be presented in the conference. I am sure that this occasion will provide an affable environment for the researchers and academicians to freely exchange the views and ideas with others. I convey my warm greetings and felicitations to the organizing committee and the participants and extend my best wishes for the success of the conference.

Prof.V.Krishna Reddy

CONVENER&VICE-PRINCIPAL

Program Schedule

Two Day National Conference on
Advances in Life Sciences(AILS-2019)
5th& 6th December 2019

Venue: Peacock Hall
K.L.E.F, Vaddeswaram, Guntur(Dt),Andhra Pradesh

Date: **5th December 2019, Thursday**

S.No	Time	Event
	8:30AM-9:30AM	Registration
	9:30AM-10:30AM	Inauguration
		Key Note Address
	10:30AM-11:00AM	Tea break
	11:00AM-11:45AM	Plenary Talk-1
	11:45AM-12:30PM	Plenary Talk-2
	12:30PM-1:00PM	Plenary Talk-3
	1:00PM-2:00PM	LUNCH
	2:00PM-2:45PM	Plenary Talk-4
	2:45PM-3:30PM	Plenary Talk-5
	3:30PM-3:45PM	TEA BREAK

Program Schedule

Two Day National Conference on
Advances in Life Sciences(AILS-2019)
5th& 6th December 2019

Venue: Peacock Hall
K.L.E.F, Vaddeswaram, Guntur(Dt),Andhra Pradesh

Date: 6th **December 2019, Friday**

S.No	Time	Event
	9:00AM-10:15AM	Inauguration
		Key Note Address
	10:15AM-11:00AM	Plenary Talk-1
	11:00AM-11:30AM	High Tea
	11:30AM-12:15PM	Plenary Talk-2
	12:15PM-1:00PM	Plenary Talk-3
	1:00PM-2:00PM	LUNCH
	4:00PM	Valedictory Function

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Grace through Grotesque in Flannery o'Connor's revelation

Kola Aravind[1], Dr. P Venkata Ravi Kumar[2], Dr. Siva Nagaiah Bolleddu[3], Yash Raj[4]

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ABSTRACT:

Flannery O'Connor is an American short story writer and considered a prominent one in the canon of Christian fictional writing. *Revelation* (1965) is one of her most celebrated stories in all of her thirty-two short stories. The select story is an embodiment of her objective of writings. O'Connor believes mankind should know and have God in their lives to realise their spiritual and moral depravity and then can transform themselves to lead a diligent and happy life. The article explores main character, Mrs Turpin of the select story who is in a false assumption of herself as a righteous person and a good Christian. She believes her treatment of poor and lowly people to be right, which in reality is not. This paper explores how God bestows his grace by providing her an opportunity to know her inner self through unexpected, abrupt and grotesque situations. The main projection of her works is spiritual degradation and the emphasis is on the need of god's grace to lead happy and healthy lives.

Index Terms: Grace, God, Self-righteous, Grotesque, spiritual, opportunity.

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Nihilism in Flannery o'Connor's Good Country People

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ABSTRACT:

Flannery O'Connor is an American author and one of the renowned writers in the domain of Christian Realism. Her writings depict the modern world void of God and spiritual morality, which according to her, is already leading humanity towards great devastation. This paper tries to explore the element of nihilism through the main character of the story, Hulga. Hulga is a doctorate and professor by profession. She doesn't believe in God or any moral principles. She assumes of herself as an intellectual and as an individual above others. She gets attracted to a boy of half of her age and tries to establish physical connection with him. She tries to indoctrinate him that it was no wrong deed, but at last she was the one fooled, deceived and left lost raising questions on her own beliefs, intellect and wisdom.

IndexTerms: Nihilism, Spiritual immorality, Humanity, God, indoctrinate, devastation.

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Role of Positive Emotions (PE) and Emotional Balance (EB) during Covid 19

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ABSTRACT:

The Covid-19 pandemic globally made people suffer from depression which lead to massive anhedonia. anhedonia is potentially associated with the feeling that one does not belong to any group(socialanhedonia) and loss of interest in people, and this feeling may lead to social isolation(SI)andultimatelyincrease depressive symptoms and suicidal ideation (Winer, Nadorff, etal.,2014).Numerousstudieshaverevealed that anhedonia is a negative factor for suicidality (Gardet al., 2006; Winer, Nadorff, et al., 2014; Yanet al., 2012). The World Health Organization (WHO) (2018) estimated that approximately 57 million individuals experienced depressive disorders in India. Untreated depression can result in serious consequences such as suicide (Cukrowicz et al., 2011; Farabaugh et al., 2012). One of the most common psychiatric disordersconsistently associated with suicide among adults is depression (Cukrowicz, Ekblad, Cheavens, Rosenthal, &Lynch, 2008).Anhedonia is associated with negative emotions, loss of energy, social withdrawal, decreased pleasure in social situations, decreased response to environmental stimuli, impaired emotional regulation, and a lack of close friends and intimate relationships (Smith et al., 2012; Winer et al., 2015; Winer, Nadorff, et al., 2014).The adverse effects of the COVID-19 pandemic are becoming frighteningly evident across the globe. The psychological toll of this health crisis may be worsening as the number of deaths, mass unemployment, and quarantine measures continue to rise at alarming rates. Hence, the paper examines various associations such as Positive Emotions (PE)and Emotional Balance (EB)among the public in order to subside the psychological anxieties and disorders such as anhedonia and social isolation SI. As per the statistics the Positive Emotions PE have shown to attenuate, where the negative effect reaction to stress (Fredrickson & Levenson, 1998; Tugade & Fredrickson, 2004).

IndexTerms: Social anxiety & stress, Positive Emotions , Social anxiety disorder, Emotional Balance EB, Threat, attention, Factor analysis, Anxiety, Depression, Death anxiety.

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Multifarious mysteries interpretations of select Hindu temples

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ABSTRACT:

India is a land of sanctity and Temples. Temples play a pivotal role in the day today of everyone's lives. Irrespective of caste creed and region people throng temples all the time. Visiting temples is apart and people are accustomed to visiting temples either in difficulties or when blessed. Humans believe that God sorts out miseries and in the second case, they throng the temples to show their gratitude to God for the favors bestowed on them. There are temples which have special powers like Tirupati Balaji Temple,Vaishnodevi Templein Kashmir, Kailash Temple, Shiva temple at Varanasi. There are other category of temples in India which are akin to some kind of mystery and mysterious happenings in them. This mystery is beyondscience and human knowledge as none could find an answer for ages! First of all, Hindus particularly in India and many Asian countries, visiting temples has become a kind of routine ritual. In fact, people hear something mysterious and unusual happenings and beliefs. However, there are certainties which follow suit. The fear of doing wrong, expecting the grant of favors by god when he is invoked through the pilgrims prayers and removal of disasters, difficulties and sorrows; these are typically the reasons why people always keep visiting different temples. They travel long distances despite the expenditure involved. They offer huge amount of money as offerings and drop the money in the Hundi (offerings collection chests) By hook or crook people want their desires to be fulfilled, wishes to be granted and enjoy the fruits of their prayers. This very faith makes them all happy. Anyway, nothing lasts forever, even your difficulties. The world and human life is always propelled by the wants to live a trouble free life. This research paper investigates architectural constructions and mysteries hidden in designing contemporary Hindu temples in India. Several temples, designed and put up in contemporary times, continue with the traditional ways of Indian temple architecture. These have beenconsidered as places of great spiritual power and significance. Since for many scholars have studied these places and their tradition and some excellent work has already been done which gives considerable insight into these aspects. This paper discusses some of the hidden mysteries in Hindu temples in India. The intention to pursue this study further is to gain a greater understanding of the relationship

between the spirituality and beliefs of people on these temples. Hence, this paper deals with the key aspects such as mystery and sanctity temples wallowing in misery in multifarious interpretations of select Hindu temples.

Index Terms: Sanctity, pilgrims, unusual, human life, gratitude, difficulties.

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Waiting for Godot and Waiting for Mahatma- Similarities and Disparities

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ABSTRACT:

Waiting for Godot is an absurd drama. Waiting for Mahatma is an extremist play. Becket in his play *Waiting for Godot* tries to project two characters in the play wait for the Godot. These two characters wait for someone. This is an existential drama. There is no hope for the characters. The conversation between two characters emphasizes the struggle for existence which is the ultimate purpose of life. From this drama, it is clearly understood that there is no hope for humans especially in drama.

R.K.Narayan in his play *Waiting for Mahatma* depicts the struggle of a main character. This paper analyses to present the struggling of a man in existential drama and in another play, it is the struggle of an extremist character. We also would like to analyze that how the titles same words waiting for is used, how they are similar and how they are different. By providing the comparative study I would like to elaborate the concept of waiting for in these two plays.

Though these two plays have a few similarities, first play the waiting is for nothing. In the second work the waiting is for someone which instigates some hope. This hope may change the history of country. The comparison between these two works is analyzed in this paper.

IndexTerms:Absurd, existentialism, comparison, drama, hope, human life, struggle, nothing.

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Promotion of Nationalism in Saint Joan by George Bernard Shaw

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ABSTRACT:

Saint Joan is a play where woman is canonized for her pride feeling towards her nation. Through this play George Bernard Shaw tries to promote national spirit. Saint Joan has tried to free her country from British rulers. This is against the church rule. The church authorities want to suppress national feeling and they consider that it may destroy the conventional rules and disturbs the society. Church people don't want to develop such kind of feelings among their people. Saint Joan is trying to develop nationalism in her country. They consider it a mistake and they burned her. Later all understand Sian Joan and she was canonized. With this Shaw wants to give the readers the importance of Nationalism in modern days. This paper analyses how Shaw promotes nationalism in his play.

Most of Bernard's plays depict modern society and tradition values. His focus is related to national spirit. He wants to improve national spirit in his works. How an individual suffers between his own identity and the existing power. There is a struggle between church authority and autocracy. Bernard Shaw criticized this. He says that individual freedom should be there to serve the nation. This he explained in his plays.

IndexTerms: Nationalism, tradition, church, authorities, values liberty, freedom, power.

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Exploring Virtual Reality (VR) Tools to Develop Business Communication

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ABSTRACT:

English is considered as one of the major international business language. Numbers of technologies have come up to improve the language learning process in this area. Present the entire world has different scenario. The new normal situation has given many opportunities to learn the language especially, English for non-native speakers through one of the immersive platform, which is Virtual Reality. This particular technology is very much useful to many, who can encounter numerous difficulties in English and would like to accustom to the new culture and environment. In order to remain competitive in business world, striving individuals need to improvise fluency and competency.

Most of the jobs, the learners come across a point where they benefit from considering business specific English. Present paper helps the learners how Virtual reality (VR) lets the learners to practice business related scenarios in a practical way. It also deals with such situations where the learner can take the full advantage of their career potential. Mixed methodology has used to prove the results. As a part of this survey questionnaire was used to gather the data for this study. The learners were responded positively with the use of Virtual Reality techniques are suitable to be implemented as learning and teaching tool to improve the language learning process, specially for Business English vocabulary learning enhancement.

Index Terms: Scenario, Immersive, Virtual reality (VR), Fluency, Competency, Questionnaire, Teaching tool, Enhancement.

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English Language Teaching to Young Learners in the Socially Distanced Classroom: An Analysis

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ABSTRACT:

It is understood by the academic communities that during the lockdown times, learners have to be more self-reliant, take responsibility for their learning through online mode with the help of required technical gadgets, and manage their time schedules. They are deprived of any choice but to find out a solution to their problems on their own in the absence of their classmates and their language teachers nearby to approach. As lockdown is partially waived off in some places, young learners are starting to attend their language classes. In a way they feel more relieved from the sense of isolation they felt at home during this lock-down period is over. But things have changed. Now they find again their sharing of classroom space, but in the socially distanced classroom and also called by some as virtual classroom. This is a challenging time for English language teachers also. The communicative classroom has undergone changes. How can it be possible to bring back the enthusiasm of students working together and sharing extended and meaningful interaction? Group discussion and pair work could be so difficult and the young learners may have to find new ways for matching with such activities. They have to spend extra time working on their own or as a whole class.

Index Terms: Academic Communities, Self- Reliant, Technical gadgets, Lockdown, Social Distance, Communicative Classroom.

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A study on placement oriented English language skills of technical students

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ABSTRACT:

For over years, all the multi-national companies in India have been testing the English language competency of engineering students at various levels. One out of them is written test. Initially, the basic knowledge on grammar was tested by most of the companies. Except a few like ADP, Accenture etc., focused on testing the language skills of the students at Graduate Record Exam (GRE) level. There was a paradigm shift in 2014 by TCS in testing students' language skills.

For the first time, students' writing ability was tested. Interestingly, the evaluation was done by machine instead of man like in *Test of English as a Foreign Language (*TOEFL) writing module.

Since then, the students of every batch have been facing challenges in taking the tests on English grammar, vocabulary, and composition. This paper chiefly focuses on bringing out the latest adaptions among the test-givers. The objective of the paper is to report the most recent testing patterns in English grammar, vocabulary, and composition. This can make the instructors focus on training the students as per the demands of the industry.

Index Terms: English grammar, Vocabulary, Composition, and Testing.

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Metacognition for English Language Learning

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ABSTRACT:

The Kingdom of Saudi Arabia focuses on various businesses and private sectors other than oil, considering its ambitious plan of Vision 2030. The future generation, the students, will make the kingdom achieve its vision. To achieve it, they need to be proficient in English language. It is a preferred language for business correspondence, particularly international business. Students get stressed to learn the language as it is a foreign language for them at College of Business Administration in Prince Sattam Bin Abdulaziz University (PSAU). Metacognition is a plausible way to address this problem. Training on the use of metacognitive strategies can target the aspects like improving learning performance, learning new strategies, and increasing self-confidence. The first-year students of Bachelor of Science and Business Administration (BSBA) program are divided into experimental groups and control groups. 52 items of Metacognitive Awareness Inventory are administered to 203 students. Items are categorized into Knowledge about cognition and Regulation of cognition with two and five subcategories in each, respectively. The results show that the experimental groups' English language learning ability is not as expected. Analysis and implications are discussed.

Index Terms: English language, meta-cognition, meta-cognitive strategies, meta-cognitive awareness inventory.

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Critical Appreciation of Short Story

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ABSTRACT:

Readers derive pleasure from reading a shortstory. Teachers should encourage the students to read thestory and appreciate it. Short stories are not meant forteaching at least at undergraduate level. Teachers should nottry to teach the story by interpreting or translating it. Insteadteachers should put forward the events, characters and actionof the story. Undergraduate students should be able to analyzethe short story critically. Critical analysis is a way to expandon merely reading a short story. Students learning criticalappreciation of story help them in expressing their ideasclearly. This paper highlights the importance of teachingstudents how to appreciate the short story critically atunder-graduate level and the way the researcher dealt with theshort story in his class.

Index Terms: Appreciate, Translate, Short story, Interpreting, Critical analysis, Researcher analysis.

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Code switching - an overview

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ABSTRACT:

In the past decades, the study of Code Switching has attracted considerable attention. CodeSwitching and Code Mixing are the two linguistic phenomena claimed to be the most prevalentand common modes of interaction among bilingual speakers. Research into Code Switching hastraditionally been carried out from one of two perspectives, namely a grammatical perspective or a sociolinguistic perspective. But this paper aims at exploring how and whether Code Switchingand Mixing are beneficial in language learning environments. What is Code Switching?Bidialectalism Code Switching and Vernacular Code Switching, difference between CodeSwitching and Code Mixing, difference between Bilingual Method and Code Switching, somemajor factors of Code Switching and finally how Code Switching helps the minor languages anddialects for their existence. Since it is widely regarded as an effective social skill incommunication, it is worthwhile to introduce in classrooms and analyze the relevant theory sothat students can use it in a way better.

Index Terms: Code Switching, Code Mixing, Linguistic Phenomena, Bilingual Speakers, Learning Environments.

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Importance of learning technical vocabulary by the students of polytechnics in Andhra Pradesh

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ABSTRACT:

Words are of utmost importance in any form of communication in any given language. Mastering English also can be done only by gaining competence over its vocabulary. Indian students in general, students of Technical Education in Andhra Pradesh in particular find it difficult to master English vocabulary. More over there is a lot of difference in English to be learnt by student of general course and a student of technical course. A technical student is expected to prepare a project report, present papers, write for journals and do a lot for which he requires a lot of technical vocabulary. Unfortunately a technical student in Andhra Pradesh is unable to get the required technical vocabulary as it is not given importance in the curriculum. This paper addresses the problems faced by polytechnic students in learning vocabulary, the short comings of materials, methods to follow and the other related issues.

Index Terms: Words, Vocabulary, Technical students, Curriculum.

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Graduate employability: The role of universities

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ABSTRACT:

Employers believe that graduates are not job ready and lack some of the most important skills needed for obtaining and retaining employment. The shortage of trained and adequately skilled graduates is emerging as a significant challenge to our nation. This paper makes an attempt to throw light on the responsibility of universities to embed employability skills into the curriculum to make the students job ready. The two major tasks before every graduate are obtaining a suitable job and retaining it with the skills they possess. This paper makes an effort to explore the steps to be taken by universities to transform the graduates developing a liaison between the industries and universities to embed employability skills into the curricula to promote the growth of the nation. It lays emphasis on the steps to be taken by the Indian government to bridge the skills gap and make its rich human resources job ready.

Index Terms: Universities, Skills gap, Curriculum, Employers, Employability, Employment.

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Inter-textuality and Integration of Religion into Literature in the Writings of Jane Austen: An Analytical Interpretation of Characters in the Filmic Representation Pride and Prejudice

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ABSTRACT:

Jane Austen is the most tranquil and transforming author of the nineteenth-century feminine novelist who intended to merge religion and literature. In her writings, Jane Austen canonized the materialistic and mortal human life with the integration of religious writings with the characters of her novels. The religious overview and outlook are cleverly concealed and coherently connected with the religion more in the characters in her most revered and recognized novel of all times Pride and Prejudice. Jane Austen's efforts in integrating religion and literature opened a new room for interpretation of the middle-class and women lives which are surrounded by the fluctuations of economy, emotions and relationships. As a feminine author who spent most of her life ina religious familyof a pastor and in domestic duties, Jane Austen had a better understanding and awareness of the women's social struggle and the middle-class people's quest for status in the society. This research paper is an interpretative attempt in exploration of the holistic human perfection portrayed through the characters of Pride and Prejudice.

Index Terms: Inter-textuality, Religion, Seven Deadly sins, Interpretation, Relationship.

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Vocabulary Acquisition: The role of English movies in the language labs

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ABSTRACT:

Vocabulary plays a pivotal role in the acquisition of a language. Linguists believed that the knowledge of 2000 words in a language helps an individual to communicate in a particular language without any difficulty. Acquiring more words in a language makes one's written and spoken communication precise and effective.

Do the engineering students have this minimum range of vocabulary? Are they unable to learn the minimum number of the required words? These questions may not be answered with concrete evidences. But, the fact is, though an engineering student has the capacity to learn many words, due to lack of systematic learning, he could not make use of even the acquired words during communication.

This paper proposes to enrich the vocabulary of the students using English movies as learning material in the language lab.

Index Terms:Human memory andVocabulary, contextual learning, learning of pronunciation, learning with enjoyment, development of life skills.

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The role of a myth in Chinua Achebe's *Things Fall Apart*

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ABSTRACT:

Archetype and myth writing is common in English literature. These help writers to highlight some points which they want to mention in their writings. Chinua Achebe in his novel *Things Fall Apart* uses myths which highlights and gives a clear picture of Nigerian culture. Myths are special to any community. The usage of myths in *Things Fall Apart* clearly portrays the nativity. This nativity highlights the culture of particular society. To study the culture of particular community, myths are the guiding sources. We would like to analyze the myths used by Chinua Achebe in his novel. We also want to provide how he has used to bring the native culture in his novel.

Archetype criticism is introduced by carl Jung in 1970s. He gives the clear picture how archetype effects the writing style of an author. Later it is further developed by Canadian writer Northrop Frye relating myths to nature. Each season is connected to one kind of drama in his writing. This is a revolutionary change in fiction. Basing on his works many writers developed myths and archetypes. This paper is analyzed basing on the theme given by these two writers.

Index Terms*:*Myth, archetype, seasons, folklore, culture, tradition, beliefs, nativity.

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Illusions elevate T.S.Eliot's *The Wasteland*-An analysis

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ABSTRACT:

T.S.Eliot's famous poem "*The Waste Land"* has many literary elements. Every line in the poem suggests different concepts. In this paper we would like to present the use of illusions in the poem. The illusions alleviates T.S.Eliot's poem. The overall theme of each section depends on illusion. The symbolic representation of illusions with reference to the poem helps writer to present his ideas clearly. The myths, symbols, used by Spencer, Chaucer, and Shakespeare etc. are directly connected with the theme in the poem. These illusions help T.S.Eliot to present different styles in his poem. In this paper we would like to analyze each illusion and how it works T.S.Eliot to his work by using his unique writing style.

According to T.S.Eliot, modern world becomes barren due to many reasons. The reasons are elaborated by comparing the pre-war world with post-war world. To explain this, he has taken many quotations from different writers. His borrowings are not confined to one country or one myth. His work all important myths and due to these myths, his work has become universal. This universality creates an impression to the reader that he knows all the points discussed in the poem. This is the main reason for the popularity for the poem.

Index Terms:Fragmentation, illusion, highlight, universality, barren, dry, quotations.

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Social Etiquettes and Manners help to build up good relations

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ABSTRACT:

Good manners are an important thing to have since it shows that you are courteous to other people. Having good social etiquette can help you develop better relationships and make you more enjoyable to be around. ... the communicators should maintain etiquette while they are online, so they do not offend each other. Etiquettes and Manners help to build up good relations by respecting each other. It adds value to their personality at a place. A person who has good Manners and proper Etiquette is always lead a successful career. It is the primary responsibility of parents to teach good manners to their children so that when they grow-up, they become well behaved and well-mannered adults equipped with social niceties. If the person is senior, please stand up, and do not sit before the person sits. In case the person does not wish to sit and is speaking to you, please do not sit while the person is speaking or vice versa. Whenever you seek any help, favor etc. from someone, you should always use polite language which is accepted socially. This word 'please' is very pleasing to the person it is said to, and it shows gratitude. Thanking a person for a favor, work, help etc. is a basic courtesy. You do not spend any money in thanking someone for the above actions; at least you earn their goodwill by doing so.

Index Terms: Good Manners & Social Etiquettes, Please, Thank You, Sorry.

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Analyzing audience is the key characteristic of public speaking

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ABSTRACT:

When you are speaking, you want listeners to understand and respond favorably to what you are saying. An audience is one or more people who come together to listen to the speaker. Audience members may be face to face with the speaker or they may be connected by communication technology such as computers or other media. The audience may be small and private, or it may be large and public. —their general age, gender, education level, religion, language, culture, and group membership—is the single most important aspect of developing your speech. Analyzing your audience will help you discover information that you can use to build common ground between you and the members of your audience. A key characteristic in public speaking situations is the unequal distribution of speaking time between the speaker and the audience. This means that the speaker talks more, and the audience listens, often without asking questions or responding with any feedback

A key characteristic of public speaking situations is the unequal distribution of speaking time between speaker and audience. As an example, the speaker usually talks more while the audience listens, often without asking questions or responding with any feedback. In some situations, the audience may ask questions or respond overtly by clapping or making comments. what it would be like to start your presentation and wonder why no one in the audience is the least bit interested. Or they fidget or simply just walk out. Or you feel like you are in the wrong room giving your presentation.

Index Terms: Knowing your audience, analysis: communication. Technology, public speaking , presentation.

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The Role of Teacher in Imparting Speaking Skills in English Language Teaching

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ABSTRACT

This paper explores the relationship between the traditional role of a teacher and the recently emerged trend which has widened the scope and role of a teacher in imparting speaking skills in English Language Teaching. The role of a teacher according to Grammar Translation Method in imparting speaking skills is generally limited to reading of the contents and explaining them. This method hardly provides an opportunity to learners to speak and thereby it fails to achieve a positive outcome regarding speaking skills. The Communicative Approach facilitates the teacher to provide students with a plenty of opportunities for speaking in various contexts such as during group discussions, debates, and public speaking practice. The objectives of this paper include the study, observation, experimentation, and documentation on control and experimental groups in an academic institution to measure the efficiency of the communicative approach tangibly. This research needs to be carried out with the help of triangulation method which combine both the quantitative and qualitative methods.

Index Terms: Sampling – Random Sampling – Control group – Experimental group – Pre-experiment test – Post-experiment test – Result analysis – data processing – empirical evidence.

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Problems of the Marginalized in Arundhati Roy's *The God of Small Things* – An Analytical Study

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ABSTRACT:

This paper studies the problems of Dalits reflected in Arundhati Roy's *The God of Small Things*. The protagonist, Veluthaand his beloved,Ammuare harassed by several institutions in society. They are deprived of their natural rights: right to love and right live. While Velutha, being a Dalit, is subject to social discrimination by his co-workers, Ammu is neglected as a girl child by her father who often asserts his patriarchal hegemonic power on his wife, Mammachi and daughter, Ammu. The objective of this paper is to study and analyze how the major characters are victimized by various social institutions in society and to trace out the historical social incidents behind the episodes that were reflected in the novel. The research with this objective is to be carried out using dialectical and historical materialistic method. This method is employed in transformative research to study and understand the social conditions of the age in which the story is set and to evaluate the text whether it has any potential to bring in good change in society.

Index Terms: deprivation – marginality – discriminations –miserable living conditions – gender oppression – opportunistic political practice.

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Causes and Influencing factors of Road Traffic accidents treated at NRI General Hospital, AP

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ABSTRACT:

The word accident has been defined as an occurrence in the sequence of events which usually produce an unintended injury, death and property damage. Out of all types of accidents, those caused by motor vehicles claim the largest toll of life and tend to be serious in nature. Death and disability due to road traffic injuries affect all age groups but the most affected are those in the young and productive years of their life. It is estimated that road traffic injuries will make up in the rankings of leading causes of death from 10th in 2004 t0 5th in 2030. The present study was conducted in the Department of Forensic Medicine, NRI Medical College, Chinakakani, from April 2013 to March 2014. The factors taken to enumerate the study are the incidence of deaths time of accident, place of accident, area of accident, status of victim, distribution of offending vehicles and showing delay in hours in transport of RTA victim.

Index Terms: analysis, disability, factors, management, preliminary.

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Demographic Profile of pattern of railway injuries in Warangal Municipal limits, AP

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ABSTRACT:

Accident is an unexpected, unplanned occurrence which may involve injury or it may be defined as an unpremeditated event resulting in recognizable damage. Railway related injuries are not those uncommon occurrences in forensic practice. Among the varied presentation of injuries, superficial injuries along with fractures were commonly observed. Over the last 15 years many railway accidents have happened in Andhra Pradesh and in India. Following these train accidents, there has been a large amount of public debate about safety management on the Indian railways. These accidents have raised issues regarding the effectiveness of the safety management of the railway system. This paper presents a summary of the results of a preliminary systemic analysis of several rail accidents in and around Warangal City. The present study was conducted in the Department of Forensic Medicine, Warangal Medical College, Warangal, from January 2013 to June 2014 i.e., 18 months, during which the total postmortem cases were 74 occurred in the jurisdiction of the Govt. Railway Police Station, Warangal. The factors taken to enumerate the study are the incidence of deaths month wise, age and sex, marital status, scene of offence and habitat during railway accidents.

Index Terms: analysis, damage, factors, management, preliminary.

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The relevance of Functional English for second language learners

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ABSTRACT:

This paper emphasizes the relevance of functional English for Second Language Learners. In the fast growing globalized world, all of us are communicating with many people whose cultures are different. In this situation, relevance of learning Functional English for Second Language becomes self-evident. It serves as a bridge in connecting with other cultures and to carry on with business transactions in a horizontal way. English as a second language (ESL) is often used for nonnative English speakers. It also describes about the factors influencing the second language learning which includes cognitive influences.

Index Terms: Functional English; English as a Second Language (ESL); Cognitive Influences.

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Study of Arun Joshi novels' in a psychoanalytical approach

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ABSTRACT:

India has proffered a significant contribution to the global literature, particularly in the arena of fiction writing. Charismatic Indian writers laid an elegant foundation to the Indian English Literature. Every day new theories are coming up and the writers of work of art are adamant to apply them as devices of their novels. In fact the fictionalist explored the history in a more brilliant and delightful than the historian. Critically speaking, the fictionalist interprets the human aspects and peculiarities but not concerned with the historical significance. Indian English fiction has been involved in giving Indian expression of the modern predicaments and continues to reflect various ranges of issues like nationalism, social realism, freedom struggle and individual consciousness. The contemporary Indian fiction writers have been trying to give a new shape and color to Indian English fiction by portraying variegated pictures of life from various lands. Arun Joshi is one of the most brilliant Indian fiction writers who depicts modern man in his novels as hovering between despair and delusion. Different kinds of human relations are portrayed and analyzed through the different social settings. The novels of Arun Joshi guide us to the contemporary problems of our society and the regard in them centers round the psychological development of characters. The Gandhian ideology of self-sufficient which is considered as the superstructure element of the Indian life has become the centrality of all his novels. Arun Joshi records the constant shifting of angst and mental dispositions which are common elements of the protagonist in all his novels with varying emphasis.

Index Terms: modern society, individual consciousness, despair and delusion, psychological problems and angst.

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The Turmoil Of India In The Twilight Years Of British Empire – In Nayantara Sahgal's Novel "Mistaken Identity"

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ABSTRACT:

Nayantara Sahgal is the author of nine Novels, ten works of non-fiction and wide-ranging literary and political commentary. She has received the Sahitya Akademi Award, the Sinclair Prize and the Commonwealth Writer's Prize. The Novel "Mistaken Identity" is an elegant, adroitly constructed, mordantly written story of the playboy Bhushan singh, son of the Raja of Vijaygarh. He is arrested and thrown into jail and charged with treason. The Novelist successfully depicts the British officers' partial Judgements, tortures of Indian National Activists and the prison rules. As news of violent world events penetrates the prison walls – civil war in Turkey, the rise of Mussolini, Gandhi's Dandi March, mass arrests, the death of hunger-strikers in Lahore – Bhushan discovers that fate has played a cruel trick on him. The present paper is an attempt to bring out the story of a love and obsession that brilliantly summons up the turmoil of India in the twilight years of empire.

Index Terms: Partial Judgements, tortures, mass arrests, hunger-strikers, penetrates, love and obsession.

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Syntactic and Semantic Error Gravity in Second Language Learning of Intermediate Students in Andhra Pradesh:A Case Study

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ABSTRACT:

Research on second language learning is a broad based and important academic field in multilingual India. It is usually seen as a sub discipline of applied linguistics and closely related to several other disciplines, i.e. sociology, and education. Language learning refers to the retention of knowledge of the second language. Research in the field of second language has developed a great deal since the mid1960s. In the process of research in second language learning, many methods and analysis have come into existence, like Behaviorism, Mentalism, Cognitivism, Contrastive analysis, Error analysis and Error Gravity studies. Though every method as well as analysis has its own strength Error analysis plays a vital role in second language learning. Error gravity studies are a very important concept not popular in India. Error gravity mainly deals with the seriousness and frequency of errors committed by the second language learners. This research paper dwells deep into the insights of Error gravity like how it can be implemented in practice.

Index Terms: Error gravity, linguistics, Error analysis, second language.

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Use of Comparative Method for Developing English Communication Skills among the Engineering Students: A Case Study of Andhra Pradesh

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ABSTRACT:

Comparative method is one of the methods used to compare the languages belonging to same genetic family of languages through cognates. The method for the first time used in India was by William Jones. The method was used to show the genetical relationship among Sanskrit, Greek and Latin languages. The attempt was made in 1786 before the Asiatic Society of Bengal. The present paper aims to describe, how comparative method is used to develop the English Communication skills among the engineering students of Andhra Pradesh. For the study Telugu and English languages which genetically and morphologically different are selected. Male and female subjects are taken into consideration for testing the hypothesis. Finally, this paper aims to discuss the usage and the results of the comparative method for better communication skills among the students of engineering, particularly in Andhra Pradesh.

Index Terms: Comparative method, Genetical relation, Cognates, English language, Communication skills.

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Enhancing Oral Communication Skills in Engineering Students through Contextual Basis

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ABSTRACT:

Oral English communication enhances the adaptability of the students to understand their roles in the present scenario. Hence, many engineering colleges have the aim of Improving students' oral communication skills in English. Is it really helps that student? Unfortunately No. Many activities like role plays and other activities which tested the interpersonal aspects of the students. Creating context and following the context is important in that way he/she can understand the perception of others. And it helps the students to get effective communication skills. It also helps the students to improve their oral communication skills.

Most of the students are not able to understand what exactly communication is. Communication depends on the perception of conversation it may be one to one or one to many. Sometimes communication takes place without any plan and conscious of it. Mainly it involves interaction and transaction which exercises exchange of ideas and information besides influencing each other in the process.

It is identified that the most of the students are not able to reach the targeted goal i.e. a job in campus drive. The reason for this is the most of the students they are unable to understand the context.

Index Terms: Creating context, contextual based learning, Oral Communication, role plays, transaction.

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Communication as a part of career

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ABSTRACT:

Communication skills allow you to understand and be understood by others. These can include but are not limited to effectively communicating ideas to others, actively listening in conversations, giving and receiving critical feedback and public speaking.Communication skills are the abilities you use when giving and receiving different kinds of information. Some examples include communicating new ideas, feelings or even an update on your project. Communication skills involve listening, speaking, observing and empathising. It is also helpful to understand the differences in how to communicate through face-to-face interactions, phone conversations and digital communications like email and social media.There are different types of communication skills you can learn and practice to help you become an effective communicator. Many of these skills work together making it important to practice communication skills in different contexts whenever possible.

Index Terms: Communication skills, speaking, empathizing, media.

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Tradition, Folktale, Culture, & Revolt in *nagamandala*

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ABSTRACT:

Girish Karnad is one of the prominent writers of Indian Drama in English. He is an outstanding playwright of modern India who much focuses on myth, folklore and culture. The present research paper is intended to focus on the tradition, folklore, culture and even revolt in the play *Nagamandala.* He is successful in bringing a drastic change in his female protagonist Rani.

Index Terms:Folklore, Tradition, Revolt, Rani, Myth.

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Socio-religious conflicts in girish karnad's *tughlaq*

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ABSTRACT:

Girish Karnad is the most important Indian English dramatist writing in the post-independence era. He has discussed various themes in his plays such as transfer of responsibility, conflict of doomed ruler, man's eternal desire to achieve completeness, marriage from male point of view, problem arising out of mixing of caste and religion, danger of knowledge without wisdom etc. Girish Karnad is often called a Renaissance Man having historic vision and modern interpretation. The present research paper is intended to focus on the theme of socio-religious conflicts in *Tughlaq* by Girish Karnad.

Index Terms: Conflict, Renaissance, Religion, Doomed Ruler.

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Hankering For Self Identity in Select Works Of Kamala Das

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ABSTRACT:

The present article is the analysis of Kamala's thirst for self identity with special reference to her selected works. The writer presents herself as wounded due to social and familial degradation in her past and present life. The writer can be considered as a rebel against the male dominated society as it voices for the liberation of women's self and tries to create her own identity in such a society. In order to assert kamala Das draws her personal experiences and presents them in her works. In the present article the self is divided into two kinds of self: as an artist and the as a woman. Das tries to establish both strong enough to assert her identity. She differentiates between both and attempts to present the agonies. Self as an artist and self as a woman are wounded not only by the society but also by her family members and relatives and friends. Mainly her works are in a confessional one, but the chief concern of this article will be the search for self identity and self assertion. The article focuses on aspects of self and painful experiences as a writer highlighting her wounded self.

Index Terms** – **Hankering, Liberation, Male -dominated society, Self -identity, wounded self, Rebel, Assertion.

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Poetry –A Powerful Medium for Language Acquisition

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ABSTRACT:

Poetry can be considered as fitting and appropriate tool especially in language learning, because the learner can easily relate structures and themes with the help of poetry. Poetry is a writing that formulates a concentrated imaginative awareness of experience in language chosen and arranged to create a specific emotional response through meaning, sound, and rhythm. Through poetry the learner can learn phonics by listening for and locating rhyming words. A poem can be used to teach sentence structure, parts of speech, and many grammar skills. Poetry can create an interest and motivate the learner to learn a language. We must always remember that our old Fables, Tales and Japanese 'Tanka', were sung and we still remember them by heart. Through poetry the learner of a language can improve reading, listening and speaking skills. Poetry helps the learner to explore the language and thereby improve vocabulary which in turn gives the learner to have confidence to be skilled at in the language. This article focuses on use of poetry in English Language Learning and ways of using poetry in English Language classrooms.

Index Terms : Language, Learning, Pronunciation, Grammar, Motivation, Confidence, Rhythm.

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Syntactic Divergence between English and Telugu Languages

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ABSTRACT:

Globalization, technological developments and the spread of the World Wide Web heralded the way for many countries to exchange information available in English. As major part of the information available is in English, many people like translators, translatologists and other people in the area of linguistics and translation studies have been trying hard to make the information transfer easier in native languages from the English. Though English was introduced almost 200 years ago, today only less than 10% of the people understand the language. Thus there is much gap in the area of translation, language teaching and in divergence studies between the languages. English being distinct language than any other Indian language, it has become a great barrier for translation as well as language teaching and learning. It is crucial that knowledge from one language be translated into another language to make it accessible to Indian masses in their native languages. One of such attempts is English- Telugu divergence studies. The process of studying the morpho-syntactic divergence between these two languages would significantly contributes to the translation process. In this paper it is considered necessary to discuss the structural differences between English and Telugu. This study provide some useful insights applicable in human translation, language teaching, language testing and in the area of divergence studies. The study highlights majority of the prominent differences in both languages that are distinct but problematic.

Index Terms: Language divergence, structure, word order, Ordinal-Cardinal marking, case marking, preposition and postposition.

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Journal Article Abstracts as Authentic Material for EAP Classes

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ABSTRACT:

Authentic materials are widely used in EFL, particularly in English for Academic Purposes (EAP). EAP courses designed to prepare students for a particular discipline such as medicine or engineering, generally use authentic materials relating to those disciplines. However, in general EAP courses, course materials are often taken from non-academic sources such as newspapers and magazines. This article questions the extent to which non-academic materials can provide sound reading practice and writing models for EAP students, particularly those from non-Western backgrounds who need to learn Western academic rhetorical patterns as well as academic English. This article proposes that journal article abstracts be used to create authentic academic materials for EAP classes. Practical suggestions are made for how abstracts can be exploited. Other possibilities for using academic materials in the EAP classroom could be derived from these ideas.

Index Terms: English for Academic Purposes, Abstracts,Rhetoric, Authentic Materials.

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Advancing ELT Material to strengthen LSRW skills in an English Classroom

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ABSTRACT:

This paper illustrates model lesson - plans in line with the primary principles mentioned in English Language Training (ELT). It also highlights on enhancing the LSRW skills, inculcating latest vocabulary functional for real life and promotes the claim in training in the most effective way the acquisition of LSRW skills both for the teachers and learners. Here, the aim of the paper is to explore the students' responsiveness and approach they can employ to facilitate them to cope with intricate LSRW tasks in English, with a particular emphasis on prediction. There is optimism that the subsequent dialogue in the closing period of the lesson will facilitate students to embark on steps forward that they can implement to help out themselves in future LSRW tasks. In the paper we would also like to confirm this model lesson-plan for its own analytical purposes, to congregate further information about the students' feelings about the strategies they already apply. We also intend to outline a framework that can be used to polish LSRW skills and look at some of the issues involved.

Index Terms: ELT, Inculcating, Acquisition, Responsiveness,Facilitate,Intricate, Prediction, Congregte.

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Accentuating the invincible spirit of humanity- kamala markandaya's mirabai in 'some inner fury' in the light of eco-feminism

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ABSTRACT:

The relation between women and environment is ambiguous giving a huge scope for difference of opinion on nature and culture; yet straddling between these two opinions. This paper throws light on the Postcolonial ecofeminism in India both in activism and fiction which overtly focused on women. It highlights women and nature as an illumination of culture dualism explaining how the dualism affects the notions of ecological citizenship. Ecofeminism emerged as discipline basing on the fact that the environmental consciousness in the postcolonial world in terms of activism. Hazel Handerson thinks that Ecofeminism really restores the primitive cultures that worship nature, cultures that are predominantly matriarchal. In this light, the present paper takes Some Inner Fury of Kamala Markandeya and examines Mira, Roshan and Premala how these characters transcend the battering of mischance and emphasizes the unconquerable spirit of humanity.

Index terms:Culture, Dualism, Environment, Ecofeminism, Woman.

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To eventuate beneficiary results through flipped classrooms teaching in professional colleges

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ABSTRACT:

Teaching English to the students in professional colleges is always a heart wrenching challenge for the pedagogies in order to maintain interest and curiosity in the designed courses. Many new trends are emerging in day to day teaching methods and one among such interesting methods is Flipped Classroom Teaching. Majority of the scholars and language learners opine that teaching English in order to raise the level of the students' application and analysis is not everybody's cup of tea. The reasons are many, such as students' background , their to-do-lists in setting up the language learning time, their perception levels, comprehending and retaining the material they learnt etc. In regular classroom situations students are restricted to pay concentration in the stipulated time and asked to retrieve it at the time of recapitulation. The present paper focuses on the flipped classrooms to be followed in professional colleges which help the students to rise to the level of analysis and application. I hope this paper would throw light for the novice and experienced pedagogies to attain best results by subjugating the flipped classrooms in the present mode of teaching methods.

In this paper a clear examination of how students initiate to frame up the tasks and how they tend to raise to the level of the pedagogies in attaining the subject matter is also dealt. The fruitful outcome of the flipped classroom in comparison to the project-based learning is also been focused.

Index Terms:Flipped classroom, analysis, application, pedagogy, project based learning.

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Bringing the English Classroom alive

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ABSTRACT:

This paper attempts to analyses how a 'Felicitator' trains his students, the skills of English language lively. Though the language introduced to the world long back only ten percent can speak fluently. Planning makes the felicitator to complete four skills with in a stipulated time. Felicitator pairs the students into groups, distribute the cards and ask students to think, and ask them to tell each other their ideas and to agree on one piece of theme. When the students are ready, get them to write the story or dialogue. In a controlled class felicitator monitors and help out as necessary. When the students finish writing ask them to give presentation of their story or dialogue. Give a chance to other students in the class to give their own climax if necessary. Ask the students to think of a title and collaboratively it is fixed. The learning here is student-centered approach. In this contemporary world a model of this becomes an implication in teaching- learning activities to higher education.

Index Terms: Felicitator, collaborative, controlled class, student-centred, teaching-learning.

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New women in the novels of Binding Vine of Shashi Deshpande and Manavi of Volga

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ABSTRACT:

The twentieth century female writers in India give their heroines new challenging roles. They are courageous enough to change the pattern of female expression set by age old patriarchal codes of behavior. The aim of this article is to focus on the psychological search of inner mind of Indian women. The protagonists of these novels understand the need for women to safeguard themselves against the destructive power of the patriarchal family and react to the issues against women in the male dominated society. New women emerged embracing untouched values, have a voice of their own, capacity to take decision who had been suppressed for centuries. There are number of Indian novels that deal with women's problems but the solution is only minor given by the writers like stereotypical virtues of the Indian women like patience, devotion and dejected. The protagonists of these two novels are different, Present writers create live characters out of day to day life and avoid creating stiff characters to fulfill their dream. They take the characters common in everyday situations women has to deal with in a society. All these characters share a feeling of isolation and frustration.

Index Terms*: *challenging, courageous, psychological, patience, devotion, dejected, isolation, frustration and self respect

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Elementary and High School EFL TEACHERS' USE OF REVIEW

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ABSTRACT:

Assessment processes and results area substantial tool in providing feedback not only to learners, but also to teachers. Therefore, teachers' conception of assessment is significant in understanding how they make use of assessment as an integral part of their teaching practices. This study aims to identify Turkish EFL(English as a Foreign Language)teachers' use of assessment and assessment results in their instruction. An online factorial survey was given to348primary/ secondary EFL teachers who worked at public and private schools across the country. In addition to participants' demographic information, the data collection tool gathered participants' responses on four main domains (factors):teachers' use of different assessment methods, student involvement in assessment, knowledge on assessing language skills (assessment literacy), and teachers' use of assessment results. Their search has implications for policy makers and language teachers in terms of increasing awareness on learner assessment and practicing alternative assessment methods.

Index Terms: Assessment, Feedback, Integral, EFL,Assessment Literacy, Alternative assessment methods.

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Reflection, Renegotiation, and Human-Animal Relationshipsin Kiran Desai's *The Inheritance of Loss*

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ABSTRACT:

This paper focus on ecological catastrophe and climate change, environmental instability and exploitation, and human onhuman relations in an era that some scholars refer to as the Anthropocene. Analysis of Kiran Desai's *The Inheritance of Loss*is taken as it shares British colonies, the regions consistently identified as at-risk for ecological catastrophes. The formal properties of novel make it productive site for thinking through the way ecological vulnerability is experienced unequally across the globe. Highlighting the factors such as race, class, and indigeneity affect how individuals living in ecologically vulnerable regions experience catastrophe, emphasis is on intersecting positionalities that shape the narrative representation of catastrophe. Relationships with local animal species and the land help environmentally vulnerable populations cope with catastrophe, and that postcolonial texts use the nonhuman to work through violent environmental events. In this way, I foreground the potential contributions of literary fiction to transnational efforts to better understand how postcolonial subjects experience ecological catastrophe and massive-scale environmental change, and how they imagine possible recovery.

Index Terms: Anthropocene, ecological vulnerability, postcolonial, race etc.

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MYTH OF DEVELOPMENT IN GHOSH'S THE HUNGRY TIDE

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ABSTRACT:

Newmaterialism, colonial occupation can be seen 'as a machine' which produces commodities for economic benefits.This 'machine' produces dynamic processes which are an integral part of diverse anti-environmental strategies of the colonizers created to achieve certain goals. Every process be a whole which is composed of systematic underlying process of creating and maintaining the empire. This paper views only three dynamic processes of occupation: Myth of Development, Environmental Racism and Bio-colonization. Ghosh's*The Hungry Tide* draws attention to development as a continuing process of occupation and recognize political relationalities of sustainable development and state vampirism and its effect on Indian environments. It gestures beyond historical discourse to a global context by particularizing issues that affect the planet. It also explores how the colonial tactics of occupation are constructed through the systematic processes of knowing and materializing the colonial subjects. For theoretical framework, this is reliant on Graham Huggan and Hellen Tiffins' Postcolonial Ecocriticism: Literature, Animals, Environment (2010). Textual analysis has been used as a method for the analysis of the selected text, but it is further delimited to Catherine Belsey's concept of historical background and inter-textuality.

Index terms: Myth, Environmental Racism, Bio-colonization, colonial subjects etc.

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CHITRA BANERJEE:THE MODERNIST WITH A CLASSIC TOUCH

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ABSTRACT:

Chitra Banerjee has carved out a niche for herself among women novelists dealing with the Indian diaspora. Particularly impressive is her special ability to deal with the exotica of the New World without losing the nostalgic aura of her native land. This article attempts to trace the nuances of her characterization and her ability to make dramatic juxtaposition of conflicting personalities.

Index Terms - niche, diaspora, exotica, aura,juxtaposition, conflicting.

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SOUTH ASIAN DIASPORIC NOVELISTS: A COMPARATIVE STUDY

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ABSTRACT:

The diasporic writing in South Asia has reached a new level with second generation writers like Mounica Ali, Chitra Banerjee, Elissa Binti Abdul Majjid, Kamilla Shamsie, andYasmine Goonaratne. These novelists have roduced multi-layered works that combine the romantic realism of Dickens and Balzac and the social concerns and gender equity of Anne Bronte and George Sand. The body of work they have produced presents an alternative vision to that of existential writers like Chekov andKafka.

Index Terms: diaspora, multi-layered, gender equity, existentialism, Romantic realism, alternate vision.

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Anita Rau Badami's *The Hero walk*: A Stride towards A Better World

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ABSTRACT:

Anita Rau Badami is a writer of South Asian descent living in Canada.She spent her childhood in India. This made her incline more towards its traditions and culture. This is well understood from her works. In her own words"I don't think I could have written a novel if I had not left India,I find that the distance gives me perspective and passion. I was twenty-nine years in India and ten years here, so I have a foot in India and a couple of toes here. I am both doomed and blessed, to be suspended between two worlds, always looking back, but with two gorgeous places to inhabit, in my imagination or my heart."

In spite her stay in Canada, in the later part of her life, she showed more affinity towards the cultures and myths of her family which associates itself with the Indian soil.This concoction of myths helped in enhancing the formidable storytelling ability and shaped the exploration of heroism that runs all through her works.

Creative writing was the refuge that helped to sustain Badami's love towards India and Canada. Her novels *Tamarind Mem,The Hero's Walk, Can You Hear the Nightbird Call?give her a place in the list of Indo-Canadian diasporic writers. The novelThe Hero's Walkin particular, portrays the life of a traditional Brahmin family struggling to come in terms with the changing conditions in the society.It is about the life of amiddle-aged man Sripati Rao and his battle against the odds of life.His plight caught between the orthodox traditionalismand the modern rationalism is well depicted in the novel.*

Present paper is a humble attempt to sift the changes taking place in the psychological state of the characters and their journey towards a better world.

Index Terms: Affinity, Brahmin family, Orthodox, traditionalism, Rationalism.

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'Hypocrisy' theRealDefinition of Human Nature: George Orwell's *Animal Farm*

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ABSTRACT:

Literature is the documented evidence of man's living. Its primary concern is to portray the changes taking place in social and traditional standards of life with the passage of time. Thecontemporary literature though highlights at other concepts, political and economic standards, the ideals of ethical and moral consciousness are kept alive even in the works of current times.

The writers rely on different sources to bring home their ideology. A few writers prefer didactical way to expose their philosophy. Some other writers try to convey their ideas indirectly. George Orwell's *Animal Farm* is one such allegorical novella which exposes the hypocritical nature of men. Though the novella appears to concentrate on Russian revolution and the advent of communist era, it actually throws light on the real crux of human nature. He portrays the qualities of dishonesty and cunningness, persisting in humans, to animals and tries to convey that the effect precarious human nature would be a threat to the progress of a healthy society. The catastrophic end which is dictated at the end of the novella is obviously the destiny of any society which does not adhere to the principles of loyalty and honesty. The fable though centres round the animals it keeps alive the basic human sentiments and takes the reader into the reality.

Present paper is a humble attempt to expose the moral aspects hidden in the novella. The paper tries to elucidate the contemporary socio- political conditions that influence the nature of man in a society. An attempt is made to understand the true morals hidden in the fable that do apply for the human nature of all ages.

Index terms*: Allegorical, Communist era, Catastrophic, Precarious.*

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ILLUMINATING MULTIPLE OPPRESSIONS IN THE PLAY OF MOTHER OF 1084

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ABSTRACT:

Mahasweta Devi's play *Mother of 1084* (1973) tried to explore the exploitation of an essentially unorganized people whose lives are deep-rooted in history and to offer a vivid portrayal of the rural class and their suffering. Her work analyses subaltern politics and their unending struggle to bring to light their exploitation. Mahasweta Devi, the champion of the downtrodden, was continuously occupied with the diverse struggles and was a part of several organizations despite the travails of her advancing age. She took up these diversified roles throughout her life and the zeal kept hitting a highuntil her last breath.

Index Terms:Exploitation, marginalization, binary opposition, Subjugation, subaltern.

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CHITRA BANERJEE BHARATHI MUKHERJEE & MONIKA ALI: PIONEERS OF ASIAN DIASPORA

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ABSTRACT:

During the last two decades there has been a new trend in Indo-Anglian fiction which veered away from postcolonial euphoria and began addressing the new challenges faced by a new generation. Dropping the ideational and cultural over-dependence on a bygone era, writers began to open up to new reality that marked a virtual independence of the mind. This article attempts to present the pioneeringefforts of Chitra Banerjee and Bharathi Mukherjee who explore the diasporic experiences of Indian immigrants in the U.S.

Index Terms: euphoria, ideational, pioneering, Diaspora, post-colonial.

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WORLD SHORT STORY: THE CREATIVE QUARTET

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ABSTRACT:

The history of the world short story spreads over 200 years and has a much better organized structure and continuum than any other genre. This article attempts to present the broad outline and the major shifts that have influenced the growth of the genre vis-à-vis the other sister genres like the novel and the novella. The specific contributions of four major short story writers Turgenev, Maupassant, Chekov and R. K. Narayan are discussed in detail in tracing the timeline that holds the genre together in a cross-cultural and Inter-continental scenario. In conclusion, the new trends and future line of development are suggested.

Index Terms– Novella, shifts timeline, cross-cultural, denouement,pace,milieu.

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VERSATILITY OF THEME AND TECHNIQUE IN ENGLISHSONNET

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ABSTRACT:

The sonnet, a lyric poem of medium length, is popularizedand perfected by English poets of different periodslike Shakespeare, Keats, Shelley and Elizabeth Barret Browning. The innovations made by thesepoetsare thematic as well as technical. This article attempts to examine the significant contributions made by these poets with particular reference to introduction of the dramatic aspect of the persona and the adaptations and modifications of the format made to suit a less rhythmic language like English, and creation of new spaces for the profound psychological and reflexive aspects of the theme.

Index Terms: *Innovations, thematic, technical persona Psychological, reflexive*

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EXILE LITERATURE: SOME VARIANTS

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ABSTRACT:

Exile literature has always attracted a lot of critical attention because of the poignant issues it raised. Particularly significant is the wide range of variants that the exile of the mind has and the creativity and innovations it sets into motion. Some authors were exiled or ostracized for holding atheistic or radical beliefs. A few others felt that the literary and artistic ambience provided by their native countries was too narrow, conventional and uninspiring. and went search of a more fertileintellectual terrain. A further variant is of authors who remained in their native land but alienated by contemporary socio-political conditions and fought against the angst created by uninspiring and obsolete literary conventions. Another form of exile is a direct outcome of the segregation that was an after-effect of the machination that took hold of the society in the post-industrial revolution of Europe. This article attempts to present a detailed analytical view of the major works and the paradoxical state of mind of the respective authors.

Index Terms: *exile, variant, alienated, machination, angst, after-effect.*

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IMPROVING ORAL COMMUNICATION THROUGH DIRECT METHODIN RURAL SCHOOLS OF TELANGANA

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ABSTRACT:

Proficiency in English language plays an important role in various fields ranging from politics and journalism to everyday communication. Good communication skills will go a long way in developing good interpersonal relationships at the workplace. Subsequent to the advent of globalization and reduction of the world to a global village, the need for proficiency in English language speaking has become much starker. The mobility of people across countries has multiplied manifold and the boundaries between nations have collapsed. Consequently, the need for an international language, which would facilitate social intercourse among people belonging to various languages, arose. English fulfilled that need and emerged as the lingua franca. This paper focuses on one of the best and the most natural way of imparting oral language teaching to the students i.e. The direct method.

Index Terms: Globalization, Lingua Franca, Best Method of Teaching,The Direct Method.

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NEWSPAPERS AS A TOOL IN TEACHING ENGLISH ASA SECOND LANGUAGE

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ABSTRACT:

Teaching English as a second language to the non-native speakers with the help of newspapers is the most natural way of teaching the English language. India is a country with multiple languages. So, English plays a very great role as the lingua franca and helps in intercourse between people residing in various parts of the country. Hence good English communication skills area sine-qua-non for all the Indians. This research paper studies the impact of teaching speaking skills to the secondary school students between grades sixth to tenth with the help of newspapers. This paper also lists out the constraints faced by the author in implementing this strategy. A group of thirty-five students, belonging to the government high School, Rechini, Telangana were enrolled for the purpose of this study. Five students from each class were randomly selected for the purpose of this study.

Index Terms: News Papers, Speaking Skills, School Level, Second Language Teaching.

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THE ROLE OF DIGITAL MEDIA IN IMPROVING VOCABULARY

OF YOUNG LEARNERS AT SCHOOL LEVEL

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ABSTRACT:

The Vocabulary plays a very important role in ensuring fluency of any language in general and English in particular. Many Indian students find it difficult to converse in English fluently as it is a foreign language in India and consequently the students fail to find appropriate words to express their feelings while speaking due to poor vocabulary. As a result many Indian students do not muster up the courage to venture into speaking in English while in a crowd. Conversely, a good vocabulary can ensure that the students have enough confidence to start speaking in English fearlessly. So, improving the vocabulary of the students is a very important part of teaching English language. Improving vocabulary through digital media has the potential to become a powerful weapon in the armoury of the language teachers to boost their wards' vocabulary. Against this backdrop this research paper elaborates the use of digital media in improving the vocabulary of young learners at school level.

Index Terms: Vocabulary teaching, Digital media, foreign language, appropriate words.

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ENGLISH TEACHING DIFFICULTIES IN A LARGE CLASS ROOM

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ABSTRACT:

The purpose of this paper is to enumerate various difficulties faced by English language teachers while teaching in a large class room.Teaching English as a second language (in Telugu states it is 3rd language) in a large classroom is not a mean task. Teaching targets are not reached as many activities prescribed to improve Listening, Speaking,Reading and Writing (LSRW) cannot be taught to the students, owing to paucity of time in a large classroom . Aim of teaching English is to make learn the students the four skills i.e., LSRW In the present scenario, such four skills are extremely necessary to the students to thrive in an ultra competitive world where impeccable language skills are a must. Listening is an initial step in the process of learning. Improper listening will have a telling impact on reading. If reading is faulty, one can never understand the spellings, pronunciation, accent and intonation . It ultimately influences speaking and writing skills. One can not have enough confidence to either read or speak out certain words without clarity over its pronunciation. Therefore the English teacher will have greater responsibility to teach all these skills to the students and evaluate them individually. In a large class room this poses even greater difficulties.

Index Terms: large class room, teaching LSRW skills, individual evaluation.

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SOCIOLOGICAL REALISM IN SHASHI DESHPANDE'S THE DARK HOLDS NO TERROR, THAT LONG SILENCE, ROOTS AND SHADOWS

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ABSTRACT:

Sociological realism means a theory or practice of using appropriaterepresentation and symbol to express a social or political attitude. Thewriters choose to depict the contemporary world in their literature. Theyrepresent the prevailing customs and traditions ad belief system and

social conditions in terms of human relations. Some of them evendescribe the gender, racial discrimination. In every society, women aresubjected to discrimination, Indian society is of no exception. Manywomen writers like Anita Desai, Kamala Markandaya, Ruth PrawarJhabwala and Shashi Deshpande have narrated the two different valuesprevailing in the society viz, one for male and the other for female.These writers have projected the suffering of women in a male

dominated patriarchal society. This paper focuses on how ShashiDeshpande tried to depict sociological realism in her novels The DarkHolds No terror, That Long Silence, Roots and shadows.

Index Terms – Belief System, Customs, Discrimination, Sociological Realism, Traditions.

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Satyavati: The Enigmatic Woman in Kavita Kane's The Fisher Queen's Dynasty

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ABSTRACT:

This paper explores the presentation of myth in Kavita Kane's The Fisher Queen's Dynasty. Myth is represented from a different perspective. The story of mythical characters is no more that of Gods and Goddesses, Kane portrays them as flesh and blood human beings. Interestingly Kane's novels portray and focus the marginal character of Indian Mythology, such as, Satyavati the female lead in the current study, The Fisher Queen's Dynasty. Using mythology as a background, foregrounding the condition of women in a patriarchal social order, the novelist Kavita Kane highlights the quest of women for their identity as a dominant theme of this novel. The paper explores the pivotal role played by the protagonist Satyavati in shaping the plot and the subsequent turn of events and incidents in the novel. The paper further elucidates the journey of Satyavati from being mere fisherwomen to that of the queen of the Hastinapur.

Index Terms – Ambition, Identity, Marginal, Myth, Society.

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Behavioural Study On The ICT By Thesemi Urban Engineering students Of Anantapuramu District.

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ABSTRACT:

Education is the driving force of economic and social development in any country. In this regard, it is necessary to find ways to make education of good quality, accessible and affordable to all using the latest technologies. With the advancement of science and technology, a revolution took place by the rapid development of Information, Communication and Technology. ICT can be helpful in quality and standards of education by implementing it in various phases of education. This paper focuses on the behavioural aspects of students' attitude towards learning a language and its impact on the use of ICT. The research article investigates on the knowledge of students' on ICT and its impact on speaking skills. The methodology adopted was in the form of questionnaire and the findings reveal that there are many parameters which need to be focused on pronunciation, grammar, vocabulary and fluency. Besides this, there are no proper resources for both the teacher and student community for the better quality in the teaching learning process.

Index Terms: Impact, Quality, ICT, Teaching-Learning.

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IMPROVING SPEAKING SKILLS AMONG ST ENGINEERING GRADUATES OF 21 CENTURY VIA ICT TOOLS: A CASE STUDY

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ABSTRACT:

Technology is widely used in the present education system. With the rapid development in society, computer technology and network is playing a prominent role in facilitating language learning. It is mode of communication. In order to communicate effectively, one has to excel their speaking skills. As the world is moving rapidly into digital media and information, various innovative technologies are being introduced to teach speaking skills with the usage of ICT in the 21st century. Information and Communication Technologies (ICT) are rapidly affecting in all aspects of life. It is believed that ICT would bring many advantages to the students, if it is used in a right manner..This paper reflects the use of ICT for improving communication Skills, the challenges faced by the learners in using ICT for improving their speaking skills and a sample test has been conducted in the case of engineering urban graduates in Anantapur district of Rayalaseema region, Andhra Pradesh, India. Data was collected in the form of questionnaire. The findings indicated that the participants spent more time using ICT for private purposes than for learning English. Most of them showed their positive attitudes towards ICT to study English and expressed that ICT should be used more frequently in the classroom in order to maximize language learning and teaching. It also discusses about the lack of training on ICT and English Proficiency and also reveals that English competency is still a challenge for most of the students belongs to urban areas.

Index Terms: Language Learning, Technology, Learning Methods, ICT Pedagogy, ICT in learning,Positive.

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Intersectionality and Matrix of Domination in Manju Kapur's Brothers

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ABSTRACT:

'Intersectionality' is a methodology of studying "the relationships among multiple dimensions and modalities of social relationships and subject formations-as itself a central category of analysis" (McCall 2005). It is based on how the different sociological categories like gender, race, and class interact on multiple dimensions mirroring the systematic social inequalities. The term was first coined by Kimberlé Williams Crenshaw in1989. To her, "[…] intersection feminism examines the overlapping systems of oppression and discrimination that women are subject to face due to their ethnicity, sexuality and economic background" (Crenshaw, Wikipedia). Further, Patricia Hill Collins refers to the various intersections of social inequalities as the matrix of domination to exemplify the position of society which is made up of multiple standpoints rather than a single standpoint. Dill, Bonnie Thornton as standpoint feminists argue that individuals either oppress or oppressed. This enables them to confront oppressive power structures. Manju Kapur characterizes her men and women with 'matrix of domination'. She implicitly portrays how the men and women try to possess one another emotionally and finally becomes the victims of fate and destiny. Marginalization, liberalization and victimization are the quintessential features of men and women in her novels. Though she is well argued as a feminist, she changes her stance partially and reflects how the brotherhood is carried for two generations with sacrifices, admirations which in turn shape the novel towards power struggle and finally honor killing. The present paper makes an attempt to observe how the novelist has reflected the predicaments of men and women in the changing trends of Jat culture.

Index terms: Marginalization, Liberalization, Victimization, Existentialism, Stand point, Matrix of domination and Predicaments, Jat culture.

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Flipping the Classroom with Collaborative Learning: New Direction in ELT

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ABSTRACT:

Flipped classroom teaching is a modern approach employed by the teachers globally. It is teacher/learner-centered method with blended learning that overrides the traditional learning environment. The instructional content is shared with the students before the teacher lectures in the class. Students come to the classroom with prior preparation to carry on the activities. Their participation leads to collaborative learning. Students form their groups to discuss the topic more in-depth and later make presentations. Teachers provide video recordings, DVDs, audio-video podcasts, web-based links, YouTube clippings, and also provide stories, novels, case studies, newspaper columns. Learners utilize the resources at their pace and place of learning. This creates a flexible and personalized learning environment. During class time, the students discuss in pairs and make peer presentations which enhances their team skills. The teacher facilitates and responds to students 'questionswhenever they need guidance and feedback. Teacher's interaction with students in a flipped classroom is more personalized and less didactic, and students are actively involved in knowledge acquisition and construction as they participate and evaluate their learning. The present paper tries to analyze the application of the flipped model pedagogy incorporated with collaborative learning.

Index terms: Flipped classroom, blended learning, personalized learning, instructional, content, collaborative learning.

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Neuro fuzzy system with hybrid ant colony particle swarm optimization (Haso) and robust activation

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ABSTRACT:

Classification is a data mining approach employed for predicting the group membership for data instances. Various classification methods exists, which can be utilized for classification. In the existing work earlier, Neural Network incorporated with Intuitive, Interpretable Correlated-Contours fuzzy rules (IC-FNN) aimed at function approximation was introduced, which is helpful in obtaining correlated fuzzy rules and non-separable fuzzy rules coming under the right optimization problem. Also, Hybridization of Ant Colony Optimization Genetic Algorithm (HACOGA) was suggested for rectifying these problems. It fine-tunes the parameters of the fuzzy rules extracted. Hybridization is used on specific factors and ACO and GA variables, which share few features in the computation. However, the available fuzzy neural network is affected by problems associated with the number of neurons. Generally, neurons make use of activation functions popularly found to get the network response finally. In order to get over these problems in this research work, density based regularization methods and activation functions are presented for the neural network model, permitting the less important neurons to be eliminated. Also the parameter of the fuzzy rules is refined with the aid of Hybrid Ant Colony Particle Swarm Optimization (HASO) to minimize the complexity and search space. The results obtained from experiments reveal that proposed (HASO) help in the performance regularization of FNN in terms of recall, precision, accuracy and F-measure for the Abalone age prediction dataset.

Index Terms – Activation Functions, Classification, Function Approximation, Fuzzy Neural Network, Fuzzy Rules and Hybrid Ant Colony Particle Swarm Optimization, Neurons.

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Second type nabla Hukuhara differentiability for fuzzy functions on time scales

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ABSTRACT

In this paper, we introduce a new class of derivative called second type nabla Hukuhara derivative for fuzzy functions on time scales under Hukuhara difference. We prove existence and uniqueness of this derivative and obtain its fundamental properties.

Index Terms – fuzzy functions, time scales, Hukuhara difference, nabla Hukuhara derivative.

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Similarity and wavelet transform based data partitioning and parameter learning for fuzzy neural network

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ABSTRACT:

Function approximation is an important task in many different fields like economics, engineering, computing, classification, and forecasting. From a finite data set, the basic task of a function approximation method is to find a suitable relationship between variables and their corresponding responses. In the recent past, the improved neural networks including intuitive, interpretable correlated-contours fuzzy rules for classification tasks were proposed. However, the acquired data set can contain large volume of data and noise that degrades the classification ability of the model and increases the computational time. Thus, it is important to consider this problem which was not focused on recent existing works. Furthermore, there are also some neuron regularization issues in the second layer. To solve this issue in this proposed system Bat optimization based feature selection is proposed for optimal selection of features from the available dataset. Then classification is done by using enhanced neural network including intuitive and interpretable correlated-contours fuzzy rules (EC-FR). According to fuzzy rules extraction, an appropriate framework is built-in which similarity-based directional component of data partitioning and also a model to form cloud data is presented. Neurons weight and bias values are computed by adapting wavelet functions. Finally, parameters of the fuzzy neural networks are fine-tuned using the hybrid ant colony particle swarm optimization (HASO). Performance is evaluated primarily in accordance with the subsequent metrics like precision, recall, accuracy, and error rate.

Index Terms – Classification, fuzzy rules, neural network, feature selection, bat optimization.

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Generating Functions for Generalized Hypergeometric Polynomials of Two Variables by Lie Group-Theoretic method

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ABSTRACT: This paper is an attempt to obtain a new class of generating relations of the generalized hypergeometric polynomial set $R_n(\beta;\gamma;x,y)$, using the representation theory $_{SL(2,C)}$ (a complex special linear group). Here the suitable interpretation to the index n has been given simultaneously. These generating functions, in turn yield, as special cases, a number of linear generating functions to various important classical orthogonal polynomials of mathematical physics and statistics, namely, the Laguerre, Miexner, Gottlieb and Krawtchouk polynomials. Many results obtained as special cases are known but some of them are believed to be new in the theory of special functions.

Index Terms: Special Functions, Generalized Hypergeometric Functions, Lie algebra, Generating Functions.

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GENERALIZED HYPERGEOMETRIC POLYNOMIAL SET $R_n(\beta;\gamma;x,y)$ AND ITS BASIC PROPERTIES

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ABSTRACT: In this paper, certain properties of newly defined generalized hypergeometric polynomials in two Variables $\{R_n(\beta;\gamma;x,y)\}$ have been derived, namely, recurrence relations of ascending and descending type, ordinary differential equation and linear generating function, which are essential to derive generating relations of various types from the group- theoretic method point of view. Furthermore, Laguerre polynomials of single and two variables, Meixner, Gottlieb and Krawtchouk polynomials are deduced as special cases, which are of great importance in the basic quantum analysis of mathematical physics.

Index Terms: Hypergeometric polynomials, Recurrence Relations, Generating functions.

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A CLASS OF GENERATING FUNCTIONS FOR CHEBYSHEV POLYMOMIALS BY WEISNERMETHOD

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ABSTRACT: In this paper, an attempt has been made to obtain generating functions for the Chebyshev polynomials T_n (x) (Special ultra spherical polynomials of first kind) using Weisner's group-theoretic method by interpreting 'n' suitably. It is possible to derive at least three generating relations for various special functions of mathematical physics using this method introduced by Louis Weisner. In approximation theory, the roots (nodes) of $T_n(x)$ are used as matching-points for optimizing polynomial interpolation.Chebyshev polynomials are also used in many models to study them elegantly.

Index Terms: Chebyshev Polynomials, Generating Functions, Group-Theoretic Method

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Vague Join Semilattices

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ABSTRACT

In this paper we introduce vague join semi lattice, vague join cut-set on semi-lattice and studied their properties. Further we investigate the development of some important results and theorems about vague join semi lattice, vague meet A $(\alpha\beta)$ cut - set on semi-lattices.

Index terms- Vague set, L-vague set, L-vague cut-set, Vague group, L-vague group, L-vague semiring, L-vague ideal.

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Homomorphism on Bipolar Vague Groups

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ABSTRACT

In this paper we studied the concept of homomorphism and anti-homomorphism on bipolar vague groups and bipolar vague normal groups.

Index terms - bipolar vague set, bipolar vague group, bipolar vague normal group,bipolar vague homomorphism,bipolar vague antihomomorphism.

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BIPOLAR VAGUE COSETS

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ABSTRACT

In this paper we introduced bipolar vague co sets (BVC) and studied their properties. These concepts are used in the development of some important results and theorems about bipolar vague groups (BVGs) and bipolar vague normal groups(BVNGs).

Index terms - Vagueset,VagueGroup,VagueLeftCoset,VagueRightCoset,Bipolar vagueset,bipolarvaguegroup.

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Convergence *and Extended Linear Generating Function for Generalized Hypergeometric Function*

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ABSTRACT:

The subject of Special functions has a lot importance during the last few decades. The aim of the present article is to prove the convergence and to introduce the extended linear generating relation for the generalized hypergeometric function. The result is followed by its applications to the classical polynomials.

Index Terms- Generalized Hypergeometric pOlynomial, Hypergeometric Polynomial Modified Jacobi Polynomial, Laguerre Polynomial.

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Solution of a Boundary Value Problem Involving I-Function and Struve's Function

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ABSTRACT:

In the present paper, the authors established an integral involving I-function of two variables, Struve's function with extended general class of polynomials. Also solved a boundary value problem in the steady state temperature distribution of a rectangular plate using I-function, Struve's function and Extended general class of polynomials.

Index Terms- I-function of two variables, Struve's function, Extended General class of polynomials and Boundary value problem.

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Some Integral results associated with generalized Hypergeometric function

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ABSTRACT:

In previous papers, it has been introduced a generalized hypergeometric function of two variables. The present paper aims at to derive different types of integral representations for the generalized hypergeometric function. The results derived here are very general in nature and are interesting and can obtain some known and new integrals for various polynomials. Each result is followed by its applications to the classical orthogonal polynomials.

Index Terms- Generalized Hypergeometric polynomial, Hypergeometric Polynomial Modified Jacobi Polynomial, Laguerre Polynomial.

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AWARENESS OF BIOMEDICAL WASTE MANAGEMENT AMONG NURSING PERSONNEL AND AUXILIARY STAFF

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ABSTRACT

Background: In health care sector waste refers different kinds of used and unused materials by different organizations and in particular by the hospital administration. It is in the observation that the waste outcome is used by the hospitals, clinics and different types of diagnostic aids. It is understood that there has to be the process of improving the perception on biomedical waste management by the people responsible in the health care sector. This is the need of the hour concerned with environmental issue. Objectives: It is essential before focusing some light on the biomedical waste management regarding the awareness among the people who are directly concern with the use of biomedical products to how to handle after use waste material in the hospitals and clinics. Methods: One group pre test and post test quasi experimental design was used and lottery method of random sampling technique was adopted. The pretest was conducted using questionnaire. After the pretest structured teaching program was organized and post was conducted. Results: The results showed that in pretest out of 30 samples the pretest knowledge scores in staff nurse (55.6%), auxiliary nurse midwife (54.3%) and ward boys (50.6%) of them had moderately adequate knowledge. In post test staff nurse (84.6%), auxiliary nurse midwife (83.7%) and ward boys (81.33%) of them had adequate knowledge after education. Conclusion: It can be concluded that a well defined structure of inputs on the mode of delivery of information will create a base for the people who are directly concern with the waste management.

Index terms - Bio medical waste, Nursing personnel, Awareness, Hospital.

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EFFECTIVENESS OF SIMULATION TEACHING AMONG UNDERGRADUATE NURSING STUDENTS IN CHILD CARE

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ABSTRACT

Aim: Simulation preparing is created as of late and is presently generally utilized in medication and nursing training. The reason for the present research is to assess nursing understudies' information abilities and self-announced certainty, capability, fulfillment levels identified with the utilization of simulation in child care. Materials and Methods: This randomized controlled investigation was led with a comfort test of 50 nursing understudies from B.Sc Nursing course understudies was chosen in the year 2019-2020. Students were assigned to experimental and control groups.. To collect the study data educational practices questionnaire consists of nursing care knowledge assessment form and nursing care skill assessment form for children were used. A pre-test post-test design was used to evaluate the effectiveness of simulation teaching in child assessment. The students in the experimental group had simulation training about assessment and care of children; the understudies in the benchmark group were prepared with conventional training strategies. The students from both groups were observed in the hospital environment. Results: Clinical skills and information scores of the understudies in the experimental group were higher than the control group. Simulation preparing added to the advancement of their fearlessness emphatically. Conclusion: In this paper, the simulation teaching on Megacore kid simulator was beneficial and student's clinical application skill achievements improved.

Index terms - Child assessment, simulation, under graduate nursing, satisfaction, self-confidence.

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Organization Politics and Organizational Development through Effective Employees

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ABSTRACT

Today‟s corporate world by and large is influenced with the dissatisfaction, differences and discontent among the employees. They are two dimensions of organization polities i.e., one for positive growth and development and other one is for personal and group gains. Politics is always an informal and unofficial level causing harm and negative growth in the organization. There are n number of variables which buy and large influences organizational culture, growth and development. This kind of research is basically based upon qualitative aspects where the researchers need to interact with employees at various levels of different organization with personal interviews, questionnaire to know the ideas of the employees on sensitive issues like organizational politics and organizational development.

Index terms - Politics, Growth, Development, Culture, Motivation

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TIME DELAY MODEL FOR A PREDATOR AND TWO SPECIES WITH MUTUALISM INTERACTION

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ABSTRACT:

The present paper focus on to know the dynamical behavior of a three species system made up of a predator together with mutualism interaction between two species in the limited resources, whereas the predator is depending on both the mutual species. In this model the time delay is proposed to the predator and the first mutual species to recognize the sustainability of the system in long run. Local asymptotic stability of diverse existing positive equilibrium solutions is investigated to understand the dynamics of the system. Further the global stability is established using appropriate Lyapunov functional at positive interior equilibrium solution. Finally numerical simulation is execute to examine the delay impact that can lead to transformation from stable to unstable or unstable to stable culminate hopf bifurcation.

Index Terms- mutualism, predator, asymptotic stability, global stability, Laypunov function, hopf bifurcation.

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Moore-Penrose Generalized Inverse to Kronecker Product Matrix Boundary Value Problems

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ABSTRACT

This paper deals with the existence-uniqueness to Kronecker product (KP) 3- point boundary value problems(TBVP) for the first order linear system as well as nonlinear matrix differential equations with the help of Moore-Penrose generalized inverse and Banach fixed point theory.

Index Terms- Existence-uniqueness, Moore-Penrose generalized inverse, Rectangular matrices.

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Controllability results of a Volterra integro-dynamic system with Sylvester matrix impulsive on time scales

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ABSTRACT

In this paper, we developed the controllability results of a Volterra intrgro-dynamic system with Sylvester matrix impulsive on time scales by using Banach fixed point theorem. Also developed some necessary and sufficient conditions for complete controllability under smooth conditions.

Index Terms: Existence-uniqueness, Volterra intrgro-dynamic system, Banach fixed point theorem, Rank of matrix, controllability.

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A Mathematical Model for Increasing Incidence of Tuberculosis in Poverty Driven Confined Areas and Measures for Control

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ABSTRACT:

Tuberculosis is observed to be most prevalent airborne infectious diseases killing hundreds and thousands of people every year. Mostly, the disease spreads in poverty driven poor countries and also to some extent in developing nations. The disease transmits in situations where infected persons are in close contact with others in confined spaces and also living in poor and unhygienic conditions. It is well recognized that overcrowding increases the risk of transmission. A detailed analysis is presented in this paper with respect to the various participating parameters. Interestingly, the results presented in this paper illustrate the occurrence and propagation of the disease as a mathematical model. The results are in agreement with the real life situations and the number of new infections is observed to be linear. It is seen that for fixed time (t), as the room volume (V) increases, the new infections(C) decreases gradually. In general it is seen that as the ventilation rate (N) increases, the new infections decreases quite rapidly. Further, it is observed that as time increases for a constant ventilation rate, an increase in the new infections is noted. Also, for a constant room volume as time increases, the number of new infections is found to be increasing. An interesting feature is that as the ventilation is progressive, a steep fall in the new infections is noted in the initial stages and subsequently, the drop is not that significant. The influence of time gradually seems to be diminishing as the ventilation rate increases. As the room volume increases, the new infections decrease at a faster rate. However, in each of these observations, it is seen that as ventilation rate increases, the number of new infections are found to be inversely proportional. Such a decrease is more predominant in the initial stages but decreases subsequently.

Index Terms: Tuberculosis, transmission, infections, rate of ventillation

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Influence of Critical Parameters on Temperature and Velocity for Convective Flow of a Viscous Fluid Through Porous Medium

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ABSTRACT:

We keep in mind a unfastened convective improvement of an impressible and electrically directing thick liquid along a boundless non-fundamental diploma plate through a permeable medium. The effect of simple parameters on the go with the flow field has been analyzed for this example. it's miles visible that, for everyday estimations of Porosity due to the truth the Prandtl range builds, the temperature likewise increments. similarly, it's far taken into consideration that to be the time expands, the temperature moreover increments. however the abovementioned, due to the fact the time propels and the Grashof huge variety is constant, the rate increments. on the begin, for a decrease estimation of t, the rate profiles are direct and from that trouble the profiles aren't unreasonably right away.

Index Terms: Porous matrix, Poorosity, Vertical surface, Prandtl number

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Magnetohydrodynamic Casson Fluid Flow Over a Vertical Porous Plate in the Presence of Radiation, Soret and Chemical Reaction Effects

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ABSTRACT:

MHD Casson fluid flow over a vertical porous plate in the presence of radiation, Soret and chemical reaction effects has been studied. The Casson fluid model is used to characterize the non-Newtonian fluid behaviour. The governing equations are solved by a two-term perturbation technique method. The effects of various parameters on the velocity, temperature and concentration profiles are discussed through graphically, skin friction; Nusselt number and Sherwood number are shown in the tabular form.

Index Terms – Radiation, MHD, Casson nanofluid, Porous medium, Skin friction.

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Numerical Study of Carreau Nanofluid Flow Under Slips

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ABSTRACT:

The numerical exploration of three dimensional Carreau magneto Nanofluid flow through a stretching sheet has been bestowed with considering nonlinear thermal radiation, velocity, thermal and mass slips. The heat and mass transfer attributes have been reported under, the existing important variables in this work. The elementary equations which influence flow are remoulded to a system through the similarity transmutations. The remoulded system together with the boundary restrictions are procured deploying Runge–Kutta 4th order process and Shooting approach numerically. The impacts of involving physical variables on heat and mass transfer features are examined. The impacts of the important variables on skin friction factors have been tackled via tables. The Nusselt number's estimates and Sherwood number's estimates have been obtained and tackled via graphs and tables. The skin friction coefficients improve with hiking estimates of permeability parameter, while depreciate with the ratio of infinite shear rate viscosity to the zero shear rate viscosity. Mounting estimates of Lewis number enhance the temperature distribution.

Index Terms – Radiation, MHD, Carreau nanofluid, Stretching sheet, Convection condition.

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The effects of radiation and chemical reaction on MHD mixed convective ow and mass transfer from a vertical surface with Ohmic heating and viscous dissipation

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ABSTRACT:

The objective of this paper is to address the combined effects of thermal radiation and chemical reaction on steady MHD mixed convective heat and mass transfer flow past a vertical surface under the influence of Joule and viscous dissipation. The governing system of partial differential equations is transformed to dimensionless equations using dimensionless variables. The dimensionless equations are then solved analytically using perturbation technique. With the help of graphs, the effects of the various important parameters entering the problem on the dimensionless velocity, dimensionless temperature and dimensionless concentration fields within the boundary layer are discussed. The authors noticed that the velocity increases with an increase in the porosity parameter. An increase in the Prandtl number Pr, decreases the velocity and the temperature field. An increase in the radiation parameter, decreases the velocity and the temperature field. Also the effects of the pertinent parameters on the skin-friction coefficient and rates of heat and mass transfer in terms of the Nusselt and Sherwood numbers are presented numerically in tabular form.

Index Terms – Radiation, MHD, Chemical reaction, heat transfer, mass transfer.

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The FM/FM/1/N model with encouraged or discouraged arrivals and reneging

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ABSTRACT:

In this paper, we analyze an M/M/1/N queue with encouraged or discouraged arrival with a modified reneging policy under fuzzy environment. The arrival rate, service rate, encouraged arrival rate, reverse reneging rate, balking rate, reneging rate are considered as Hexagonal fuzzy numbers. The α- cut and Zadeh's extension principle is used to transform a fuzzy queue into a family of classical crisp queues. Crisp intervals for some performance measures under steady-state are evaluated and presented.

Index Terms– Fuzzy, encouraged arrivals, discouraged arrivals, hexagonal fuzzy, crisp

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ENCOURAGED OR DISCOURSED ARRIVALS OF AN M/M/1/N QUEUEING SYSTEM WITH MODIFIED RENEGING

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ABSTRACT:

In this paper, we develop a finite capacity single server Markovian queueing system with encouraged or discouraged arrivals and a modified reneging policy of the customers. The Customer arrivals follow Poisson process with mean arrival rate λ and service times follow exponential distribution with parameter μ. We develop the steady state equations, these equations are solved using iterative process. Performance measures of the system are derived under steady state. Also, numerical computations are presented.

Index Terms– Encouraged arrivals, Balking, Reneging, Steady state, Measures of performance

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Coefficient Of Determination (R2) By The Path Analysis For The Most Effecting Demographic Variables On Life Expectancy at Birth In India

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ABSTRACT:

The importance of this research is being followed by R2 -value (Coefficient of determination) was evaluated through the Path analysis for the selected, most affecting demographic variables on life expectancy at birth in India. Percentage of R2 has been calculated for variables of Infant mortality rate, Crude death rate, Crude birth rate, Total fertility rate and Under-five mortality rate. The primary data has been collected through the sources of United Nations Population Division (UNPD), from the year 1960 to 2018. In this research Path analysis techniques utilized and Path coefficients (Standardized coefficients) found with the help of Multiple Regression analysis. By Applying Step-wise regression procedure built the structural models; the result is significant at 1 percent los. The percentage of R2 value is highest in Net effects by CBR (28.02); Joint or interaction effect was found (X3X4) CDR and CBR with (49.34). Conclude that the life expectancy at birth in India or region or any other country has been influenced by most of the demographic factors. Utilized SPSS software for the Analysis.

Index Terms– Life expectancy at birth, Coefficient of determination, Path analysis and India.

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Exploring the Axiom of Excluded Middle and Axiom of Contradiction in Fuzzy Sets

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ABSTRACT:

Fuzzy sets are considered as a fine extension of classical sets (crisp) in which the elements possess diverse degrees of membership functions. Zadeh is the initiator of fuzzy sets that predominantly deal with imprecision and vagueness. In this paper, the Law of Excluded middle and the Law of Contradiction were discussed in an exemplary mode. In addition to that the definitions of fuzzy sets, crisp sets and the various operations on them were presented in a consecutive manner.

***Index Terms** – Fuzzy sets, sets, crisp sets, fuzzy subsets, membership functions, sets - intersection and union, fuzzy properties, Law of Excluded middle and the Law of contradiction.*

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Some Special Characteristics of Atoms in Lattice Ordered Loops

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ABSTRACT:

In this manuscript, we consider that L is a lattice ordered loop. Further, we discuss some important characteristics of atoms in lattice ordered loops. We initiate the concepts of positive and negative atoms, dual atom, atomic lattice, meet irreducible element, join irreducible element, descending chain condition and ascending chain condition, right Archimedean property. Here there are two topics, one is about atoms in lattice ordered loops and the other is about Archimedean property.

Index Terms – Loop, partial ordered loop, lattice ordered loop, lattices.

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SOME SPECIAL CHARACTERSTICS OF LATTICE ORDERED COMMUTATIVE LOOPS

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ABSTRACT:

In this paper, we have shown that a commutative l-group resembles like a commutative l-group, and most of the features of l-groups are retained by the l-loop. After developing some of the relevant properties of an l-loop, we have characterized its positive cone, obtained a necessary and sufficient condition for an l-loop to become an l-group and for it to be totally ordered.

Index Terms –Loops, partial order, lattices, ordered abelian groups.

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Graph Coloring on Planar and Bipartite Graphs and Its Applications

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ABSTRACT:

In this paper we make speculations regarding graph coloring in planar graphs and bipartite graphs and further more about vertex coloring, edge coloring, also a few outcomes are determined. The coloring issue has a countless application in present day software engineering such as document move problem, making schedule of time table, information mining, networking. Here we focus around specific applications like finale test time tabling and aircraft scheduling

Index Terms – Graph, Chromatic number χ (G), Vertex coloring, Edge Coloring.

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Study of Various Dominations in Graph Theory and Its Applications

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ABSTRACT:

The aim of the article is to sum up the different dominations on graphs. The following article holds the idea of Domination in Planar graphs, connected graph, edge dominations in Paths, Cycles of related graphs and few properties. Likewise, we broadened our study on inverse dominations on graphs and few applications based on dominations. It incorporates social network, land reviewing, radio broadcasts, computer PC correspondence system, school transport directing, interconnection systems so forth.,

Index Terms -Domination, Inverse domination, domination in planar graphs and connected graphs.

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Study of Various Dominations in Regular Fuzzy Graphs

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ABSTRACT:

In this paper we study about dominations in regular fuzzy graphs. A set D ⊆ V is said to be fuzzy dominating set of G, if every v ϵ V – D there exist u ϵ D such that u dominates v. We discuss the concept of regular split and non-split domination in fuzzy graphs, regular connected domination in fuzzy graph, totally regular domination in fuzzy graphs and discuss their properties. Prompt some applications on them like as computer communication network, social network theory.

Index Terms -Regular domination, regular connected domination, regular split and non-split domination, inverse regular connected domination.

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Psi- Conditionally Asymptotically Stability of Difference System

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ABSTRACT

Here first we take the non linear difference system

x(n+1) = B(n) x(n) +g(n, x(n)) ---- (1.1)

with linear difference system is

x(n+1) = B(n) x(n) +C(n) x(n) ------ (1.2)

As a perturbed system of

x(n+1) =B(n)x --- ---- (1.3)

Where B(n),C(n) gives the functions or mappings of matrices of order $m \times m$, g(n, x(n)) gives vector valued mapping of order m on N and Ψ represents mapping of matrix on N.

The main idea behind here is to develop only if conditions for Ψ-conditional asymptotical stability root or solution of (1.1) , (1.2) and (1.3).

Index Terms:

Difference equations, Ψ -ştability, Ψ-asymptotically ştability, Ψ -conditionally asymptotically ştable.

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On the Psi -Instability of a Non-Linear Difference System

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ABSTRACT

The objective of this work to give sufficient condition for on Ψ -Instability of nonlinear difference system

x(m+1) = A (m) x(m) +f (m, x(m)) ----------(1.1)

and the linear difference system of the form

x(m+1) = A (m) x(m) +B (m) x(m)---------- (1.2)

As a perturbed system of x (m+1) =A(m) x (m)---- (1.3)

Index Terms:

Difference equations, Fundamental matrix, stability, Ψ -stability, Ψ- in ştability.

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On the ψ-Exponential Asymptotic stability of Non Linear Matrix Difference Equations

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ABSTRACT

In this paper we derive the only if conditions for Ψ−exponential asymptotic stability of trivial solution of non linear matrix difference equation of first order

$$X(n+1)=A(n)X+B(n)X+G(n,X) \quad \text{---------- (1)}$$

and linear matrix difference equation as

$$X(n+1)=[A(n)+A_1(n)]X+X[B(n)+B_1(n)] \quad \text{----------(2)}$$

which can be take as a perturbed equation of a linear equation as

$$X(n+1)=A(n)X+XB(n) \quad \text{----------(3)}$$

Index Terms:

Difference equations, Fundamental matrix, Ψ -şstability, Ψ-asymptotic stability,

Ψ- exponential ştability.

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Viscoelastic Mixed Convection Fluid Flow in between Parallel Vertical Plates

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ABSTRACT:

This paper analyses the viscoelastic mixed convection flow in between parallel permeable vertical surroundings. The equations are under flow environment. An exact analytical solution is obtained with respect temperature for the fluid velocity. The results are analyzed graphically using MATLAB and the conclusions are written as a relation between velocity and different parameters like Reynolds Number (Re), Cross- Flow Parameter (R), Prandtl Number (Pr), Viscoelastic Parameter (K), Grashof Number (Gr).

Index Terms: Viscoelastic, Mixed convection, Reynolds Number, Cross-Flow Parameter, Viscoelastic Parameter, Grashof Number, Prandtl Number.

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An Innovative Study on Lie Groups and Lie Algebras

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ABSTRACT:

This research article mainly explores on matrix Lie groups admitting the Cayley Construction and presents innovative proofs of the following propositions.

• If a matrix group admits the Cayley construction and so is a matrix Lie group then the corresponding vector space coincides with the Cayley image of it.

• Every matrix Lie group possesses an in-image.

Furthermore three most important lemmas and one proposition in Lie Groups and Lie Algebras are presented with very simple and innovative proofs. One of three lemmas gives the necessary and sufficient condition for a topological group to be Hausdorff. As well the condition for a topological group to be connected is also derived.

Index Terms: Matrix Lie group, embedding, smooth, Cayley image orthogonal sympletic group, analytic diffeomorphism. Smooth group, morphism, manifold, Hausdoff, smooth mapping, Lie group.

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A STUDY ON MULTIPLE LINEAR REGRESSION USING MATRIX CALCULUS

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ABSTRACT:

In spite of accessibility of a large number of imaginative tools in Applied Mathematics the most important tool of the Mathematician is always the linear model as it involves uncomplicated and apparently most restrictive properties namely linearity ,constancy of variance ,normality and independence. Linear models and the methods connected to it are remarkable, flexible and powerful. Since almost all advanced statistical tools are generalizations of linear models proficiency in linear models is a prerequisite to study advanced statistical tools. This research article primarily focuses on the specific forms of Simple Linear Regression Model, Multiple Linear Regression Model, LSE of its parameters and the properties of LSE. Furthermore an innovative proof of Gauss-Markov theorem has been proposed by means of Principles of Matrix Calculus. In addition to these the concept of BLUE has been depicted.

Index Terms: Response and Predictor variables, LSE (Least Square Estimator), MLE (Maximum Likelihood Estimator), Regression Coefficients, BLUE (Best Linear Unbiased Estimator).

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A NOTE ON JACOBSAN RADICALS IN SPECIAL BOOLEAN LIKE RINGS

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ABSTRACT:

In this paper we endure the learning of Special Boolean-like rings . In section1 we debate the assets of a Special Boolean-like ring. If R is a commutative ring with unity , we verify that R is a Special BLR allowing that R is a BLR. Further we display that a Special BLR is regular ⇔ it is a BR. A method is given to construct special Boolean rings from Boolean rings and certain modules over them. In section 2 we prove that a Special Boolean-like ring R is a subdirect product of a family of rings {Ri}, where each Ri is either a two element field or a four element Boolean-like ring H4 or a zero-ring. In section 3 we discussed nearby the Jacobson radical J(R) of a Special Boolean-like ring R and demonstrate that J(R) = N(R) , where N(R) is the nilradical of R. As a moment of this, we illustration that every Boolean ring is semi simple. Finally we demonstrate that every special Boolean-like ring which is semisimple, is a Boolean ring.

Index terms: Boolean ring, Boolean like rings, Jacobson Radical(JR)

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ANTI – FUZZY IDEALS IN BOOLEAN NEAR RINGS

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ABSTRACT

We establish the view of anti-fuzzy ideals(AFI) in Boolean Near Rings(BNR) N and also obtain their properties in this paper. We prove every fuzzy set is an AFI of N (BNR) iff the compliment of fuzzy set is FI of N and also prove that every homomorphic pre-image of an AFI is an AFI. A is said to be a anti fuzzy ideal of N if i) A (x-y) ≤ max {A (x), A (y)} ii) A (ra) ≤ A(a) iii) A((r+a)s +rs) ≤ A (a) for all r, a, s ∈ N.

Index terms: Near ring, Boolean Near ring, fuzzy set, fuzzy ideal, Anti fuzzy ideal.

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α_1, α_2NEAR SUBTRACTION SEMIGROUPS

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ABSTRACT

In this paper we have presented a new algebraic structures α_1, α_2 , near subtraction semi group. The notion of homomorphism between them is introduced with appropriate outcomes.

Index terms: Near ring, α_1 ***near ring,***α_2 ***near ring, subtraction semi groups, near subtraction semi groups, regular near subtraction***

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A Productive Chat Bot Replacing FAQ System Using Dialogflow

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ABSTRACT

Chatbots are very much human-like and provide a virtual assistance to solve our queries they offer a text and voice supported user interface, permitting the user to either type or speak and the response is provided through text format. Chatbots provide a wide range of services and functionality. This chatbot technology can be integrated with many platforms and web services using the Dialogflow built-in Integrations facility. This technology would not just answer the user's queries but also learn from the user and updates its database with new strategies. This is built using Google's Dialogflow, HCI (Human Computer Interaction) technology pedestal on NLC (Natural Language Conversations). This technology supports NLP (Natural Language Processing) engine to incorporates chat context like location, dialogue history and user preferences. This System would be very helpful to easily categorize and classify large amount of data. The user must put their query to the bot and can expect a reply in less than a sec. The system will use the Google's Natural language processing algorithm and is powered by Google's machine learning which can train the bot and provide suitable responses to the client. If the response is establish invalid, then several systems to announce the response as invalid can be included. Such type of invalid answers can be removed or customized by the admin of the system. The answers to the queries are made using the general pattern matching technique, user queries are split into different parts and then they undergo the predefined pattern set to produce the result.

Index terms: Chatbot, dialogflow, APIs, machine learning, Natural language processing, Google cloud platform

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REUSABLE OBJECT-ORIENTED DESIGN FOR STEREOGRAPHIC PROJECTIONS OF TETRAGONAL

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ABSTRACT:

Design patterns is one of the latest techniques in software development, emerged from object-oriented community. Pattern is a recurrent resolution to any normal problem. When associated patterns are merged together, they form a language that will provide a procedure for the logical purpose of software development related problems. An attempt has been made to connect these „hot topics" with the renewed crystallography especially in the era of crystal symmetry and physical properties. The "Abstract factory method" of the patterns is applied to determine the physical properties, exhibited by the crystal belonging to the tetragonal ferroic point groups.

Index Terms – Tetragonal Point Groups, Physical properties, stereographic projections, Abstract Factory method.

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Impacts of Thermophoresis, Joule heating and Soret & Dufour effects on mixed convective Jeffery fluid flow over an elongated sheet

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ABSTRACT:

The magneto hydrodynamics radiative flow of an in-compressible Jeffrey fluid through porous medium over a linearly starching sheet is presented. The impacts of thermo-phoresis effects, joule heating and Soret & Dufour effects in the radiative flow have been investigated. Similarity transforms are adopted to obtain the system of ordinary differential equations from the governed system of partial differential equations. The Runge- Kutta –Fehlberg with shooting technique is used to solve reformed ODE numerically. The influences of several pertinent parameters on velocity profiles (, temperature profiles & concertation profiles (are studied through several plots. The effect of Deborah number and the permeability on velocity, temperature & concentration profiles having opposite phenomena comparing with retardation times. The values of physical parameters like co-efficient of skin friction, Nusselt number & Sherwood number for several pertinent parameters are tabulated.

Index Terms – Thermo-phoresis effect, Porous medium, Joule heating, Soret and Dufour effects, Jeffrey fluid, Skin friction co-efficient, Nusselt number & Sherwood number

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Mixed convective flows on Al2O3 – Engine oil nano fluid under the influence of thermal radiation & magnetic field over a vertical circular cylinder

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ABSTRACT:

The Present study investigates a vertical circular cylinder immersed in mixed convective fluid and the effect of boundary layer flow over of a nano fluid Alumina (Al2O3) nano particle with engine oil as the base fluid was studied under the impact of magnetic field, thermal radiation with suggested external flow. The radiative heat loss is modelled by Rosseland estimations. The partial differential equations are modified into ordinary differential equations by using similarity variables. The technique of Runge- Kutta – Fehlberg with shooting is used to solve modified ODE numerically. The influences on velocity and temperature contours for Alumina Engine oil nanofluid the nanoparticle volume fraction are obtainable through plots. The impact of various pertinent parameters on velocity and temperatures Profiles are analyzed through numerous plots. The co-efficient of skin friction &Nusselt number for various relevant parameters are calculated and values are tabulated.

Index Terms – Risk Mixed convection parameter, Magnetic parameter, Nusselt number, Nano particle volume fraction, Prandtl number, Skin friction coefficient and Thermal radiation parameter.

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Index Number of Multi Fuzzy Sets

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ABSTRACT:

Multi fuzzy set theory is an extension of fuzzy set theory. In this paper we developing the theory of Index number of multi fuzzy sets. This theory is applied to medical diagnosis system and will help doctors to select the effective symptoms and could make diagnosis of diseases concern. This theory also helps in selecting right political leaders.

Index Terms – **Multi fuzzy sets, Index number, Index number of multi fuzzy sets.**

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L – Fuzzy Ordered 'Γ'- Semi rings

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ABSTRACT:

'Γ'- ring concept was introduced by Nobusawa which is the generalization of a ring. In this paper we studied the concept of L – Fuzzy Ordered 'Γ'- Semi ring along with non-membership and membership functions whose values are taken from a complete lattice and some properties.

Index Terms **– *O****rdered** *'Γ'-semi ring*, *complete lattice*, *L-fuzzy sets*, *L-fuzzy ordered 'Γ'-semi ring*

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USE OF Γ- SOFT MATRIX IN SOLVING DECISION MAKING PROBLEMS

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Abstract: The hypothesis of soft sets started by Molodtsov, in light of soft set hypothesis in this paper we characterized some fundamental definitions, for example, Γ-Soft Matrix representation of Γ-Soft, Cartesian product of Γ-Soft sets. In this work we added a second parameter set, Γ which referes the name of an organization or an agency. Based on this theory, we defined Γ- Soft matrix and applied in decision making problem by explain with an example.

Keywords: Γ(GAMMA)- Soft set, Approach matrix, Γ(GAMMA)- soft matrix, Characteristic function, Product of Γ(GAMMA)- soft Matrices

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MHD FLOW AND HEAT TRANSFER OVER AN EXPONENTIALLY STRETCHING SHEET EMBEDDED IN A THERMALLY STRATIFIED MEDIUM

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ABSTRACT:

Present analysis explores MHD boundary layer flow and heat transfer towards an exponentially stretching sheet embedded in a thermally stratified medium subject to suction are described. Partial differential equations corresponding to the momentum and energy equations are converted into nonlinear ordinary differential equation, by using similarity transformations. Numerical solutions of these equations are obtained by shooting method. It is found that the heat transfer rate at the surface increases in presence of thermal stratification. Fluid velocity decreases with increasing magnetic parameter and decreases with increase of suction parameter. It is noticed that the temperature decreases with increase of suction parameter. Temperature gradient increases considerably with increase of stratification parameter.

Index Terms: Boundary layer flow; exponentially stretching sheet; MHD flow; Suction; Thermally stratified medium.

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ANALYSIS OF MHD FREE CONVECTIVE, DISSIPATIVE BOUNDARY LAYER FLOW PAST A POROUS VERTICAL SURFACE UNDER THE INFLUENCE OF THERMAL RADIATION, CHEMICAL REACTION AND CONSTANT SUCTION

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ABSTRACT:

The present paper portrays free convective, dissipative boundary layer MHD flow past a vertical porous surface under the influence of thermal radiation, chemical reaction and constant suction, with the effect of uniform magnetic field which is applied normal to the surface is studied. The governing equations are solved using scaling group of transformations. The system remains unchanged due to relations between the parameters of the transformations. Application of these transformations momentum equation, energy equation and diffusion equation reduces to non – linear 3rd and 2nd order ordinary differential equations. These equations are solved numerically. Employing MATLAB code the effects of various physical parameters of the flow are analyzed graphically.

Index Terms: Boundary layer; Free convection; Chemical reaction; MHD; Radiation; Porous medium; Vertical surface.

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INFLUENCE OF VARIOUS FLOW ENTITIES ON THE FLOW PAST A SEMI INFINITE MOVING VERTICAL PLATE

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ABSTRACT:

The objective of the present analysis is to investigate the influence of various flow entities on the flow past a semi infinite vertical porous plate with viscous dissipation. The increase in Schmidt number leads to decrease in the fluid velocity. Further It is noticed that velocity of the plate increases rapidly near the plate as the Grashof number increases. It was observed that increase in porosity results in the increase in veloity, also as we move far away from the boundary it is noticed that the velocity of the fluid bed is absoultely zero and found to be independent of pore size. Also as the chemical reaction parameter increases the velocity decreases near the plate. Also the increase in Solutal Grashof number results in increase of the Skinfriction. It was also observed that increase of Eckret number results in increase of temperature and increase of the of Solutal grashof number leads to increase of temperature.

Index Terms: Heat ***transfer, viscous dissipation, radiation, concentration, temperature and porosity.***

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USE OF Γ- SOFT MATRIX IN SOLVING DECISION MAKING PROBLEMS

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ABSTRACT:

The hypothesis of soft sets started by Molodtsov, in light of soft set hypothesis in this article we characterized some fundamental definitions, for example, Γ-Soft Matrix representation of Γ-Soft, Cartesian product of Γ-Soft sets. In this work we added a another constraint set, Γ which refers the title of an organization or an agency. Based on this theory, we defined Γ- Soft matrix and applied in decision making problem by explain with an example.Key words: Breakdown, Delayed repair, N-policy, Start up, state dependent, Two-phase

Index Terms: 'Γ' (GAMMA)- Soft set, Approach matrix, 'Γ'(GAMMA)- soft matrix, Characteristic function, Product of 'Γ'(GAMMA)- soft matrices

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Use of Γ(Gamma)- soft set in application of decision making problem

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ABSTRACT:

Molodtsov's soft set theory has been considered an efficient Mathematical tool is conduct along uncertainties. In our regular life, we frequently facing some real problems which need right decision making to get the best solution for these problems. Therefore, it is necessary to consider various parameters related to the best solution. In this paper, we applied Γ(Gamma)-Soft set theory in decision making problems.

Index terms: Choice value, Fuzzy soft set, Gamma soft set, Reduct set

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L – Fuzzy Ordered 'Γ'- Semi rings

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ABSTRACT:

'Γ'- ring concept was introduced by Nobusawa which is the generalization of a ring. In this paper we studied the concept of L – Fuzzy Ordered 'Γ'- Semi ring along with non-membership and membership functions whose values are taken from a complete lattice and some properties.

Index terms: Ordered 'Γ'-semi ring, complete lattice, L-fuzzy sets, L-fuzzy ordered 'Γ'-semi ring

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Effect on the flow past a semi infinite moving vertical plate with viscous dissipation

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ABSTRACT:

The objectives of the present study is to investigate the concentration effects on unsteady heat and mass transfer flow of a chemically reacting fluid past a semi infinite vertical plate with viscous dissipation. The method of the solution can be applied for small perturbation approximation. Results for the concentration are illustrated graphically. The expressions for the concentration fields are obtained. It is observed that as the Schmidt number increases the concentration profiles are to be in the decreasing trend. As we move far away from the plate, whatever may be the value of Schmidt number the profiles are found to converge. For a fixed value of Solutal Grashof number, when Schmidt number is on rise, the concentration fields are found to be decreasing.It is notice that the concentration field profiles converge when y = 0 and diverge for the higher values of y. For a fixed value of Solutal Grashof number = 7.0 as the chemical reaction parameter increases a decreasing trend in the concentration field is noticed. It is observed that the profiles are nearly parabolic and converge when y = 0 and at higher value y = 10.

Index Terms – Heat transfer, viscous dissipation, Radiation, Chemical Reaction

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Boundary layer Development in Unsteady state MHD Flow in a Porous Channel with Decreasing Suction

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ABSTRACT:

The boundary layer development in an unsteady state viscous incompressible and electrically conducting fluid through a porous channel when a transverse magnetic field is applied has been studied in this paper. The best possible classical solution in a closed form has been obtained. The expressions for various flow entities are obtained, and the effect of critical parameters influencing the analytical expressions are illustrated graphically. In general, it is seen that, as the porosity of the fluid bed increases, the velocity also increases. Further, it is noticed that the time parameter t influences the velocity profiles to a greater extent. Further, it is observed that not much of significant dispersion in the velocity field is observed even when the porosity is increased. Also it is noticed that as the pore size increases the velocity is found to be decreasing. An interesting observation is noticed when the Hartman number is held constant and porosity along with time are varied. For a fixed Hartmann number, as the porosity of the boundary is increased, it is seen that the velocity field appears to be sinusoidal and also at times a backward flow is noticed.

Index Terms – Heat transfer, viscous dissipation, Radiation, Chemical Reaction, Hartman number

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FLOW PAST AVERTICAL PLATE WITH VISCOUS DISSIPATION UNDER THE INFLUENCE

OF MAGNETIC FIELD

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ABSTRACT:

The aim of the present paper is to examine the concentration field of on an unsteady two dimensional laminar convective boundary layer flow of a viscous in compressible, chemically reacting fluid along a semi infinite vertical plate with suction by taking into account the effects of dissipation. The equations of continuity, linear momentum, energy and diffusion that govern the flow field are examined in detail. it is seen that as Schmidt number increases, the velocity increases. When the intensity of the magnetic field is taken into account, it is observed that, in general, the velocity decreases. it is observed that, irrespective of the solutal Grashoff number, increase in the magnetic intensity contributes to increase in the velocity. It is also observed that, marginal increase in the solutal Grashoff number influences the change in the velocity field marginally. For a constant porosity value, as the magnetic intensity increases, the velocity of the fluid appears to be increasing. Even for a slight change in the porosity of the fluid bed, not much of significant change in the velocity of the fluid is noticed. When the applied magnetic intensity is held constant and as the pore size of the fluid bed is increased.

Index Terms – Heat transfer, viscous dissipation, Radiation, Chemical Reaction, Hartman number, Grashoff number.

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Optimization of Responses using Balanced Ternary designs

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ABSTRACT:

Following the works of Das and Narasimham (1962), Kanna et al (2018), the variance of the estimated response of second order rotatable designs (SORD) under Balanced Ternary Design (BTD) for the factors $3 \le v \le 8$ is suggested and also the obtain the dependence of variance function of response at different design points. Further, the variations among the estimated response along with the distance from the center under BTD for "v factors 3 to 8" is studied and also observed that some of the balanced ternary designs require additional central points to satisfy the conditions of rotatable designs.

Index Terms – Second order rotatable designs, balanced ternary designs, balanced incomplete block designs, and variance function.

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A NOTE ON SECOND ORDER ROTATABLE DESIGNS UNDER TRIDIAGONAL CORRELATED STRUCTURE OF ERRORS USING BALANCED INCOMPLETE BLOCK DESIGNS

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ABSTRACT:

In this paper, an empirical study of second order rotatable designs under tri-diagonal correlated structure of errors using balanced incomplete block designs is suggested. Further the variance function of the estimated response for tridiagonal correlated coefficient (ρ) and distance from centre (d) is studied. It is shown that this method sometimes leads to designs with less number of design points in some cases.

Index Terms – Second order rotatable designs, Tri-diagonal correlated errors, BIBD, Incidence matrix.

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Construction of second order slope rotatable designs under tri-diognal correlated structure of errors using symmetrical unequal block arrangments with two unequal block sizes

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ABSTRACT:

In this paper, second order slope rotatable design (SOSRD) under tri-diagonal correlated structure of errors using symmetrical unequal block arrangements (SUBA) with two unequal block sizes is suggested.

Index Terms –Second order slope rotatable designs (SOSRD), tri-diagonal correlated errors.

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BINGHAM PLASTIC FLUID FILM LUBRICATION OF ASYMMETRIC ROLLERS

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ABSTRACT:

Hydrodynamic lubrication of asymmetric roller bearings under usual boundary conditions for heavily loaded rigid system is analyzed for incompressible Bingham plastic fluid in the operating behavior of line contact. The viscosity of the lubricant is assumed to vary with the hydrodynamic pressure. The fluid flow governing equations such as momentum and continuity equations are solved analytically first and then numerically using MATLAB. The lubricant velocity distributions are obtained and the results, particularly, pressure, load and traction forces are in good agreement with previous findings

Index Terms:

Hydrodynamic Lubrication, Non-Newtonian, Bingham plastic, Incompressible, Asymmetric Rollers

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THERMAL EFFECTS IN BINGHAM PLASTIC FLUID FILM LUBRICATION OF ASYMMETRIC ROLLERS

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ABSTRACT:

Hydrodynamic lubrication characteristics of asymmetric rollers lubricated by non-Newtonian incompressible Bingham plastic fluid are analyzed in this work. It narrates the qualitative research with the rigid system in which the viscosity of the particular non-Newtonian Bingham plastic substance is considered to become the function of hydrodynamic pressure. The equations considered in this work like equation of motion along with continuity and energy equations are solved numerically using MATLAB after particular analytical steps. Resulting from this particular work, it is identified that there is some notable change in temperatures, pressure, load and traction forces with Newtonian and also non-Newtonian fluids both. Moreover, the results acquired in this work have attained good agreement with earlier published work.

Index terms: Hydrodynamic lubrication, Non-Newtonian, Bingham plastic, Thermal effects, Viscosity, Incompressible.

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HYDRODYNAMIC LUBRICATION OF ASYMMETRIC ROLLERS BY POWER-LAW FLUIDS

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ABSTRACT:

Hydrodynamic lubrication characteristics of asymmetric rollers by power-law fluids for a heavily loaded rigid line contact system are studied in this work choosing the incompressible lubricant is to be varied with hydrodynamic pressure. The important governing equations like continuity and momentum are solved analytically under usual boundary conditions and the obtained a numerical solution using MATLAB. The velocity profiles of power-law fluids are presented and some significant changes in pressure, load, and traction are observed. The results are in good agreement with the previous findings.

Index Terms: Hydrodynamic Lubrication, Non-Newtonian, Power–Law, Incompressible, Asymmetric Rollers

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A Novel (t,n) Threshold Secret Sharing Scheme Using Elliptic Curve Cryptography

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ABSTRACT:

Invention of Secret Sharing Scheme by Adi Shamir along with the prevalent advancements offers strong protection of the secret key in communication network. The secret sharing scheme proposed by Shamir is based on Lagrange Interpolation polynomial where the secret S is divided into n pieces by a group manager or dealer of the group and distributed among n participants. A sub group of t or more participants of the group come together to reconstruct the secret key. Later the cryptanalysis of secret sharing scheme came into picture in the direction of cheater detection whose motivation is to fool the honest participants. The present paper goals to describe a modification to (t,n) threshold secret scheme using elliptic curve cryptography to avoid the dishonest shareholders and faked shares. In this scheme the group manager or dealer distributes the shares among the participants as affine points on the elliptic curve so that the share modification by the participants or faked shares can be easily detected.

Index terms: Shamir Secret Sharing Scheme, Lagrange Interpolation polynomial, Elliptic curve over finite field, Encryption, Decryption.

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Survey of professional procedures of moving sensitive data using cryptographic methods for securing communication in Wireless network systems

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ABSTRACT

In this paper, Analysts are illuminating how best practices are sent through cryptography calculations and how far these calculations are veered off from practices of utilizing IoT applications on IoT convention stack and related areas to move crude information or delicate information or private information safely by having appropriate assessment and examination done on those convention stacks through legitimate defense exhaustively. To start with, Internet of Things (IoT) suggests giving keen living applications and between associated things equipped for sharing their discernments through the Internet. These gadgets are unique in relation to customary Internet-associated gadgets as in these can perform ability full things all alone with insignificant or no human communication. Second, from the Source client, the information is scrambled utilizing cryptographic calculation and afterward this encoded information is sent alongside profoundly standard arrangement of security conventions. Consequently, the odds of uncertainty a gatecrasher can get that some classified, verification or private information is ruined in the crude information being sent is diminished. What's more, thus, the information sent by the source client to the goal client is made sure about.

Keywords:sensitive data, cryptography, communication, Wireless IoT, unsecure networks, Wired Networks.

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The Design of the Flyover Toll Plaza Model to Minimize the Construction Area of Toll Plaza

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ABSTRACT:

Now a day's toll gates are very common on each and every national highway and users of these toll gates are paying the toll tax to the government or infrastructure companies. In the recent years the automobile technology has been developed lot, due to this reason the usage personal vehicles have been increased even though the public transportation system is available and traffic also has been increased on the roads in the recent years. Because of the increased traffic many roads are expanded according to the requirements and toll gates also are increased due to lack of sufficient time and funds with the government. These toll gates are occupying lot of agriculture land throughout the country. Many research articles focused on to reduce the traffic and electronic payment methods at toll gates, but this research article focused on the importance of the agriculture land and to minimize the construction area of tollgates and new model has been introduced to reduce the construction area of the toll plazas.

Index Terms: Design of Toll gates, Flyover model, Traffic, Vehicles, Construction area, High ways.

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On Bipolar Fuzzy Sub Ordered Γ-Near Rings

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ABSTRACT:

In this paper, we introduce and study the concept of Bipolar Fuzzy Sub Ordered Γ-Nea rring.we establish a one-one correspondence between Bipolar Fuzzy sub Ordered Γ-Near ring and crisp sub Ordered Γ-Nearring. Later, we define homomorphism on Bipolar-Fuzzy Ordered Γ-Near ring and we verified that the homomorphic pre image of a Bipolar Fuzzy sub Ordered Γ- Near ring is also a Bipolar Fuzzy sub Ordered Γ- Near ring. Moreover, we prove that homomorphic image of a Bipolar Fuzzy sub Ordered Γ- Near ring possessing both Supremum property and infimum property is a Bipolar Fuzzy sub Ordered Γ-Near ring. We establish a one-one correspondence between Bipolar Fuzzy sub Ordered Γ-Near ring and crisp sub Ordered Γ-Near ring. Also, we prove that the intersection of two Bipolar Fuzzy sub ordered Γ-Near ring is a Bipolar Fuzzy sub ordered Γ-Near ring.

Index Terms – : Fuzzy sub set, Ordered Γ-Near ring, Bipolar Fuzzy sub Ordered Γ- Near ring

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LATTICE-FUZZY PRIME-IDEALOF A GAMMA-NEARRING

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ABSTRACT:

In this piece paper, we Start and analyze the theory of L-Fuzzy prime-ideal of Γ-Near ring M where L is a complete lattice fulfilling boundless meet distributive law. Also, we found a one-one correspondence in the midst of L-Fuzzy Characteristic prime-ideal of Γ-Near ring and crisp prime-ideal of Γ-Near ring. Later on, we show some significant properties and result on it like on the off chance that $\boldsymbol{\omega}_{\mathbf{L}}$ is a L-fuzzy prime-ideal of Γ-Near ring, at that point $\boldsymbol{\omega}_{\mathbf{L}}$ (0) =$\mathbf{1}_{\mathbf{L}}$ and its image will take only two values. Also, we prove some important properties and expand useful outcome like if I is Prime Ideal of a Γ-Near Ring of M then δ_I is a L-Fuzzy Prime Ideal of a Γ-Near Ring of M, and vice versa, which states that there exist a one-one correspondence between L-Fuzzy Prime Ideal of a Γ-Near Ring of M and crisp Prime Ideal of a Γ-Near Ring of M.

Index terms : L-Fuzzy set, L-Fuzzy ideal, L-Fuzzy Prime ideal.

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A Study Of Vague Gamma-Near rings

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ABSTRACT:

In this article, we originate and inspect the notation of vague Γ-near rings and it's properties. The operations on vague Γ-near rings are illustrated and established results on them. We establish the necessary and sufficient condition for a vague set of a Gamma near ring to be a Vague Gamma Near ring. Furthermore, we prove that a vague set of a Gamma Near ring is a vague Γ- near ring of a Gamma near ring if and only if it's level cut is a Sub Gamma Near ring of Gamma near ring. Later we prove the family of all vague Γ-near rings is a Boolean algebra. We establish a one-one correspondence between vague Γ-near ring, D and it's (α, β)- cut, where α, β ∈ [0, 1], α ≤ β.

Index terms: Vague set, Vague cut, Vague characteristic-set, Vague Γ-near ring.

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A Comparison of Central composite design and Modified Taguchi

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ABSTRACT:

Second order rotatable design (SORD) concepts will be more useful in developing the ppropriate empirical relations. As the number of input variables are increasing with the assigned levels to each variable), there is a need to conduct more number of experiments which may sometimes be practically impossible. Taguchi designs can solve the problem with less number of experiments and provides complete information useful for the applications of second order rotatable designs. This article provides a comparison of Central composite design and modified Taguchi approach and its validation by tracing the optimum process parameter on the experimental design. It is possible to get the required information and the expected range of process parameters from modified Taguchi design.

Index Terms – Optimum input parameters, Modified Taguchi approach, Central composite design, expected range.

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Identifying Road safety discrepancies and measuring spatial dependencies using cluster analysis

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ABSTRACT:

Spatial analysis plays a key role in analyzing the information identified with graph theory in different areas with spatial aspects. Characterizing the spatial area of the substances is the crucial issue in the spatial graph theory. Representation of graphs and empirical relation between several objects are key role in analyzing the spatial graph theory. In the present paper, we made an endeavor to comprehend the spatial graph properties and it very well may be utilized to portray, contrast just as with test explicit theory of road security measures concerning explicit areas. The integration of Graph theory, clustering analysis and spatial autocorrelation provides a scientific way for measuring the entities associated in road safety. Here we mainly focused on the affect of road safety by the impact of several road discrepancies in our selected area. Spatial dependencies for each discrepancy can be studied by the method of Moran‟s I index and clustering analysis.

Index Terms – Spatial graphs, spatial dependencies, Moran‟s I index, clustering.

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An empirical study on shortest path for Graph clustering in Network analysis

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ABSTRACT:

Network theory deals with the study of graphs in which nodes connected by branches. It helps to determine the shortest route between two places, time schedule for the activities of a project and minimum cost flow in pipeline networks. In the present paper, we with the existing algorithms based on network theory and finding the shortest path from use the cluster algorithms to find the can be compare one to another and also shortest paths when the clusters are grouping based on cluster analysis the results which we obtain observed that the similarity levels of single, average and complete linkage methods. By applying the existing algorithms based on graph theory can analyze the shortest path from one to another where as clustering provides the shortest path as well as the similarity index for standardized and non-standardized variables.

Index Terms – Minimal spanning tree, Shortest route, Dijkstra's algorithm, clustering, Dendogram

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Study of Dissipative Aligned MHD Convective Flow Embedded in a Porous Medium with Thermophoresis, Heat Source and Hall Current Effects

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ABSTRACT:

The present work investigates the thermophoresis, heat source and hall current effects on dissipative aligned MHD convective flow embedded in a porous medium using Keller Box Method. The influence of the effects of hall current, aligned magnetic, Soret, chemical reaction and heat source were examined. Graphs are plotted for the validation of results. Skinfriction, Nusselt number and Sherwood number are tabulated for various physical parameters. The results are good in agreement with the existing results.

Index Terms: thermophoresis, heat source, hall current, MHD, porous medium

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Analysis of electrically-conducting Maxwell fluid bounded by a wedge-shaped wall: An iterative Approach

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ABSTRACT:

This paper is devoted to obtaining convergent series expansion for the flow of electrically-conducting Maxwell fluid past a wedge-shaped wall proposed in a recent study by Abbasbandy et al. Ababsbandy, S., Naz, R., Hayat, T., Alsaedi, A.: Numerical and analytical solutions for Falkner-Skan flow of MHD Maxwell fluid. Appl. Math. Comput. 242, 569-575 (2014)]. It is found that the 9th-order homotopy approach converges sufficiently rapidly for the case - . Furthermore, the reliability of the present solution through some direct comparisons was verified.

Index Terms: Maxwell fluid, Local velocity distribution, Convergence, Auxiliary parameter, P-time

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Chemical Reaction, Soret and Thermal Radiation Effects on Slip Flow of a MHD Fluid Flow embedded in a porous medium

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ABSTRACT:

The main concern of the present article is to study transient magnetohydrodynamics flow, heat and mass transfer past a permeable using 2-term perturbation scheme. The flow of liquid films are taken under the impact of thermal radiation. Effects of flow physical parameters including thermoporesis parameter(So), Schmidt number(Sc), Radiation parameter(R), Prandtl number(Pr), permeability parameter(K), slip parameter(h), chemical reaction parameter(Kc), Grashof number(Gr), modified Grashof Number(Gc) and perturbation parameter(E) on the fluid velocity, temperature and concentration distributions are scrutinized and discussed in detail. In this paper we studied two cases on velocity profiles, flow of cooled plate Gr > 0 and flow of heated plate

Gr < 0.

Index Terms: Soret Effect, Heat and Mass Transfer, Transient, Radiation.

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HALL AND ION SLIP EFFECTS ON AG - WATER BASED MHD NANOFLUID FLOW OVER A SEMI -INFINITE VERTICAL PLATE EMBEDDED IN A POROUS MEDIUM

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ABSTRACT:

The present work provides an analysis of the Dufour, radiation absorption, Hall and ion slip effects on MHD free convective rotating flow of Ag - water based nanofluid past a semi -infinite permeable moving plate with constant heat source. In this regard, metal will be considered as nanoparticles with water as base fluid. Governing nonlinear boundary layer equations and boundary conditions are transformed into a system of nonlinear ordinary coupled differential equations and are solved by perturbation technique. Effects of different parameters on skin friction coefficient, local Nusselt number and Local Sherwood number are also discussed.

Keywords: Ag -water nanofluid, Dufour effect, Hall and ion slip, Radiation Absorption, Rotation.

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Chemical Reaction Effect on Magnetite Nano Fluid through Permeable Surface

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ABSTRACT:

The transient MHD stream of a Fe3O4 water based nano flow fluid past moving vertical holey semi-infinite holey surface and convective in the company of chemical reaction, thermophoresis and consistent heat basis in a turning casing of orientation is examined. The platter is considered to waver in moment with steady recurrence. The impacts of parameters entering into the problem inside the periphery layer for the stream, temperature and concentration are analyzed for magnetite water based nanofluid through diagrams.

Key Words: Chemical Reaction, MHD, Rotating Frame, Soret effect, Transient.

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Portable drinking water quality measurement system for implementation of smart villages

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ABSTRACT:

The Indian science and technology recognized that the need for brewing technical solution to the lack of water shortage in the smart villages. The challenges relating to water scarcity can be dicover to several causes, such reasons are,(a)Decreasing a part form availability of fresh water,(b)Loss of quality of available fresh water on account of contamination and poor management practice,(c) excessive and insufficient use of water in village human activities,(d)In ability to use available water on description of natural contamination by few chemicals and their reactions etc. The main aim of the project work is to design an instrument called portable drinking water quality measurement and monitoring system. This instrument can be carried to any drinking water distribution system in a village and asses the quality of drinking water. To avoid impurity water with alarm indications are provided for the violating parameters. Therefore, the prototype system has been implemented and bring up the standard of people living in the community are particularity, in the Guntur district of Andhra Pradesh, India.

Index Terms – Cloud , Internet of things, Quality parameters, Safe drinking water, Sensor electronics, Smart village

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INFLUENCE OF CRITICAL PARAMETERS OF THERMOPOROSIS AND DOUBLE STRATIFICATION ON NONALIGNED STAGNATION POINT FLOW OF A CASSON FLUID PAST A POROUS ELONGATED SHEET

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ABSTRACT

Present investigation aims at analyzing the properties of heat and mass transfer phenomena of hydro magnetic stagnation point flow of radiadive casson fluid resulting from porous extending expanse in doubly stratified medium. Influence of thermophoresis, heat source /absorption and chemical response has been widely studied. By inducing variables of similarity the basic equations are transmuted into dimensionless equations and are resolved mathematically using Runge- Kutta – Fehlberg shooting technique method. When velocity of the in viscid free stream is superior to that of elongating surface boundary layer can be detected. Impact of Skin friction, Sherwood and Nusselt numbers on the flow configurations for diverse critical parameters are exposed realistically via graphs. Arithmetical results that obtained in the current exploration are confirmed with previously explored values in very marginal way.

Index terms: Magnetic Parameter, Heat source Parameter, Prandtl number, Chemical Reaction, Casson Fluid, Free stream stagnation flow parameters, Porous parameter, Soret number, Thermophoretic parameter.

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MHD FLOWOF CARREAU NANOFLUID EXPLORED USING CNT OVER A NONLINEAR STRETCHED SHEET

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ABSTRACT

In the present investigation is to magnetohydrodymaics (MHD) radiative flow of an incompressible steady flow of Carreau nanofluid explored with carbon nanotubes. The boundary layer flow and heat transfer to a Carreau nanofluid model over a non- linear stretching surface is introduced. The Carreau model, adequate for many non-Newtonian fluids is used to characterize the behavior of the fluids having shear thinning properties and fluids with shear thickening properties for numerical values of the power law exponent n. The modeled boundary layer conservation equations are converted to non-linear coupled ordinary differential equations by a suitable transformation.R language with bvp solver was adopted to obtained numerical solutions of the resulting equations by using the Runge-Kutta method along with shooting technique. This analysis reveals many important physical aspects of flow and heat transfer. Computations are performed for different values of the stretching parameter(m),the Weissenberg number (We) and the Prandtl number (Pr).The obtained results show that the velocity of shear thinning fluid is depressed by the Weissenberg number while contrasting behavior for the shear thickening fluid is observed. A comparison with previously published data in limiting cases is performed and they are in excellent agreement.

Index terms: Shear thinning and Shear thickening, Radiation,Runge-Kutta method,R language.

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NON-ALIGNED STAGNATION POINT FLOW OF A CASSON FLUID PAST A STRETCHING SHEET IN A DOUBLY STRATIFIED MEDIUM

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ABSTRACT

This paper investigates the problem of oblique hydro magnetic stagnation point flow of an electrically conducting Casson fluid over stretching sheet embedded in a doubly stratified medium in the presence of thermal radiation and heat source/absorption with first order chemical reaction. It is assumed that the fluid impinges on the wall obliquely. Similarity variables were used to convert the partial differential equations to ordinary differential equations. The transformed ordinary differential equations are solved numerically using Runge-Kutta-Fehlberg method with shooting technique. It is observed that a boundary layer is formed when the stretching velocity of the surface is less than the in viscid free stream velocity at a point decreases with increase in the non-Newtonian rheology parameter. The augmentation of the temperature is observed with the magnetic parameter, heat source parameter and thermal radiation parameter while a reverse effect with thermal stratification number, Prandtl number and the velocity ratio parameter. Influence of Skin friction coefficient, Nusselt number and Sherwood number on the flow configurations for different values of pertinent parameters are portrayed graphically and discussed. Numerical results are compared with the published results and are found to be in good agreement with previously published results as special cases of present problem. The mass concentration is seen to be decrease with Schmidt number, chemical reaction parameter and solutal stratification number.

Index terms: Magnetic parameter, heat source, prandtl number, chemical reaction

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A STUDY ON MULTIPLE LINEAR REGRESSION USING MATRIX CALCULUS

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ABSTRACT: In spite of accessibility of a large number of imaginative tools in Applied Mathematics the most important tool of the Mathematician is always the linear model as it involves uncomplicated and apparently most restrictive properties namely linearity ,constancy of variance ,normality and independence. Linear models and the methods connected to it are remarkable, flexible and powerful. Since almost all advanced statistical tools are generalizations of linear models proficiency in linear models is a prerequisite to study advanced statistical tools. This research article primarily focuses on the specific forms of Simple Linear Regression Model, Multiple Linear Regression Model, LSE of its parameters and the properties of LSE.Furthermore an innovative proof of Gauss-Markov theorem has been proposed by means of Principles of Matrix Calculus. In addition to these the concept of BLUE has been depicted.

***Index terms**: Response and Predictor variables, LSE (Least Square Estimator), MLE (Maximum Likelihood Estimator), Regression Coefficients, BLUE (Best Linear Unbiased Estimator).*

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JORDAN GENERALIZED DERIVATIONS IN GAMMA NEARRINGS

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ABSTRACT: This research article explores on Jordan generalized derivations in Gamma nearrings.The main objective of this talk is to prove one most important result in Gamma nearings namely:" Let N be a two torsion free Γ-nearring. If N has two elements p and q so that for any αÎΓ ,r$\gamma y\gamma$[p,q]α=0 or [p,q]α$\gamma y\gamma$r=0 implies r=0 for all yÎN, γÎΓ then every Jordan generalized(σ,τ)derivation on N is a generalized(σ,τ)derivation".In order to present an innovative proof to this result four prerequisites in terms of lemmas are proposed .Moreover elegant proofs for these three lemmas have been depicted. In this discourse we crave to present some fundamental characteristic properties of Gamma nearrings and an evolution in the conjecture of Gamma nearrings. The innovatory proofs of three lemmas proposed here ensure a way for young researchers.

Index terms: Gamma nearring, Two torsion free Γ-nearring, (σ,) Jordan generalized derivation, Additive map, Derivation

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Bias in the Maximum Likelihood Estimation of Parameters of Nonlinear Regression Models

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ABSTRACT: Nonlinear model building has become an important tool in Predictive Analysis and Forecasting Theory. MLE is a phenomenon in which one can obtain unknown coefficients of a distribution by optimizing a likelihood function. Maximum likelihood estimate is the vector in parameter space which optimizes the likelihood function. This research article throws a light on the BIAS in the MLE of unknown coefficients of statistical models which are not linear. In addition to this a test for the linearity of regression has been proposed. If the ML function possesses derivatives one can apply first derivative test to obtain optimum values. But in some situations the equations of first degree of ML function are to be solved in explicit manner. For example in linear statistical model OLS estimator optimize the ML function. In vast number of cases advanced numerical techniques should be implemented in order to get ML function. As the application of ML technique is both flexible and intuitive this technique has become an indispensable tool in statistical inference.

Index Terms: Bias, MLE (Maximum Likelihood Estimation), Multivariate Normal distribution, Variance-Covariance Matrix, Residual Vector, Linearity of Regression, Rank correlation coefficient.

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Mathematical Model of Tuberculosis with Drug Resistance to the First and Second Line of Treatment

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ABSTRACT:

This study proposed a mathematical model of tuberculosis with drug resistance to a first and second lineoftreatment.Thebasicreproductionnumberforthemodelusingnextgenerationmethodisobtained.The equilibrium point of the model was investigated and also found the global stability of the disease free equilibrium and endemic equilibrium for the model. This study shows the effect of resistance rate of the first and second line of treatment to the infected and resistant population. If basic reproduction number is less than one, the disease free equilibrium is globally asymptotically stable and if basic reproduction number is greater than one, then the endemic equilibrium is a globally asymptotically stable.

Index Terms: Tuberculosis, Mycobacterium tuberculosis bacteria [Mtb], developed multi-drug resistant [MDR], Basic reproduction number, Stability.

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TRANSLATIONS OF INTUITIONISTIC FUZZY SUBALGEBRAS IN BF-ALGEBRAS

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ABSTRACT:

This research article explores on, the concepts of IFT to IFS in BF-algebras. The phenomenon of IF-extensions and IF-multiplications of IFS is proposed and several related properties are investigated. In this paper, the interaction between IFTs and IF-extensions of IFSs are investigated.

Index Terms --Intuitionistic fuzzy sub algebra (IFS), intuitionistic fuzzy translation (IFT), intuitionistic fuzzy-multiplication(IFM).

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A study on translational invariant vague set of a Γ-semiring

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ABSTRACT:

In this paper, we introduce the concepts of translational invariant vague set of a Γ-semiring and units, associates, prime elements with respect to a vague set. Also, we define an ideal of a Γ-semiring generated by translational invariant vague set and an element and their properties are discussed. Further, we study the properties of homomorphic image and pre-image of translational invariant vague set under the Γ-semiring homomorphism and we prove that every homomorphic image of a prime ideal of a Γ-semiring generated by a ψ-prime element and translational invariant and f -invariant vague set is also a prime ideal.

Index Terms – Γ-semiring , Translational invariant vague set, ψ-unit, ψ-prime element.

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Pseudo Abelian Ternary Semi hypergroups

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ABSTRACT:

In this article we introduce the notion of left pseudo, lateral pseudo, right pseudo, pseudo, quasi abelian Ternary semi hypergroups and characterize them by utilizing various hyperideals of Ternary semi hypergroup extending those from Semigroups.

Index Terms – Left Pseudo, Right Pseudo, Lateral Pseudo, Pseudo, Quasi abelian Ternary semi hypergroups.

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Existence of Solution of the Nonlinear Differential Equation in the Modelling Of Eardrum by Using Homotopy Perturbation Method

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ABSTRACT:

The eardrum model equation has non odd restoring force function. It is observed that it is asymmetrically loaded and undergoes asymmetric oscillations for positive and negative amplitudes In this study the nonlinear second order differential equation of an ear drum model is solved by using the homotopy perturbation method. The solution obtained by the homotopy perturbation method is compared with the analytical method.

Index Terms: Homotopy perturbation method (HPM), Phase diagram, truly nonlinear systems, Modified differential transform method (MDTM), Ear drum, Perturbation method, closed form solution

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Synthesis, Characterization and Antibacterial Activity of Binuclear Chromium(II) Complexes of New Schiff Base Ligand Derived from Amino Acids

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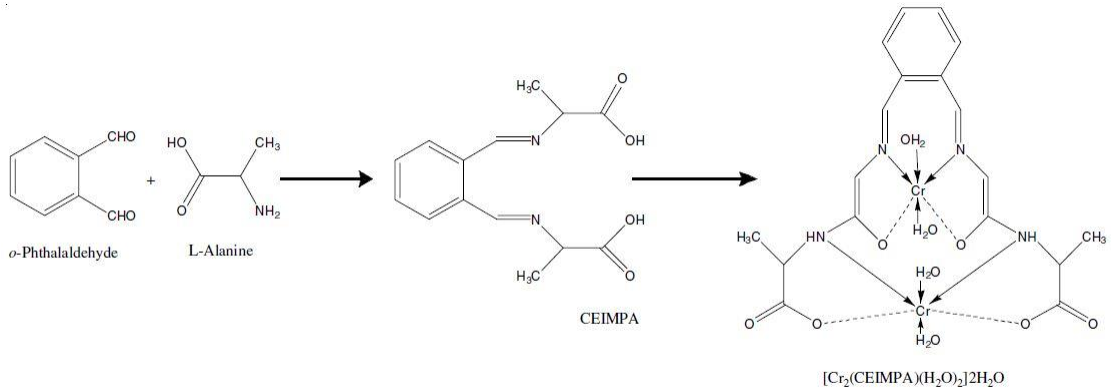
ABSTRACT:

Eight chromium(II) complexes of type, [Cr(L)(H2O)x]·*x*H2O (where L= Schiff base ligand) have been synthesized and characterized on the basis of elemental analysis IR, 1H, 13C NMR, mass and electronic spectroscopy, magnetic and conductance measurements. The amino acid schiff base ligand behaved as a octadentate ligand. The probable structures of the chromium(II) complexes have been elucidated and also the chromium(II) complexes were screened for antibacterial activity, which showed a moderate to good activity against Gram-positive and Gram-negative bacteria.



Scheme-I: Synthesis of chromium(II) complex

Index Terms – Phthalaldehyde, Amino acid Schiff bases, Chromium(II) compounds, antibacterial Activity.

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Synthesis, Biological Evaluation and Molecular properties of Novel Imidazole Derivatives as Antibacterial agents

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ABSTRACT:

A convenient, rapid, efficient and environmentally benign route has been developed for the preparation of 2,5-disubstituted-*N*-alkyl imidazole derivatives **5** using knovenogal condensation of *N*-alkyl-2-butyl-4-chloro-1H-imidazole-5-carbaldehyde **3** and ethylcyano acetate **4** by L-proline as a catalyst. The synthesized derivatives (**5a-5g**) were evaluated for their invitro antibacterial, antifungal activity against different bacteria and fungi strains respectively. Of the derivatives, compounds **5g, 5c, 5d,** and **5d** exhibited strong, broad-spectrum inhibitory effects towards *Enterococcus faecalis, Klebsiella pneumonia* UF222, *Staphylococcus aureus* UA1758. In particular, the **5g** exhibited potent antibacterial activities toward the bacterial-resistant isolate *Pseudomonas aeruginosa* UA1024, *Klebsiella pneumonia* UF222, with both having MIC values of 2 μg/mL. In addition, they had significant inhibitory effects towards two fungal strains, *Candida albicans* 205, *Candida krusei* ATCC 6528 (compound **5a**: MIC = 0.25 μg/Ml, **5c**: MIC = 8 μg/mL and 5b: 4 μg/mL) respectively. In the present investigation for prediction of insilico molecular properties and drug likeness for the title compounds was evaluated by using chemin fomatics tools (Molinspiration, 2003 and MolSoft, 2007) and **5a, 5b** displayed suitable highest drug like scores -0.75, -0.71 according to Lipinski's rule of five.

Index Terms – Imidazole, antibacterial activity, antifungal activity, Molinspiration, MolSoft, X-ray studies.

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An Alternative Approach to the Synthesis of Parvistone C

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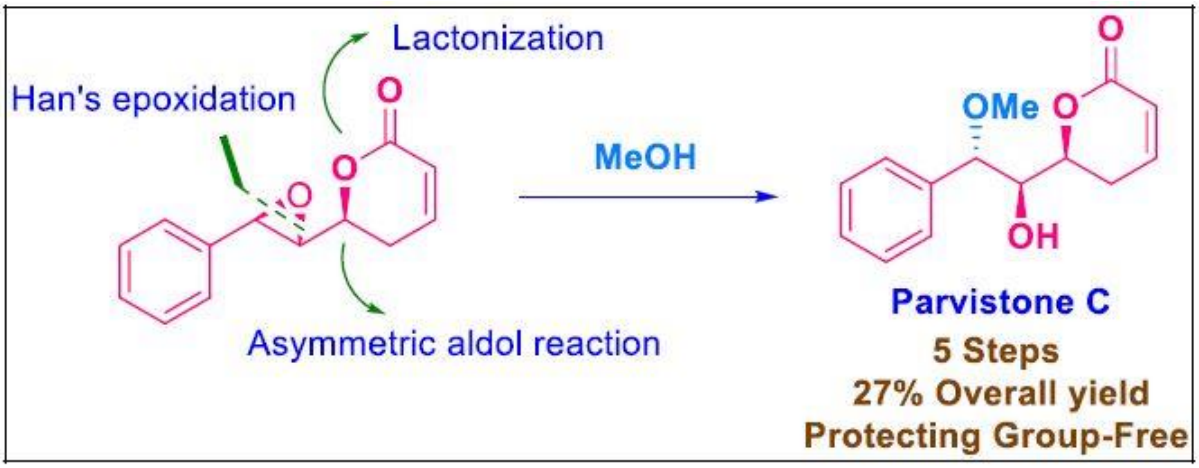
ABSTRACT:

A stereoselective total synthesis of parvistone C, an oxygenated natural styryllactone, has been accomplishedin excellent overall yield by employing asymmetric aldol reaction, asymmetric epoxidation and regioselectiveepoxide ring opening as the key steps. Our synthetic strategy is very simple, concise and nouse of protecting groups.



Index Terms – Parvistone C, Stereo Selective, styryllactone, asymmetric epoxidation, protecting groups

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Synthesis and Anticancer Evaluation of 2-{4-[5-(5-Substituted arylpyrimidin-2-yl)-1H-pyrazol-3-yl]-phenyl}thiazolo[4,5-b]pyridine Derivatives

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ABSTRACT:

Abstract—In the present study a new series of 2-{4-[5-(5-substituted arylpyrimidin-2-yl)-1H-pyrazol-3-yl]phenyl}thiazolo[4,5-b]pyridine derivatives (11a–11j) are synthesized and tested for their anticancer activityagainst four human cancer cell lines including MCF-7 (breast), A549 (lung), Colo-205 (colon), and A2780(ovarian) by the MTT assay. Among synthesized compounds, 11b, 11c, 11d, 11g, and 11j exhibit activityhigher than the standard drug.

Index Terms *– pyrimidines, pyrazole, anticancer activity*

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Development and validation of liquid chromatography method using the principles of QbD for antimalarials used in Artemisinin based combination therapy

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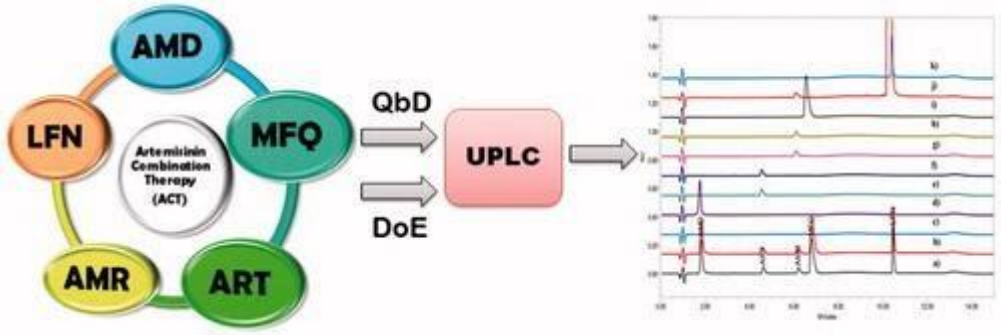
ABSTRACT:

The present work aims at developing a liquid chromatographic method for the determination of drugs in the artemisinin combination therapy. The method development utilised the principles of QbD (Quality by Design) and design space in order to provide a specific, accurate and precise method. The drugs used in the study were Amodiaquine (AMD), Mefloquine(MFQ),Lumefantrine (LFN), Artesunate (ART) and Artemether (AMR). Separations of the analytes were achieved on a UPLC system using a HSS Cyano column (100 x 2.1) mm, x 1.8 µm and mobile phase consisting of20mM Ammonium formate buffer (pH 6.5) as mobile phase A, 0.04% formic acid and methanol as mobile phase B in gradient elution program. The method development was based on the systematic trials suggested by the software using QbD. The design space of the experimental conditions was proposed to indicate the ruggedness of the analytical method using DoE. The proposed method was successfully applied to various formulations and thus was approved as good analytical method based on its applications. The method was thoroughly validated as per ICH guidelines. The developed method finds its application in bulk drug and formulations with its extension to quality control and also in investigation of counterfeit drugs.



Index Terms – liquid chromatographic method, Mefloquine, Lumefantrine

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Polymer based Solar Cells for Improvements in Stability and Efficiency

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ABSTRACT:

Finding an inexpensive, clean and completely renewable energy source is the most pressing challenge of current times. Solar energy has long term potential because the earth receives enough energy from the sun in just one hour to meet all human energy requirements for an entire year. Current silicon-based solar technologies lead the market in terms of device efficiencyand lifetime but they are expensive to implement on a global scale.[1] This is the major motivation for the development of organic solar cells (OSCs), which recently attracted much attention due to their low-cost, flexibility, lightweight and their use in large-area devices.[2] OSCs are not without their problems, most notably lifetimes, which can be as low as 5 years. The individual layers play a vital role contributing towards the performance and lifetime of the final solar-powered device.

Block copolymers (BCPs) have long-term structural stability and also their solid-state morphology being of the appropriate dimensions to efficiently perform charge separation and transfer to electrodes.[3] Our aim is to improve further the efficiency and lifetime of OSCs by creating highly original and industrially viable novel block copolymers. Hence, we focused on the synthesis and photovoltaic application of BCPs based on poly(3-hexylthiophene) (P3HT) due to its high hole mobility, good processibility and ease of synthesis.[4] Herein, the novel synthesis of the latest BCPs based on P3HT will be presented and explored their detailed study of self-assembly and device performances.[5]

Index Terms *–* ***Polymers, Nanostructures, Organic Solarcells, Stability and Efficiency.***

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An investigation of conductivity and spectroscopic studies of blend films of bio-degradable based Gel polymer electrolytes

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Abstract: The main theme for the usage of biodegradable polymers as host materials in gel polymer electrolytes (GPEs) is due to the present scenario of global warming issues [1-2]. To prevent from the environmental issues, we aim to use poly(vinyl alcohol) (PVA) and potato starch as host polymers for the preparation of gel polymer electrolytes. Blending of bio polymers improve both physical and structural properties that leads to formation of novel material owing to desirable properties [3-4]. Bio-polymers are given priority because they are abundantly available from the natural resources, eco-friendly and results in soft flexible film, low cost. Also the large polymer matrix will helps in ionizing the inorganic salt which results in high ionic conductivity [5]. By solution casting technique, Gel polymer electrolytes (GPEs) are prepared with the desired combination of Potato starch (PS) + Poly (vinyl aicohol) (PVA) + Magnesium acetate [Mg $(CH_3COO)_2$] of different ratios are [PS:PVA:Mg$(CH_3COO)_2$] (50:50:0, 40:40:20, 35:35:30, 30:30:40). The prepared GPEs are further analyzed with different characterization techniques and these GPEs can be potential candidates for the rechargeable battery application.

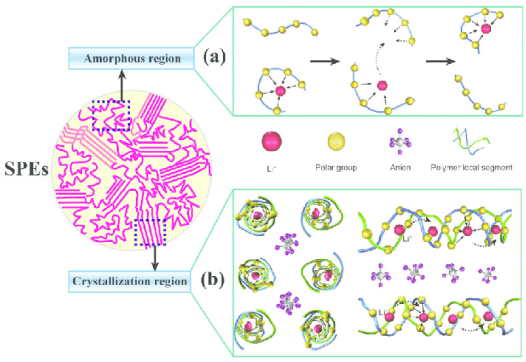

Figure 1 Mechanism of Polymer Electrolyte

Index Terms-Polymer-electrolytes, Nanostructures, Bio-degradable, Conductivity and Battery.

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Synthesis and Anticancer Activity of Amide Derivatives of 1,2-Isoxazole Combined 1,2,4-Thiadiazole

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[2] Department of Chemistry, Krishna University, Machilipatnam, Andhra Pradesh, 521001 India.

Abstract: A series of amide derivatives of 1,2-isoxazole combined with 1,2,4-thiadiazole are synthesized **11a–11j**. Their chemical structures are confirmed by 1H and 13C NMR, and mass spectra. The products are tested fortheir anticancer activity against four types of human cancer cell lines, including MCF-7 (breast), A549 (lung),Colo-205 (colon), and A2780 (ovarian). Etoposide is used as a positive control. Most of the compounds showgood anticancer activity. The compounds **11b, 11c, 11d, 11e, 11g,** and **11j** demonstrate more potent activitythan etoposide.

Index terms: Luminespib, Cefozopram, isoxazole, thiadiazole, anticancer activity

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Ultrasound Assisted Synthesis of 2-Substituted Benzofurans *via* One-Pot andSequential Method: Their *In Vitro* Evaluation

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[2]Department of Chemistry, Krishna University, Machilipatnam-521 001, Andhra Pradesh, India

Abstract: The 2-substituted benzofuran framework has attracted enormous attention due to its presence in a range of bioactive compounds and natural products. While various methods for the synthesis of 2-substituted benzofuran derivatives are known, several of them suffer from certain drawbacks.The main objective of this work was to explore a series of 2-(het)aryl substituted benzofurans derivativesfor their cytotoxic properties against cancer cell lines *in vitro.*In our efforts, we have developed a one-pot synthesis of this class of compounds *via* sequential C-C coupling followed by C-Si bond cleavage and subsequent tandem C-C/C-O bond-forming reaction under ultrasoundirradiation. The methodology involved coupling of (trimethylsilyl)acetylene with iodoarenes in the presenceof 10% Pd/C-CuI-PPh3-Et3N in MeOH followed by treating the reaction mixture with K2CO3 in aqueousMeOH and finally coupling with 2-iodophenol. A variety of 2-substituted benzofurans were synthesized usingthis methodology in good yield. All the synthesized compounds were tested *in vitro* against two cancer celllines, *e.g.* MDAMB-231 and MCF-7 cell lines subsequently against SIRT1.The benzofuran derivative **3m** showed encouraging growth inhibition of both MDAMB-231 and MCF-7 cell lines and significant inhibition of SIRT1. The compound **3m** also showed a concentration-dependentincrease in the acetylation of p53.Our efforts not only accomplished a one-pot and direct access to 2-(het)aryl substituted benzofuransbut also revealed that the benzofuran framework presented here could be a potential template for theidentification of potent inhibitors of SIRT1.

Keywords: Benzofuran, ultrasound, Pd/C, cancer, bioactive compounds, one-pot synthesis.

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Synthesis and Anticancer Activity of Amide Derivatives of 1,2-Isoxazole Combined 1,2,4-Thiadiazole

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[2] Department of Chemistry, Krishna University, Machilipatnam, Andhra Pradesh, 521001 India.

Abstract: A series of amide derivatives of 1,2-isoxazole combined with 1,2,4-thiadiazole are synthesized **11a–11j**. Their chemical structures are confirmed by 1H and 13C NMR, and mass spectra. The products are tested for their anticancer activity against four types of human cancer cell lines, including MCF-7 (breast), A549 (lung), Colo-205 (colon), and A2780 (ovarian). Etoposide is used as a positive control. Most of the compounds show good anticancer activity. The compounds **11b, 11c, 11d, 11e, 11g,** and **11j** demonstrate more potent activity than etoposide.

Index terms: Luminespib, Cefozopram, isoxazole, thiadiazole, anticancer activity

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Development of Materials for Blue Organic Light Emitting Devices

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Abstract: The success of organic light emitting diodes (OLED) has been witnessed by the commercialization of this technology for manufacturing the vivid and colorful displays used in our daily life now. The prospective growth of OLED technology on display industry will be optimistic. Over the last three decades, many different approaches on material and device designs have been implemented for improving the efficiency and stability of OLED devices. These efforts install main cornerstones to support the great achievement of OLED technology. However, until now, the performance and stability of blue OLEDs still have some concerns. This troublesome issue should be totally conquered before the large-scale manufactures dominated over other display technologies, particularly liquid crystal-based displays, takes place. Though significant progress has already been made to achieve high performance and long lifetime blue OLEDs, this topic still remains as one of the hot researches in OLEDs. We have been working on this area for about two decades and made some notable contributions. Consequently, in this personal account we have outlined our efforts to obtain better performing blue OLEDs by utilizing a range of emitters based on fluorescence, phosphorescence, delayed fluorescence and exciplex systems. We have also developed some novel host materials for blue OLEDs, which are worth mentioning in this account.

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Spatial Distribution Analysis on Groundwater Quality of Sarada River Basin, Visakhapatnam, A.P. India

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Abstract:

An attempt has been made to study the spatial distribution of pH, E.C, Chlorides and TDS of groundwater in the different sub-basins of Sarada River Basin, Visakhapatnam, A.P. The pH value of groundwater varies from 6.4 to 8.8 with an average of 7.6. The pH range is not within the limits prescribed by WHO or ISI either in the highest desirable level or maximum permissible level E.C values ranges from 210 to 8000 micromhos/cm with an average of 4105 micromhos/cm. The chloride values of the study area range from 14 to 2486mg/l with an average of 1250mg/l. The TDS values of the study area ranges from 136 to 5200 mg/l with an average of 2668mg/l, exceeds the maximum permissible limit of ISI and ICMR .A small portion of the upper Sarada River and some southern part of lower Sarada River Basin which is close to the sea, characterized with sudden change in the values of pH, Electrical Conductivity, Chlorides and TDS which indicate some sort of pollution. The agricultural and industrial townships in the study area shows the minimum pH, high chloride and E.C. values. The study area also reveals that the pollution of groundwater is due to saline water intrusion and over use of fertilizers and pesticides in lower Sarada River Basin Index Terms: pH, E.C, chlorides, TDS and groundwater pollution

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New research trends in the processing and applications of iron-basednanoparticles as adsorbents in water remediation methods

Wondwosen Kebede Biftu, · K. Ravindhranath, · Mylavarapu Ramamoorty

Abstract The present comprehensive review is an account of recent advances in the syntheses of nanoparticles of iron-based materialsvia conventional and green routes and their adoptability as adsorbents in the purifcation of water. The green synthesized nanoparticles are proving to be more biocompatible with enhanced sorption properties than conventionally synthesized nanoparticles. The potential areas of research in the syntheses and application aspects are summarized. The identification of compounds in fora that serve as reducing, capping or stabilizing agents, production of uniform-sized nanoparticles using plat materials as 'biotemplates' and developing sorption afnity between the surface of nanoiron-based particles and pol- lutants are some of the important areas discussed. The redox, complex formation, adsorption and ion-exchange tendencies of iron nanoparticles may be suitably 'tailor-made' to improve their binding afnity towards the pollutants so that the said nanoparticles or their composite materials (especially bi-/multimetallic/mixed oxides) may be used as adsorbents in water remediation methods. One of the major inherent disadvantages of nanosized iron particles using as adsorbents is the rate of percolation water through the sorbent bed is low, and there is a loss of pressure head. Investigations are to be focused in developing open columns wherein nanoparticles are embedded in the matrix of synthetic or natural inorganic or organic polymers or in beads. In such cases, the host matrix may infuence the characteristics of the nanoparticles and they are to be investigated for the advantage of removal of pollutants from wastewater.

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A HIGHLY SELECTIVE AND SENSITIVE ANALYTICAL TECHNIQUE FOR THE DETERMINATION OF ISOMALTULOSE IN PRESENCE OF ITS PROCESS RELATED IMPURITIES BY CAPILLARY ELECTROPHORESIS

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Abstract

Isomaltulose is a rare disaccharide and has drawn the attention of the pharmaceutical and food industry due to its medical applications. In the present investigation, a simple first of its kind capillary electrophoresis (CE) method is developed and validated for the identification and quantification of isomaltulose and its process impurities (trehalulose, sucrose, d-glucose and d-fructose). The analysis is performed at pH: 12.6 using an electrolyte buffer containing 36 mM of Na2HPO4 and 130 mM NaOH. The calibration curves are plotted over a concentration range from 0.25 mM to 3.0 mM with the regression of 0.99 and with detection limits of 0.15 mM, 0.14 mM, 0.13 mM 0.10 mM and 0.23 mM for isomaltulose, trehalulose, sucrose, d-glucose and d-fructose respectively. Concerning the internal standard, d-trehalose, the relative migration time is 1.32 min for isomaltulose. Better resolution is achieved under optimum conditions of 18 °C temperature, 16 kV capillary voltage and pH of 12.6. The method is found to be specific for the intended purpose and can be used as an orthogonal approach to the current existing United States Pharmacopoeia (USP) High-performance liquid chromatography (HPLC) monograph method. Keywords: Isomaltulose /Palatinose, Capillary Electrophoresis Analysis, Disaccharide.

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Adsorption of Cr (VI) from polluted water using activated carbon prepared

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Abstract

The action of performing charcoal was from an idea of removal of chromium from polluted water in present days. The absorption characteristics of charcoal come from Lagenaria Siceraria plant stems for removal of chromium from polluted solutions. In surface chemistry the characteristics of absorbed substances were a structure of analysis by FTIR, SEM-EDAX, and XRD. An adsorption experiment has been performed in order to increase initial concentration, PH, in absorbed substances and contact time for removal process. The metal ion has PH dependent to a lesser elongation, ionic strength. A structure of data that is moving continuously was found to follow pseudo-second order of a data structure model. In thermodynamics the scope of an activity such as activation enthalpy, activation entropy, activation Gibbs free energy, and activation energy from an idea and possible of mechanism is also suggested.

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SYNTHESIS OF NANOZRO2 VIA SIMPLE NEW GREEN ROUTES AND ITS EFFECTIVE APPLICATION AS ADSORBENT IN PHOSPHATE REMEDIATION OF WATER WITH OR WITHOUT IMMOBILIZATION IN AL-ALGINATE BEADS

Wondwosen Kebede Biftu and Kunta Ravindhranath

Abstract

Nano particles of ZrO2 of average size 10.91 nm are successfully synthesized via green routes from asolvent blend of water and ethylene glycol (4:1 v/v). Bio-extract of seeds of Sapindus plant is employed as stabilizing and/or capping agent and homogeneous method of precipitation is adopted to generate the precipitating agent. The nZrO2 particles are immobilized in aluminum alginate beads (nZrO2-Al- alig). Nano-ZrO2 and beads are investigated as adsorbents for the extraction of phosphate from water. The controlling physicochemical parameters are studied for the maximum phosphate removal using simulate water. The optimum conditions are: pH: 7; sorbent dosage: 0.1 g/100 ml for nZrO2 and 0.08 g/100 ml for beads; equilibration time: 30 min.for nZrO2 and 35 min for beads; initial phosphate concentration: 50 mg/L; temperature: 30 ± 1 C; 300 rpm. The adsorption capacities are: 126.2 mg/g for nZrO2 and 173.0 mg/g for 'nZrO2-Al- alig' and they are higher than many reported in literature. The beads besides facilitating the easy filtration, are exhibiting enhanced cumulative Phosphate-adsorption nature of nanoZrO2 and Al-alginate. XRD, FTIR, FESEM and EDX investigations are employed in characterizing the adsorbents. Of the various isotherm models analyzed to assess the nature of adsorption, Freundlich model provides the best correlation (R2 1⁄4 0.99 for nZrO2 and R2 1⁄4 0.99 for 'nZrO2-Al-alig'), indicating the heterogeneous and multi-layered adsorption process. Thermodynamic studies reveal the endothermic and spontaneous nature of sorption. Pseudo-second-order model of kinetics describes well the adsorption. Spent adsorbents can be regenerated with marginal loss of adsorption capacity until 5 cycles. The sorbents are successfully applied to remove phosphate from polluted lake water samples.

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LC-MS/MS METHOD FOR THE TRACE LEVEL DETERMINATION OF ETHYL BENZENE SULFONATE: AGENOTOXIC IMPURITY IN AMLODIPINE BESYLATE

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Abstract

A highly sensitive method for the quantification of genotoxic impurity Ethylbenzene sulfonate (EBS) in Amlodipine Besylate using hyphenated techniques, has been developed. EBS is assessed by LC-MS/MS-SIM mode method using Inertsil ODS 3V (150×4.6mm) 3.0 µm column. 0.01M CH3COONH4 is used as a buffer and its admixture with CH3CN in the ratios: 60:40 and 5:95 v/v, are found to be effective mobile phase-A and mobile phase B respectively. The gradient program (Time, minutes /%B, v/v) is fixed as 0/5, 2.5 /5, 5.0/50, 10.0/70, 15.0/95, 20.0/95 and 24.0/5. Validation of the method developed is assessed as per recommendations of the International Conference on Harmonization. LOD and LOQ values of EBS are 0.01 and 0.04 µg/mL respectively. The method has accuracy within 98.1 – 103.0% for the analyte. This method is direct, convenient, accurate and cost-effective and it can be adopted as quality control means for the determination of EBS in Amlodipine Besylate
Keywords: Amlodipine Besylate, Ethylbenzene Sulfonate (EBS), Genotoxic, Selected Ion Monitoring (SIM)

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Effect of Doping Nano Samarium(III) Oxide in PVA+Na3C6H5O7 Films for Battery Applications

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Abstract

The effect of doping nano Sm2O3 particles in PVA + Na3C6H5O7 (90:10% w/w) polymer composite films on the structural, thermal, electrical properties and battery parameters are investigated. The PVA + Na3C6H5O7 + nano Sm2O3 (90:10:1- 4% w/w) films were synthesized and characterized. A 2% w/w Sm2O3 film was relatively homogeneous with high amorphous in nature enabled the movement of nanoparticles in the matrix of polymer under potential gradient. The maximum conductivity was 2.09 × 10-3 S cm-1 for 2% w/w nano Sm2O3 film and it is 7 orders more than polyvinyl alcohol. The films were adopted in batteries with configuration: Anode (Mg+MgSO4) /[{PVA:Na3C6H5O7 (90:10% w/w)} + nano Sm2O3 (1-4% w/w)]/cathode (iodine + carbon + pieces of electrolyte) and battery parameters were assessed. The discharge time is 174 h with the cell having 2.0% w/w nano Sm2O3 film. These nano Sm2O3 doped films are successfully adopted in the fabrication of batteries and also the proposed cells are simple, effective, eco-friendly and economical.

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Analytical Method Development and Validation for the Quantification of Acetone and Isopropyl Alcohol in the Tartaric Acid Base Pellets of Dipyridamole Modified Release Capsules by Using Headspace Gas Chromatographic Technique

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ABSTRACT:

A simple, sensitive, accurate, robust headspace gas chromatographic method was developed for the quantitative determination of acetone and isopropyl alcohol in tartaric acid-based pellets of dipyridamole modified release capsules. 'e residual solvents acetone and isopropyl alcohol were used in the manufacturing process of the tartaric acid-based pellets of dipyridamole modified release capsules by considering the solubility of the dipyridamole and excipients in the different manufacturing stages. 'e method was developed and optimized by using fused silica DB-624 (30m× 0.32mm× 1.8 µm) column with the flame ionization detector. 'e method validation was carried out with regard to the guidelines for validation of analytical procedures Q2 demanded by the International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use (ICH). All the validation characteristics were meeting the acceptance criteria. Hence, the developed and validated method can be applied for the intended routine analysis.

Index Terms *–* ***blood thinner, dipyridamole.Gas Chromatographic***

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Cleaning Method Validation for Estimation of Dipyridamole Residue on the Surface of Drug Product Manufacturing Equipment Using Swab Sampling and by High Performance Liquid Chromatographic Technique

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ABSTRACT:

Objectives: Cleaning validation is the procedure used to ensure that the cleaning process has eliminated the residues of drug substance from on the equipment surface after manufacture. A simple, sensitive, robust, and accurate high performance liquid chromatographic method was developed for the quantitative estimation of dipyridamole in swab samples obtained from the equipment surface after the manufacture of dipyridamole modified release capsules. The method was developed by using a Hypersil BDS C18 (150×4.6 mm, 5 µm) column with mobile phase containing a mixture of buffer (potassium dihydrogen phosphate buffer, pH 7.0±0.05) and methanol in the ratio of 30:70 v/v. Flow rate was 1.5 mL/min, column temperature was 45°C, and injection volume was 5 µL. The method was validated and a specificity study was conducted to prove that there was no interference from blank and swab blank at the retention time of dipyridamole. The limit of detection and limit of quantification (LOQ) were established by using a series of linearity solutions and were found to be 0.041 µg/mL and 0.124 µg/mL, respectively. The method precision at the LOQ level was 8.6% relative standard deviation (RSD), method precision was 0.2% RSD, and ruggedness was 0.3% RSD. The method was accurate from the concentration of 0.13 µg/mL to 21.80 µg/ mL and the recovery results met the acceptance criteria. The linearity of the method was found from 0.12 µg/mL to 20.14 µg/mL and the r2 Value was 0.997. The robustness for the flow rate, wavelength, column temperature, buffer pH, and mobile phase ratio variations was tested, and all the system suitability parameters were met. The method validation was performed as per the regulatory requirements.

Index Terms *– **Dipyridamole, swab, method development, validation, cleaning***

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Design, Synthesis and Molecular Modeling of Nonsteroidal Anti-inflammatory Drugs Tagged Substituted 1,2,3-Triazole Derivatives and Evaluation of Their Biological Activities

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ABSTRACT:

A novel series of 1,4-disubstituted-1,2,3-triazole derivatives 3a–l and 5a–i were one-pot synthesized via CuAAC-alkyne click chemistry and evaluated for their antibacterial activity against four organisms and screened for their anticancer activity against human colon cancer cell line HT-29 and human lung cancer cell line HTB-29. These hybrid molecules structure elucidation has been performed by IR, 1H-NMR, 13C-NMR, and mass spectral analysis. Synthesized nonsteroidal anti-inflammatory drugs-triazoles evaluated for their antibacterial activities against bacterial microorganisms Pseudomonas aeruginosa, Escherichia coli, Staphylococcus aureus, and Klebsiella pneumonia. Final compounds 3i, 3c, and 5b showed magnificent broad spectrum activity against P. aeruginosa, K. pneumonia, E. coli, and S. aureus with zone of inhibition values of 20, 15, 17, and 16 mm, respectively. Among the series of compound, 3j showed the best antibacterial activity against all the strains. Further, the compounds 3i and 5a were more cytotoxic than cisplatin against all tested two human cancer cell lines, with 50.8%, and 52.3% and 73.4% and 75.3% of growth, respectively. The synthesized compounds were tested for kinase inhibitory activity against glycogen synthase kinase-3 protein kinases, in addition, for cytotoxic activity against two different human cancer cell lines.

Index Terms *– **Design, Evaluation, Biological Activity, IR, NMR***

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New Bio Analytical Method Development and Validation for the Simultaneous Estimation of Trifluridine and Tipiracil in spiked human plasma

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ABSTRACT:
New High-performance liquid chromatographic bio-analytical method has been developed and validated for the simultaneous analysis of Trifluridine (TFD) and Tipiracil (TPC) in human plasma. The combination of TFD and TPC are used in the treatment of unresectable advanced or recurrent colorectal cancer. The method was developed with UV detector (at 260 nm wave length), Intersil ODSC 18 column (250 mm × 4.6 mm×5µ), at flow rate of 1.0mL/min. The mobile phase consisted of 15% NaClO4 buffer (PH 4.5 v/v), 85% Methanol. The retention times of TFD and TPC are 3.4 min and 7.4 min respectively. The method was developed and validated in terms of selectivity, precision, linearity, accuracy, LOQ, LOD and stability study. The proposed method can be applicable for pharmacokinetic studies using HPLC or LC-MS.

KEYWORDS: Trifluridine, Tipiracil, HPLC Method, Bio analytical method.

Index Terms:

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Removal of chromium (VI) from water using adsorbent derived from spent coffee grounds

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ABSTRACT:

An acid-treated adsorbent derived from spent coffee grounds is investigated for its adsorption toward chromium (VI) ions from polluted water by optimizing various physicochemical parameters such as pH, time of equilibration, initial concentration of Cr(VI), adsorbent dosage, temperature and interfering co-ions. 91.0% of removal is observed at optimum conditions, and the adsorption capacity is found to be as high as 22.75 mg/g. Adopting FTIR, EDX, XRD and SEM methods, the surface morphological studies are made. The nature of adsorption is analyzed using various adsorption isotherms, and it was found that Freundlich model describes well with R^2 : 0.9985 and R_L : 0.0108, indicating the heterogeneous surface and favorable multilayer of adsorption. The kinetics of adsorption follows pseudo-second-order with R^2 : 0.9998. Further, thermodynamics studies reveal the endothermic nature of adsorption process. Even after five regenerations, the % removal has not come down below 81.0%. The methodology is successfully applied for the removal of chromium (VI) from polluted waters.

Index Terms– Adsorption isotherms, Applications, Chromium (VI) removal, Kinetic and thermodynamic studies, Regeneration, Spent coffee grounds, Surface characterization.

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Removal of lead from water using calcium alginate beads doped with hydrazine sulphate-Activated red mud as adsorbent

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ABSTRACT:

Calcium alginate beads doped with hydrazine sulphate-Treated red mud are investigated as adsorbent for extracting lead ions from water using batch methods of extraction. Different extraction conditions are optimised for maximum lead extraction. Substantial amount of lead is removed, and the adsorption ability is found to be 138.6 mg/g. Surface characterization using FTIR, EDX, and FESEM confirms that lead is "onto" the surface of the adsorbent. Thermodynamic parameters, adsorption isotherms, and kinetics of adsorption are analysed. Adsorption is "physisorption" in nature and spontaneous. The adsorbent developed can be regenerated using 0.1MHCl. Thus regenerated adsorbent can be used as the adsorbent for further removal of lead at least 10 times, and this enables the complete removal of lead from water by repetitive use of the regenerated adsorbent. The beads facilitate the easy filtration. The methodology developed is successfully applied for removing lead from industrial waste waters.

Index Terms– adsorption kinetics, Articleenergy dispersive X ray spectroscopyextraction Field emission scanning electron microscopy, filtration

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Removal of fluoride from water using H_2O_2-treated fine red mud doped in Zn-alginate beads as adsorbent

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ABSTRACT:

Beads prepared by entrapping H_2O_2-treated fine red mud in the zinc-alginate (RMZAB), are investigated as adsorbent for their sorption nature towards the fluoride ions from water. De-fluoridation ability is found to be: 0.72 mg/g at optimum extraction conditions. The immobilization of the activated red mud in the zinc-alginate beads has facilitated the easy filtration in addition to the enhancement of sorption characteristics. Surface morphological investigations, analysis of nature and kinetics of adsorption and thermodynamical studies are carried out. Sorption nature is not lost even after ten times of regeneration and by repetitive use of the RMZAB, complete de-fluoridation is achieved.

Index Terms– Activated red mud, Applications, De-fluoridationRegeneration, Surface morphological studies, Zinc-alginate beads.

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Removal of chromium (VI) from water using adsorbent derived from spent coffee grounds

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ABSTRACT:

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Index Terms– Adsorption isotherms, Applications, Chromium (VI) removal, Kinetic and thermodynamic studies, Regeneration, Spent coffee grounds, Surface characterization.

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Removal of chromium (VI) from water using adsorbent derived from spent coffee grounds

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ABSTRACT:

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Index Terms– Adsorption isotherms, Applications, Chromium (VI) removal, Kinetic and thermodynamic studies, Regeneration, Spent coffee grounds, Surface characterization.

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Novel adsorbents possessing cumulative sorption nature evoked from Al_2O_3 nanoflakes, C.urens seeds active carbon and calcium alginate beads for defluoridation studies

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ABSTRACT:

Nano Al_2O_3 flakes are synthesized and loaded on H_3PO_4 activated carbon prepared from the seeds of C.urens and thus obtained composite is immobilized in Ca-alginate beads with an aim to derive combined advantage of sorption nature of active carbon and nanoflakes of Al_2O_3. The adsorbents are characterized and their de-fluoridation abilities are 4.1 mg/g for active carbon, 5.62 mg/g for nano Al_2O_3-active carbon composite and 9.09 mg/g for the beads. The adsorption nature, kinetics of adsorption and thermodynamic parameters are analyzed. The spent adsorbents can be regenerated. The methodologies are successfully applied to real water samples

Index Terms– Adsorbent, C.urens seeds, Ca-alginate beads, Defluoridation, Nano Al_2O_3 flakes

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Synthesis and Anticancer Activity of Amide Derivatives of 1,2-Isoxazole Combined 1,2,4-Thiadiazole

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Abstract: A series of amide derivatives of 1,2-isoxazole combined with 1,2,4-thiadiazole are synthesized **11a–11j**. Their chemical structures are confirmed by 1H and 13C NMR, and mass spectra. The products are tested fortheir anticancer activity against four types of human cancer cell lines, including MCF-7 (breast), A549 (lung),Colo-205 (colon), and A2780 (ovarian). Etoposide is used as a positive control. Most of the compounds showgood anticancer activity. The compounds **11b, 11c, 11d, 11e, 11g,** and **11j** demonstrate more potent activitythan etoposide.

Index terms: Luminespib, Cefozopram, isoxazole, thiadiazole, anticancer activity

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Ultrasound Assisted Synthesis of 2-Substituted Benzofurans *via* One-Pot andSequential Method: Their *In Vitro* Evaluation

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Abstract: The 2-substituted benzofuran framework has attracted enormous attention due to its presence in a range of bioactive compounds and natural products. While various methods for the synthesis of 2-substituted benzofuran derivatives are known, several of them suffer from certain drawbacks.The main objective of this work was to explore a series of 2-(het)aryl substituted benzofurans derivativesfor their cytotoxic properties against cancer cell lines *in vitro.*In our efforts, we have developed a one-pot synthesis of this class of compounds *via* sequential C-C coupling followed by C-Si bond cleavage and subsequent tandem C-C/C-O bond-forming reaction under ultrasoundirradiation. The methodology involved coupling of (trimethylsilyl)acetylene with iodoarenes in the presenceof 10% Pd/C-CuI-PPh3-Et3N in MeOH followed by treating the reaction mixture with K2CO3 in aqueousMeOH and finally coupling with 2-iodophenol. A variety of 2-substituted benzofurans were synthesized usingthis methodology in good yield. All the synthesized compounds were tested *in vitro* against two cancer celllines, *e.g.* MDAMB-231 and MCF-7 cell lines subsequently against SIRT1.The benzofuran derivative **3m** showed encouraging growth inhibition of both MDAMB-231 and MCF-7 cell lines and significant inhibition of SIRT1. The compound **3m** also showed a concentration-dependentincrease in the acetylation of p53.Our efforts not only accomplished a one-pot and direct access to 2-(het)aryl substituted benzofuransbut also revealed that the benzofuran framework presented here could be a potential template for theidentification of potent inhibitors of SIRT1.

Keywords: Benzofuran, ultrasound, Pd/C, cancer, bioactive compounds, one-pot synthesis.

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Design, Synthesis and Anticancer Evaluation of Different Aryl Substituted1,3,4-Oxadiazole-Imidazo[1,5-a] pyridine Derivatives

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Abstract: A new library of 1,3,4-oxadiazole incorporated imidazo[1,5-a]pyridine derivatives designed, synthesized and examined for their anticancer activities against MCF-7, A549, Colo-205 and A2780 cell lines by using MTT assay method with Etoposide as standard drug. Amongthem, compound **10h** showed promising anticancer activities against MCF-7, A549, Colo-205and A2780 cell lines with IC50 values of 0.012 ± 0.005 μM, 0.43 ± 0.017 μM, 0.038 ± 0.002 μMand 0.77 ± 0.018 μM respectively than the standard drug. This compound may be utilized druglead one in cancer chemotherapy.

Index Terms: Alpidem, imidazo[1,5-a]pyridine, 1,3,4-oxadiazole, Zibotentan and anticancerproperties.

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Fabrication and characterization of gold nanoparticles and fullerene-C60 nanocomposite film at glassy carbon electrode as potential electro-catalyst towards the methanol oxidation

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ABSTRACT:

Development of low cost anodic materials and high efficient electro-kinetics of methanol in direct methanol fuel cell (DMFC) has been a promising approach. However it has not been successfully reached to market from laboratory due to its high cost and low kinetic oxidation. Both issues encounter from one of its main components, the catalyst. Therefore, present work focuses upon the development of new catalyst material and optimization of various most significant influencing parameters of a high performance DMFC. We have developed a nanocomposite material employing gold nanoparticles and fullerene-C60 at glassy carbon electrode (60/GCE) as anode for high performance oxidation of methanol. Fullerene-C60 was manually dropped on pre treated GCE and partially electro-reduced in KOH to make it more conductive. Gold nanoparticles (AuNPs) were deposited on reduced-fullerene-C60 modified electrode using cyclic voltammetry (CV). Electrochemical characterization techniques such as CV, electrochemical impedance spectroscopy (EIS) and chronocoulometry were used to characterize modified electrode. Modified electrode was also characterized by scanning electron microscopy (SEM) and energy dispersive X-ray spectroscopy (EDX) for morphological properties. The electrochemical behavior of methanol was performed in alkaline medium using CV and chronoamperometry methods. The results revealed good electrocatalytic performance and better stability than previously reported catalysts using 60 catalyst, suggesting making promising anodic material for direct methanol oxidation fuel cell.

Index Terms *– C-60, gold.Methanol Oxidation, Fuel Cell*

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Development of proof of concept for prostate cancer detection: an electrochemical immunosensor based on fullerene-C60 and copper nanoparticles composite film as diagnostic tool

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ABSTRACT:

Screening of Prostate-specific antigen (PSA) in human blood is the most common approach to diagnose prostate cancer. The joint application of biology and electrochemistry has shown a tremendous rise in research towards the development of electrochemical diagnostic tools for various diseases. The present study demonstrates the development of an effective immunosensing platform incorporating hydroquinone (HQ) immobilized, fullerene-C60 and copper nanoparticles (CuNPs) composite film on glassy carbon electrode (HQ@CuNPs-reduced-fullerene-C60/GCE) for the selective, quick and trace detection of PSA. In order to fabricate immunosensor sequential immobilization of primary antibody (Ab1), blocking agent (bovine serum albumin (BSA)), antigen (prostate-specific antigen (PSA)) and secondary antibody (Ab2) tagged with horseradish peroxide (HRP) was carried out on HQ@CuNPs-reduced-fullerene.

Index Terms *– **Screning, Prostate cancer, Fullerene c -60, Immunosensor***

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Fabrication of high performance disposable screen printed electrochemical sensor for ciprofloxacin sensing in biological samples

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ABSTRACT:

In this paper, we report a facile one step electrochemical method to synthesize a highly sensitive nanocomposite film based on gold nanoparticles (AuNPs) and chitosan (CHI) polymer on disposable screen printed electrode (SPE). We have demonstrated that AuNP/CHI composite film based fabricated sensor exhibited distinctly higher electrochemical behavior towards oxidation of ciprofloxacin (CF) due to excellent conducting properties of the gold metal nanoparticles incorporated in chitosan matrix. Electrochemical impedance spectroscopy (EIS), cyclic voltammetry (CV) and square wave voltammetry (SWV) were used for electrochemical characterization of modified electrodes. Morphological characterization was carried out by scanning electron microscopy (SEM) and energy dispersive X-ray spectroscopy (EDX). AuNP/CHI/SPE sensor displayed excellent conductive properties for CF oxidation with higher.

Index Terms *– **Electrochemical, Sensor, Ciprofloxacin***

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Synthesis of novel 2,4-disubstituted quinoline derivatives

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ABSTRACT: 2,4-disubstituted quinoline derivative (2-(2-nitrophenyl)quinolin-4-yl)methanol **1** was synthesizedby using multicomponent reaction of aniline, 2-nitro benzaldehyde and propargyl alcohol in thepresence of copper bromide. From compound **1**, we prepared novel series of 2,4-disubstitutedquinoline analogs. The synthesized compounds (**1-6**) were characterized by NMR and mass spectra.

Index Terms: **2,4-disubstituted quinolines, Piperazine, TFA**

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Isolation and Characterization of Bioactive Compounds from Southern Asian native plant *Morinda Tinctoria* Roxb.

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Abstract

Morinda tinctoria Roxb. is one of the medicinal plant used in the treatment of various diseases traditionally. Report on bioactive evaluation of *Morinda tinctoria* Roxb. has led us to the phytochemical examination of *M. tinctoria l*eaves. Solvents with increasing polarities viz. hexane, chloroform, ethyl acetate and methanol were used in this study. The solvent extracts were analyzed using column chromatograph and the isolated compounds were characterized using FTIR, ^{1}H NMR, ^{13}C NMR and mass spectra. The nine bioactive compounds isolated were Palmitic Acid, Fucoxanthine, Broussin, Isoliquiritigenin, Cynarin, Gallic acid, β-Sitosterol, Quercetin and Oleuropein. The constituents has been characterized and screened for in-vitro antioxidant, antimicrobial, antiobesity, cytotoxicity and genotoxicity properties. The results thus concluded that *M. tinctoria* leaves possess various potent bioactive compounds and is recommended as a plant of phytopharmaceutical importance.

Index Terms: *Morinda tinctoria* Roxb, column chromatograph, Fucoxanthine, Broussin, Isoliquiritigenin, Cynarin, cytotoxicity and genotoxicity.

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Phytochemical composition and In- Vitro Anti-microbial studies of Wild Cinchona (*Neolamarckia Cadamba*) Fruit Extracts

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Abstract:

Kadamb (*Neolamarkia cadamba* Roxb.) tree has wide spectrum of bioactivities such as analgesic, antipyretic, anti-inflammatory hypolipidemic and antidiabetic. However, very little is known about anti-microbial properties of its fruits. Therefore, the present study was undertaken to investigate Phytochemical constitution, antibacterial and antifungal properties of *N. cadamba* fruits. Methanol and ethylacetate Extracts of the fruits are prepared and were used to investigate Phytochemical constituents and antimicrobial properties.Out of the selected solvent extracts, the methanolic extract(1000µg/ml) showed maximum zone of inhibition (19.3 mm) against *Bacillus subtilis* and minimum (14.9 mm) against *Enterobacter aerogenes*. Ethylacetate extract showed maximum zone of inhibition against *Staphylococcus aureus*(16.7mm) and minimum against *Pseudomonas aeruginosa*(11mm). The preliminary phytochemical analysis showed the presence of phytosterols, tannin, phenol, saponins and flavonoids in the methanolic extract. The antimicrobial effects of *Neolamarckiacadamba* fruit extracts indicate that this wild cinchona contains substantial number of bioactive agents are responsible for antimicrobial efficacy. The study also concludes that methanolic extract of *N. cadamba* fruit can be used as a potential antimicrobial source for various infections.

Index Terms: ***Neolamarkia cadamba*** **Roxb., antimicrobial, phytochemical analysis, methanolic extract**

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Spatial Distribution Analysis on Groundwater Quality of Sarada River Basin, Visakhapatnam, A.P. India

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Abstract:

An attempt has been made to study the spatial distribution of pH, E.C, Chlorides and TDS of groundwater in the different sub-basins of Sarada River Basin, Visakhapatnam, A.P. The pH value of groundwater varies from 6.4 to 8.8 with an average of 7.6. The pH range is not within the limits prescribed by WHO or ISI either in the highest desirable level or maximum permissible level E.C values ranges from 210 to 8000 micromhos/cm with an average of 4105 micromhos/cm. The chloride values of the study area range from 14 to 2486mg/l with an average of 1250mg/l. The TDS values of the study area ranges from 136 to 5200 mg/l with an average of 2668mg/l, exceeds the maximum permissible limit of ISI and ICMR .A small portion of the upper Sarada River and some southern part of lower Sarada River Basin which is close to the sea, characterized with sudden change in the values of pH, Electrical Conductivity, Chlorides and TDS which indicate some sort of pollution. The agricultural and industrial townships in the study area shows the minimum pH, high chloride and E.C. values. The study area also reveals that the pollution of groundwater is due to saline water intrusion and over use of fertilizers and pesticides in lower Sarada River Basin Index Terms: pH, E.C, chlorides, TDS and groundwater pollution

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CREATION OF MANDAL LEVEL LAND DATA BASE INFORMATION USING REMOTE SENSING & GIS:

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Abstract:

Reclassification and analysis of land data means again classifying of land use land cover of certain land and analysing the data for required information. Second time classification of land for certain purpose is mainly termed as reclassification. A landuse classification is a classification providing information on land cover, and the types of human activity involved in land use. The cadastral maps and revenue data regarding the mandals for mapping was collected. Using QGIS Software, it involves the linkage of cadastral and revenue information. And finally it involves the applying of colour composition for different categories of land for selected mandals. Large land parcels are identified in selected mandals. for the future development.

Key words: Adangal Information, Arc Map Software, Identification of parcels

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An Efficient Decision Support Study for Management of Resevoirs: A Model Study using Remotesensing and GIS

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Abstract:

Reservoirs are required for agriculture, urbanization and many other developmental activities satisfying human needs.this type of data creation with the help of Remote sensing and Geographic Information System (GIS) tools could be helpful in getting the precise and valuable spatial information in understanding the present scenario contemplating with the past data and predicting the future trends to proper maintain and management of the Reservoirs. The main objective of the study is to evaluate of the physical characteristics and natural resources in Tandava Reservoir catchment area and to develop methods for its efficient utilization and sustainable management utilizing remote sensing and GIS. The thematic layers are derived from IRS-ID PAN + LISS-III merged satellite imagery and Survey of India (SOI) topomaps using visual interpretation technique. These maps are converted to digital format using ARCGIS software and further integrated in maps using this software for the generation of final outputs. Physical characterization helps for water and land resources development, which are optimally suitable to the terrain and to the development of natural resources. This study helps effective management of Tandava Reservoir by creation of Physical characteristics information for soil and water conservation measures, identifies suitable cropping patterns, which help in reduced soil erosion, increased moisture conservation and improved productivity of the soil. The physical characterization of an area is also useful to plan the basic minimum needs of farmers, thereby improving their socio-economic conditions and helps in evolving a broad national policy which can be applied by decision makers for sustainable development of any catchments area.

Keywords: Physical characterization, Remote sensing, Geographical Information System.

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Development of Materials for Blue Organic Light Emitting Devices

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ABSTRACT:

The success of organic light emitting diodes (OLED) has been witnessed by the commercialization of this technology for manufacturing the vivid and colorful displays used in our daily life now. The prospective growth of OLED technology on display industry will be optimistic. Over the last three decades, many different approaches on material and device designs have been implemented for improving the efficiency and stability of OLED devices. These efforts install main cornerstones to support the great achievement of OLED technology. However, until now, the performance and stability of blue OLEDs still have some concerns. This troublesome issue should be totally conquered before the large-scale manufactures dominated over other display technologies, particularly liquid crystal-based displays, takes place. Though significant progress has already been made to achieve high performance and long lifetime blue OLEDs, this topic still remains as one of the hot researches in OLEDs. We have been working on this area for about two decades and made some notable contributions. Consequently, in this personal account we have outlined our efforts to obtain better performing blue OLEDs by utilizing a range of emitters based on fluorescence, phosphorescence, delayed fluorescence and exciplex systems. We have also developed some novel host materials for blue OLEDs, which are worth mentioning in this account.

Index Terms: Blue OLEDs, exciplex, Lifetime, efficiency.

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Supramolecular Complexes Containing transition metal complexes bound to Nitrogen containing macrocyclic ligands

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ABSTRACT:

Examples of proteins that incorporate one or more metal ions within their structure are found within a broad range of classes, including oxidases, oxidoreductases, reductases, proteases, proton transport proteins, electron transfer/transport proteins, storage proteins, lyases, luminescent proteins, iron transport proteins, oxygen storage/transport proteins, calcium binding proteins, and monooxygenases. The metal coordination environment therein is often generated from residues inherent to the protein, small exogenous molecules (e.g., aqua ligands) and/or macrocyclic porphyrin units found, for example, in hemoglobin, myoglobin, cytochrome C, cytochrome C oxidase, and vitamin B12. Thus, there continues to be considerable interest in employing supramolecular macrocyclic metal complexes to construct low-molecular weight models for metallo-biosites that mirror essential features of the coordination environment of a bound metal ion without inclusion of the surrounding protein framework.

Index Terms: supramolecules, proteins, biomimicking, macrocycles

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Development of Colorimetric and Luminescent Materials for Sensing analytes

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ABSTRACT

The development of luminescent signaling systems and devices, such as switches, sensors and 'nano-machines' is an active area of research in organic and inorganic supramolecular photochemistry. Examples of such signaling molecules or arrays of molecules, have been constructed from purely organic chromophores/lumophores, inorganic metal ion frameworks, coordination frameworks, or by the suitable combination of any of these. This gives rise to rich varieties of structural-chemical motifs where the luminescence signalling can be stimulated or generated, by light energy, e.g. by direct excitation, or via energy or electron transfer processes in donor–acceptor arrays, electrochemically or by chemical inputs, such as ions or neutral molecules. The discovery of luminescent materials paves the way for the development of chemical sensors, which have been found to be of major importance in: (i) industry (for monitoring chemical processes, pollution, etc.); (ii) diagnostic and therapeutic medicine (for monitoring electrolytes, in critical care analysis and as therapeutics in photodynamic therapy, etc.); and (iii) various kinds of environmental monitoring.

Index Terms: luminescence, signalling, sensors, environmental monitoring

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Development of Highly Efficient Luminescent Materials for Photonic Applications

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ABSTRACT:
Abstract: Light-emitting electrochemical cells (LECs) are one of the most promising technologies for solid-sate lighting. Among them, LECs based on phosphorescent iridium(III) complexes have attracted significant research interest because of their high efficiency and tunable emission color across the entire visible spectrum. To fabricate white LECs for lighting, high-performance blue LECs are the first prerequisite. Huge efforts have been devoted to improving the performances of blue LECs based on iridium(III) complexes either by developing new blue-emitting complexes or by engineering the devices. Nevertheless, blue LECs have still shown much lower performances (brightness, efficiency, stability, etc.) compared to the red, orange-red, yellow, and green counterpart devices. In particular, a single blue LEC with satisfactory blue-color purity, high efficiency, and high stability is still missing. Hence comes the need to develop highly efficient blue luminescent materials for LECs.

Index Terms: luminescence, LECs, iridium complexes, photonic devices

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Absorption and energy band gap studies of Nd^{3+}-Er^{3+} ions Doped Zinc Alumino Bismuth Borate Glasses

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ABSTRACT:

Barium lead aluminofluoroborate(BaPbAlFB) glasses doped with different concentrations of co-doping of neodymium and erbium are prepared by using melt quenching technique to study their structural and optical properties. Oscillator strength are evaluated for the corresponding transitions from ground state to the excited states like $^4D_{5/2}$, $^4G_{9/2}$, $^4G_{11/2}$, $(^2G,^4F_{,2H})_{9/2}$, $^2P_{1/2}$, $^5F_{5/2}$, $^4F_{7/2}$, $^2H_{11/2}$, $^4G^{5/2}$, $^4F_{9/2}$, $^4S_{3/2}$, $^4F_{5/2}$, $^4F_{3/2}$, $^4I_{11/2}$ and $^4I_{13/2}$ respectively, with the help of the absorption spectra. To know the nature of the bonding between the ligands, we have evaluated Judd-Ofelt intensity parameters by using oscillator strengths. And also optical direct and indirect bandgap values are calculated from the absorption spectra. To study the structural disorders and defects of the as prepared glasses, urbach energy values are estimated from the absorption spectra. to understand the From the absorption spectra we have evaluated oscillator strengths

Index Terms – Absorption spectra, Neodymium glasses, Judd-Ofelt intensity parameters, optical band gap, Spectroscopic properties,spectrometer, urbach energy,

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Efficacy of copper ions on lithium ion conductivity, electron hopping, optical band gap, metallization criterion and morphology of Li_2O-B_2O_3-P_2O_5 glasses

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ABSTRACT:

The melt quenching process is adopted in fabricating the glass system $10Li_2O$-$60B_2O_3$-$(30-x)P_2O_5$: $xCuO(0 \leq x \leq 2.5$ mol%, where x = 0, 0.5, 1.0, 1.5, 2.0 and 2.5). The specimens are analyzed by X-ray diffraction(XRD), optical absorption, emission spectra, electron spin resonance (ESR) spectra, Fourier transform infrared(FTIR) studies and dielectric investigations. XRD reveals the glassy temperament of specimens. Optical absorptionspectra exhibited bands due to Cu2+ ions. ESR spectra exhibited the peaks due to copper ions occupyingthe octahedral positions. Spin-Hamiltonian parameters of glasses judged the escalating ionic character of specimenswith a rise in content of dopant. FTIR displayed traditional bands corresponding to borate and phosphategroups. Dielectric parameters like dielectric constant (ε′), loss (tanδ) and a.c. conductivity (σ_{ac}) increase with arise in the quantity of dopant. All results brace that specimen C25 (sample doped with 2.5 mol% of CuO) has thehighest semiconducting nature.

Index Terms – Optical band gap, Metallization criterion, Electron spin resonance, Emission spectra, FTIRIonic conductivity.

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Spectroscopic properties of deep red emitting Tm^{3+} doped ZnPbWTe glasses for optoelectronic and laser applications

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ABSTRACT:

Thulium (Tm^{3+}) doped Zinc Lead Tungsten Tellurite (ZnPbWTe) glasses having the composition $5ZnO\text{-}15PbO\text{-}20WO_3\text{-}(60\text{-}x)TeO_2\text{-}xTm_2O_3$ were prepared by using melt quenching technique and analyzed with optical absorption,photoluminescence (PL) and PL decay spectral measurements. The absorption data was used to calculateoscillator strengths and the Judd-Ofelt (J-O) parameters. The emission spectra were recorded under472 nm excitation exhibit intense fluorescent peaks 650 nm and 806 nm. The emission spectral data correlatedwith J-O theory was used to determine radiative parameters like radiative transition probability (AR), totalradiative transition probability (A_T), branching ratio (β_R) and radiative lifetimes (τ_R) for the fluorescent levels ofTm^{3+} ions in ZnPbWTe glasses. The decay curves for the $^1G_4 \rightarrow {}^3F_4$ transition under 472nm excitation wereinvestigated to calculate experimental lifetimes (τ_{exp}) and quantum efficiency (η). The σ_{se} and η reveals thatZnPbWTe glasses doped with 1 mol% of Tm^{3+} ions are most suitable for fabricating deep red emitting optoelectronicdevices and lasers.

Index Terms – Tellurite glasses, Absorption, Photoluminescence, J-O parameters, Melt quench technique, CIE coordinates.

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Spectroscopic and volumetric study of binary liquid mixtures containing Ethyl -4-hydroxy benzoate and alkanols

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ABSTRACT
The Speed of sound and density values for mixtures of Ethyl –4 - hydroxy benzoate (E- 4-HB) with alkanols were measured at 303.15 K, 308.15 K and 313.15 K. From these experimental values, thermo acoustic properties like isentropic compressibility (K s), molar volume (V m), free length (L f E) and their excess parameters have been calculated. These excess parameters have been fitted to the Redlich–Kister type polynomial equation using the least square method. The values of partial molar volumes (V m, 1, V m, 2)and infinite dilution (V ∞ m,1 , V ∞ m,2) were estimated from molar volume (V m). Further, the infrared spectra for all systems have been recorded to analyze and examine various stretching's present in the mixture. The digressions of the mixture were explained based on intra/ inter molecular relations among dissimilar molecules present in the system.

Index terms: Standard techniques Redlich-Kister polynomial Partial molar volume Speed of sound and density

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THERMO-PHYSICAL AND SPECTROSCOPIC STUDIES OF LIQUID MIXTURES CONTANING p-METHOXY BENZOIC ACID

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ABSTRACT:
The density and speed of sound were measured for p-Methoxy benzoic acid (P-MBA) with Aniline, N-Methylaniline [NMA] and N, N-dimethylaniline [NNDMA]) from (303.15 K - 313.15 K) with 5K interval temperatures using standard techniques. Thermo physical properties of molar volume **(Vm)**, acoustic impedance **(Z)**, isentropic compressibility **(ks)** , surface tension (σ) and free length (**Lf**) and their excess properties were intended from measured data. These excess parameters have been fitted to the Redlich–Kister type polynomial equation using the least square method. Obtained values of partial molar volumes ($\bar{v}$m,1 , $\bar{v}$m,2) reflects the culminations were drawn from Vm E . Supplementary, to test the pertinent of different theoretical models of speed of sound by means of resoluted values. Finally, the formation of hydrogen bonding between molecules in composition was fetched from FTIR spectra.

Index terms: Speed of sound, density, Redlich-Kister polynomial, partial molar volume, FTIR
Spectra

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Elucidation of molecular interactions in the mixtures of 2-methoxyaniline withisomeric xylenes through Transport and thermodynamic properties at T =(303.15, 308.15 and 313.15) K

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ABSTRACT:
Experimental values of the density (ρ), speed of sound(u), and viscosity(η) have been measured for binary mixtures of 2-methoxyaniline with toluene, and isomeric xylenes (o-xylene, m-xylene, and p-xylene) at temperatures of 303.15 K, 308.15 K and 313.15 K over the entire mole fraction range. By using this data, the excess parameters (excess molar volumes, excess isentropic compressibility, and viscosity deviation) for the binary systems at the above-mentioned temperatures were calculated and fitted to Redlich-Kister equation to determine the fitting parameters and the root-mean-square deviations. The excess parameters have been analyzed in terms of n-πinteractions and dipole-induced dipole interaction between unlike molecules.

***Index terms*:** Viscosity, excess molar volume, 2-methoxyaniline, toluene, and isomeric xylenes.

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Development of Fatigue Machine to Accommodate the Application of Overload during Fatigue Crack Propagation Tests of HDPE

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ABSTRACT:

Different engineering components may subject to overloads during the service which is one of the most destructive loading especially for those subjected to cyclic loading (fatigue loading) such as polymeric pipes that used in water and gas conveying networks. High-Density Polyethene Grade 100 becomes a popular material used in pipes industry. Preparation of specimens for fatigue crack propagation tests from pipes is very sensitive issue. Also, the application of overloads during such tests is very critical issue. The present work introduces a technique for preparation of single edge notch bending specimens made of High-Density Polyethene (HDPE) Grade 100 extruded pipes to conform with standard. Also, a fatigue test machine is developed to accommodate with overloads application during fatigue crack propagation tests. The results demonstrated that, the used specimen's preparation sequence minimizes the effect of preparation process on the test results. Also, the developed fatigue machine ensures very smooth application of overloads during the fatigue crack propagation tests without any test disturb. Crack retardation is observed in the tested specimens due to overload effect.

Index terms: propagation; Crack retardation; fatigue; High-Density Polyethene

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Markov analysis of manpower and business of two units functioning under single management in chennai city

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ABSTRACT:

In this paper we consider a business concern having two units but management is One. Separate budgets are prepared for each unit though both of them carry out same type of business or not. For example, a management may have two educational institutions but budget for the two units are different. Business in one cannot be taken over by the other or transferred though at times of need the staff can be shared, as the working knowledge required in both units may be the same. So, it is reasonable to assume that when shortage of manpower comes in one unit, as a temporary measure the manpower from the other unit in case of exigencies can be transferred whereas such a facility is not there for business and each unit should have its own business, and, therefore if shortage comes it has to be dealt in itself and improved. Analysis is done when units get manpower shortage and business shortage. So far no one has dealt this type of model and it is unique.Mathematics Subject Classification: 90B05.

Index terms: Markova, two units, single management, steady state, rate of crisis

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Optical, thermal, mechanical, nonlinear optical properties of a single crystal growth using L-lysine hydrochloride-doped sulphamic acid

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ABSTRACT:

L-lysine hydrochloride-doped sulphamic acid (SA) crystals have been grown by slow evaporation technique. X-ray difraction experiments confrmed the orthorhombic structure of SA crystal. The doped crystals have high transmission than the pure SA crystal. TG and DTA studies exhibit the title crystals are thermal stability up to 212 °C (pure), 210 °C (1 mol%) and 207 °C (2 mol%). The enhancement of the hardness value in the doped crystal was confrmed by the hardness test. The etch pit density was measured using chemical etching study. The photosensitivity of the grown crystals is 0.10 (pure), 0.36 (1 mol%) and 0.72 (2 mol%). The laser damage threshold (LDT) analyses show that the L-lysine hydrochloride-doped SA crystals have more LDT value than the pure SA crystal. Third-order NLO susceptibility was found to be 5.004, 5.864 and 6.050×10–10 esu for pure and L-lysine hydrochloride-doped (1 and 2 mol %) SA crystals, respectively.

Index terms: Optical material · Laser damage threshold · Thermal property · Third-order NLO property

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Near UV based Dy^{3+} ions doped alkaline-earth chloro borate glasses for white LED's and visible lasers

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ABSTRACT:

A new series of Dy^{3+} ions doped alkaline-earth chloro borate (AECB) glasses were prepared by conventional melt quenching technique and characterized with XRD, absorption, excitation, photoluminescence (PL), fluorescence decay spectral measurements and CIE coordinates. From the absorption spectra, Judd-Ofelt (J-O) intensity parameters (Ω_2, Ω_4, Ω_6) have been measured using the least square fit method. Under 385 nm excitation, intense blue, yellow emissions at 483 and 576 nm and weak red emission at 665 nm were observed, which are assigned to the $^4F_{9/2}\rightarrow{}^6H_{15/2}$, $^4F_{9/2}\rightarrow{}^6H_{13/2}$ and $^4F_{9/2}\rightarrow{}^6H_{11/2}$ transitions of Dy^{3+} respectively. The yellowto-blue emission intensity ratios and CIE chromaticity coordinates have been determined from emission spectrato evaluate the emitted light as a function of Dy^{3+} concentration. The CIE chromaticity coordinates of Dy^{3+} (1 mol%) doped AECB glasses are located in the white light region. The optimum doping concentration of Dy^{3+} ions is around 1 mol%, beyond which concentration quenching is observed. The decay spectral profiles of $^4F_{9/2}\rightarrow{}^6H_{13/2}$ (577 nm) luminescence transition were used to measure experimental lifetimes (τ_R). The results indicatethat Dy^{3+} doped AECB glasses may have great potential as a single-component white-light-emitting glassfor UV-light-emitting diodes and for other visible photonic applications.

Index Terms: Judd-Ofelt parameters Dysprosium, Photoluminescence, Lifetime, White-light emitting diode, Borate glasses

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Spectroscopic Investigations of Dysprosiumions doped Oxy Chloro Boro Tellurite Glasses for Visible Photonic device Applications

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ABSTRACT

Spectroscopic properties of oxy chloro boro tellurite glasses (OCBT) doped with varying concentration of dysprosium ions were studied using X-ray Diffraction (XRD), Fourier transform infrared (FT-IR), Raman, absorption, excitation and photoluminescence (PL) spectral studies. Judd-Ofelt (J-O) theory has been applied to the recorded absorption spectral features to evaluate various radiative parameters for the prominent fluorescent levels of Dy^{3+} ions doped OCBT glasses. Under 350nm excitation, intense blue and yellow emissions at 483nm ($^4F_{9/2}\rightarrow{}^6H_{15/2}$) and 575nm ($^4F_{9/2}\rightarrow{}^6H_{13/2}$) were observed respectively and show concentration quenching at 1 mol% of Dy^{3+} ions in OCBT glasses. Dexter theory applied to the PL spectra reveals dipole-dipole interaction responsible for energy transfer between the doped Dy^{3+} ions to show concentration quenching in the prepared glasses. The yellow to blue (Y/B) intensity ratio, CIE Chromaticity coordinates and color correlated temperatures (CCT) have been evaluated from the PL spectra for all the prepared glasses. The emission cross-sections, branching ratios and quantum efficiency evaluated for the OCBT glasses confirm the suitability of Dy^{3+} doped OCBT glasses for visible photonic device applications.

Index Terms: Judd-Ofelt parameters; Dysprosium; Photoluminescence; Lifetime; White-light emitting diode; Oxy chloro boro tellurite glasses

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Enhancement of 1.54 μm emission in Ce^{3+}-Er^{3+} codoped $Ca_4Si_2O_7F_2$ phosphor

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ABSTRACT:

A novel near infrared (NIR) emitting phosphor, $Ca_4Si_2O_7F_2$:Ce^{3+},Er^{3+} was synthesized by conventional solid state reaction method and characterized with X-ray diffraction, photoluminescence emission, photoluminescence excitation spectra and fluorescence decay measurements. In $Ca_4Si_2O_7F_2$:Ce^{3+},Er^{3+} phosphors, intense NIR emission at 1540 nm which is assigned to the characteristic $^4I_{13/2} \rightarrow {}^4I_{15/2}$ transition of Er^{3+} along with broadband emission of Ce^{3+} at 490 nm was observed under 380 nm excitation. The luminescence spectra, both in visible (VIS) and NIR regions, and lifetime curves of Ce^{3+} have been measured to prove energy transfer (ET) from Ce^{3+} to Er^{3+}. Efficient energy transfer from Ce^{3+} to Er^{3+} in $Ca_4Si_2O_7F_2$ is observed and leads to about 10 times enhancement of the Er^{3+}-1540 nm emission when excited at 380 nm. The critical distance between Ce^{3+} and Er^{3+} ET in $Ca_4Si_2O_7F_2$ host was calculated, as 14.81 Å. The Inokuti-Hirayama (I-H) model is applied in analysis of the non-exponential fluorescence decay curves. From I-H curve fitting, it is inferred that the electric dipole–dipole interaction is the main process responsible for the energy transfer as well as for the large enhancement of 1540 nm emission. The results indicate that sensitization of Er^{3+} is possible via 4f-5d transition of Ce^{3+} in $Ca_4Si_2O_7F_2$ host.

Index terms: Near-infrared; Sensitization; Photoluminescence; Ce^{3+}; Er^{3+}; Energy transfer

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Synthesis of $BaFe_{12}O_{19}$ nanoparticles

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Abstract

Nanoparticles of $BaFe_{12}O_{19}$ are synthesized through auto ignition method using high purity precursors. Structural, microstructural and magnetic properties are investigated with the help of XRD, FESEM and PPMS. Synthesized Nanoparticles show different morphologies from elongated nanorods to spherical shape. The role of size and shape of nanoparticles are investigated in magnetic properties. Magnetization studies shows types of magnetic orders are seen in depending on the size and shape. Very small coercive field of around 200 Oe is observed for one system and Electron Spin Resonance study shows the g value is around 2.55. We can say that Shape anisotropy has significant value when compared to other anisotropies present in the nanoparticle systems.

Index terms: XRD,FESEM, PPMS, Nano particles

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Magnetic properties of $BaFe_{12}O_{19}$ nanoparticles

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Abstract

Nanoparticles of $BaFe_{12}O_{19}$ are synthesized through auto ignition method using high purity precursors. Magnetic properties are investigated with the help of Vibration Sample Magnetometer (VSM) with the help of PPMS, Quantum Design. Synthesized Nanoparticles show many kinds of magnetic order with the influence of shape and size. The role of size and shape of nanoparticles are investigated using magnetic measurements. Magnetization studies shows types of magnetic orders are seen in the synthesized nanopaticles. Very small coercive field observed for one particular nanopaticles system and Electron Spin Resonance study shows the g value is around 2.55. We can say that Shape anisotropy plays significant value when compared to other anisotropies present in the nanoparticle systems.

Index terms: VSm. Quantum design, PPMs, nano particles

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Synthesis and Magnetic properties of Ti doped $BaFe_{12}O_{19}$ nanoparticles

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Abstract

Nanoparticles of Ti doped $BaFe_{12}O_{19}$ are synthesized through auto ignition method using high purity precursors. Structural, microstructural and magnetic properties are investigated with the help of XRD, FESEM and Vibration Sample Magnetometer (VSM) from PPMS, Quantum Design. Synthesized Nanoparticles show different morphologies similar from elongated nanorods to similar spherical shape. The role of size and shape of nanoparticles are investigated with the help of magnetic measurements. Magnetization studies shows types of magnetic orders areobserved in depending on the size and shape of the nanoparticles. Very small coercive fieldis observed for one system and Electron Spin Resonance study shows the g value is around 2.55 for the measured systems. We can say that Shape anisotropy has significant value when compared to other anisotropies present in the nanoparticle systems.

Index terms: PPMS, Nanoparticles, VSM, XRD,FESEM

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Optical Properties of TSP: $NaNO_3$ Biopolymer Electrolyte

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ABSTRACT:
Solid biopolymer electrolyte (SPE) film based on biopolymer Tamarind Seed Polysaccharide (TSP) doped with sodium nitrate (NaNO3) is developed by solution cast technique. The optical properties have been carried out by UV-visible optical Absorption spectroscopy in the wavelength range of 200-800 nm. From this, the optical absorption, optical transmission, optical absorption coefficient, refractive index spectra, extinction coefficient spectra, direct energy bandgap, indirect energy bandgap, optical absorption edge, estimated bandgap studies are obtained. The transmittance wavelength is approximately 200nm. The calculated optical band gap changes from 5.01eV to 4.65eV. The optical bandgap indicated that the films are nearly transmitting within the visible range. The direct, indirect and absorption edge for pure TSP is high and by increasing salt concentration of NaNO3, the above parameters are observed to decrease gradually. For the concentration of 70% TSP: 30% NaNO3 low value of direct and indirect energy bandgap is obtained.

Index terms: Optical properties, TSP, $NaNO_3$, optical absorption, absorption coefficient, direct and indirect band gap.

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Optical Properties of TSP: $MgCl_2$ Polymer Electrolyte

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ABSTRACT:
Solid biopolymer electrolyte (SPE) film based on biopolymer Tamarind Seed Polysaccharide (TSP) doped with Magnesium Chloride ($MgCl_2$) is formed by a solution casting method. The optical properties have been taken out by UV-visible optical absorption spectroscopy in the wavelength range of 200-800 nm. From this, the optical absorption, optical transmission, refractive index spectra, direct energy bandgap, indirect energy bandgap, optical absorption edge are achieved. The transmittance wavelength is nearly 220nm. The estimated optical band gap changes from 5.41eV to 4.22eV. The optical bandgap is shown that the films are nearly transmitting within the visible range. The direct, indirect and absorption edge for pure TSP is high and by increasing salt concentration of $MgCl_2$, the above parameters are observed to decrease slowly. For the concentration of 80% TSP: 20% $MgCl_2$ low value of direct and indirect energy bandgap is found.

Index terms: Optical properties, TSP, $MgCl_2$, optical absorption, absorption coefficient, direct and indirect bandgap.

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Effect on structural and magnetic properties of Mg^{2+} substituted cobalt nano ferrite

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ABSTRACT:

Nanoparticle-sized inverse spinel structured Cobalt ferrite materials doped with Mg2+ at lower concentrations have been synthesized using sol-gel auto combustion technique. Two-step annealing procedure has been employed to obtain a clear phase of the synthesized materials. Structural and phase formation have been studied using the thermo gravimetric analysis, powder X-ray diffraction and Fourier transform infrared spectroscopy. Powdered samples texture and morphology has been studied using scanning electron microscopy. Moreover,

magnetic properties were studied by room temperature vibrating sample magnetometer. Lattice parameters and crystallite sizes in the range of 8.3702–8.3845 A and 53.2–81.2 nm, respectively, have been calculated. Tuned magnetic parameters have also been obtained using VSM measurement.

Index terms: ***Ferrite nanoparticles, XRD, FT-IR, Raman.***

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Effect of Nickel Dopant on Structural, Morphological and Optical Characteristics of Fe_3o_4 Nanoparticles

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ABSTRACT:

In this current work, the effect of different concentrations of nickel (Ni) dopant on the structural, morphological and optical properties of undoped Fe_3O_4 nanoparticles (NPs) are analyzed. Nickel doped Fe_3O_4 ($NiFe_3O_4$) NPs of five concentrations can be represented as 0.5% as NF1, 1.0 % as NF2, 1.5 % as NF3, 2 % as NF4 and 2.5 % as NF5. Undoped Fe_3O_4 and $NiFe_3O_4$ NPs are prepared by Chemical co-precipitation method from a mixture of $FeCl_2 \cdot 4H_2O$ and FeCl3·$6H_2O$ salts. Structural,morphological and optical properties of the synthesized undoped Fe_3O_4 and$NiFe_3O_4$ NPs were deliberated by a choice of characterization techniques such as XRD, FTIR, FE-SEM and UVVIS.XRD established the characteristic structure, phase and purity of the synthesized undoped Fe_3O_4 and $NiFe_3O_4$ NPs; Average crystallite size is found to decrease with increasing Ni concentration. Surface morphology of undoped Fe_3O_4 and $NiFe_3O_4$ NPs was studied by scanning electron microscopy (SEM). The existence of FTIR peaks at 563.2 cm-1 and 433.5 cm-1 confirmed the formation of Fe_3O_4 NPs. It is due to the stretching vibrations of the Fe-O bond. Theresults indicated that the Ni-doped Fe_3O_4 NPs strongly influences the microstructure, crystal structure and energy band gap.

Index terms: Nickel doped Fe3O4 nanomaterials, FTIR, FE-SEM, DR-UV-Visible, XRD analysis.

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Novel solid polymer electrolyte based on PMMA:CH3COOLi effect of salt concentration on optical and conductivity studies

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Abstract

Novel solid polymer electrolyte (SPE) films based on poly(methyl methacrylate)(PMMA) and lithium acetate (CH3COOLi) with different weight ratios ofPMMA:CH3COOLi wt% (60:40, 70:30, 80:20 wt%) were prepared by solution castingtechnique. XRD analysis confirmed the amorphous nature of Li–PMMA SPEfilms. FTIR analysis revealed the structural changes in polymer by complexation.with Li salt. From the optical absorbance studies, the value of lowest energy bandgap was found to be 3.06 eV for the composition, PMMA:CH3COOLi (60:40 wt%).From AC impedance studies, the highest value of ionic conductivity 8.21×10^{-5} S/cm at 303 K for the SPE film PMMA:CH3COOLi (60:40 wt%) is observed comparedto the reported literature. From the results of Li–PMMA SPE film with highionic conductivity, it is a promising material for the application of solid-state battery.

Keywords: Li–PMMA SPE · Ionic conductivity · Band gap · Dielectricmeasurements.

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Preparation and dielectric properties of PVP-based polymer electrolyte films for solid-state battery application

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ABSTRACT:

Abstract Solid polymer electrolyte has been prepared with the combination of PVP (poly vinyl pyrrolidone) and magnesium sulfate heptahydrate (MgSO4_7H2O) by solution cast technique and subsequently characterized for possible polymer battery application. Structural studies were carried out by XRD technique. DSC analysisrevealed that the micro-porous polymer membrane is thermally stable up to 300 _C. The surface morphology of the films was analyzed by SEM. Electrical conductivity was performed using AC impedance analysing technique in the frequency range from 4 kHz to 5 MHz. Complex impedance spectroscopy revealed that the enhancement in electrical conductivity by salt doping and the conductivity maximum was obtained for 15 wt% of MgSO4_7H_2O salt concentration. Optical absorption studies were carried out on to the prepared films in the wavelength range200–600 nm. Solid-state polymer battery has been fabricated with the configuration of Mg/(PVP / $MgSO_4$_7H_2O)/(I_2 + C+ electrolyte) and discharge characteristics were studied for a constant load of 100 kv. The cell parameters like open circuit voltage, short circuit current, energy density and power density were calculated.

Index Terms : PVP _ XRD _ DSC _ SEM _ Optical _ Dielectric properties _ Discharge characteristics

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Effect of hydrogen annealing on structure and dielectric properties of zinc oxide nanoparticles

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ABSTRACT:

In this article, Zinc Oxide (ZnO) samples were synthesized by Co-precipitation method. The influence ofhydrogen annealing on the structure and dielectric behavior of zinc oxide nanoparticles was investigated. X-raydiffraction measurements indicate that all the particles possess a typical wurtzite structure without any otherimpurity phases. The structure and size of these nanoparticles are not influenced by hydrogen annealing but asmall change in the peak position and intensity was observed. The low-temperature dielectric study of thesamples was studied in the frequency range 20 Hz to 1 MHz between 80 K and 300 K and these measurementsshow that the ZnO nanoparticles further annealed at hydrogen atmosphere exhibit a high dielectric permittivityand a large increase in ac conductivity compared to that of the corresponding ZnO nanoparticle annealed in air.The hydrogen occupancy of oxygen atoms plays an important role in enhancing dielectric permittivity andconductivity in ZnO nanoparticles.

Index Terms –ZnO nanoparticles, Hydrogen annealing, Dielectric properties, High dielectric permittivity, AC conductivity.

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Synthesis, Structural and Magnetic properties of $SrFe_{12}O_{19}$ Hexaferrites

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ABSTRACT:

In this study, $SrFe_{12}O_{19}$ hexaferrites is synthesized by citrate sol-gel auto-combustion route. The standard analytical techniques such as X-rayDiffraction analysis (XRD), Field Effect Scanning Electron Microscopy (FE-SEM), Energy-Dispersive Spectroscopy (EDS), Fourier Transformer Infrared(FT-IR) Spectroscopy, Raman spectroscopy and magnetic studies (VSM) are applied to study the characteristics of the sample prepared. The X-raydiffraction patterns are used to analyse the structural properties of the sample. The information about the particle formation and size are obtained usingscanning electron microscope (SEM). An energy-dispersive x-ray analysis tool (EDX) provides the elemental composition of the nano-particle. TheFourier transform infrared (FT-IR) spectra revealed about the functional group bonds between metal and oxygen (M–O). The vibrating samplemagnetometer (VSM) technique, which is recorded at room temperature, revealed the magnetic properties of the sample with the hysteresis loopsshowing its magnetic behaviour.

Index Terms –M-type hexaferrites, FE-SEM, Raman, VSM.

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Effect of Heat Treatment Time on Performance of $LiMn_2O_4$ Nanoparticles Produced by Sol-Gel Method

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ABSTRACT:

$LiMn_2O_4$ nanomaterials was synthesized by sol geltechnique and calcined at 800^0C temperature for different heattreatment time. The crystal structure and phase identificationwas done by X-Ray diffraction study; XRD revealed that thecrystallite size decreased with increasing annealing time.Morphological, elemental analyses were carried out by FE-SEMand EDS showed the grain size in the range of 100-130 nm. XPSspectra confirmed Mn valency in +4 and +3 states. Dielectricstudy exhibited available free charge carriers at low frequencieswithin the material. Cyclic Voltammetry results showed that thesample annealed at 10h has improvement in Li^+ intercalationand de-intercalation.

Index Terms –$LiMn_2O_4$, FE-SEM, Cyclic Voltammetry, XPS.

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Surface PM Concentration variations and its relationship with AOD in the Yangtze River Basin, China

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ABSTRACT:

The temporal variability of surface measured PM concentrations ([PM]) and their relationship with meteorological variables and aerosol optical depth (AOD), is investigated in the present work in the Chinese Yangtze River Delta (YRD) region during January 2014 to December 2017. The annual mean concentrations of [$PM_{2.5}$] ([PM_{10}]) observed at Shanghai (SH), Nanjing (NJ), Hangzhou (HZ), and Hefei (HF) were exceeded the Chinese National Air Quality Standards of GB3095-2012, being higher (lower) during winter (summer). The [PM] was found higher in the morning (08:00-10:00 LT) and evening (18:00-20:00 LT), and lower in early morning (04:00 LT) and afternoon (14:00 LT) attributed to the dynamics of boundary layer height and varied emission sources. Further, the [PM_{10}] and [$PM_{2.5}$] were highly correlated ($r \geq 0.90$) in all cities, with slope > 0.70 representing the abundance of fine, except for NJ (<0.70). A low correlation (< 0.5) was noticed between [PM_{10}] and AOD_{550} suggesting that the aerosol particles had a large influence on AOD, contributing less to PM_{10}. At last, thetrajectory models suggested that local and regional sources contributed a lot for the high [$PM_{2.5}$] observed at the four cities in the YRD, China.

Index Terms – Surface aerosol concentration, Meteorology, Aerosol optical depth, Concentration weight trajectory model, China.

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Multi-decadal aerosol climatology observed from AERONET data in Southeast Asia

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ABSTRACT:

The present study utilizes 18 years of long-term (2001-2018) data collected from six active AERONET sites over the Indo-Gangetic Plain (IGP) and the North China Plain (NCP) areas in Southeast Asia. The annual mean (±SD) aerosol optical thickness at 440 nm (AOT_{440}) was found high at XiangHe (0.92±0.69) and Taihu (0.90±0.51) followed by Beijing (0.81±0.69), Lahore (0.81±0.43), and Kanpur (0.73±0.35) and low at Karachi (0.52±0.23). Seasonally, high AOT_{440} with corresponding high Ångström exponent ($ANG_{440-870}$) noticed during JJA for all sites, except Kanpur, suggesting the dominance of fine-mode particles, generally associated with large anthropogenic emissions. Climatologically, an increasing (decreasing) trend was observed over IGP (NCP) sites, with the highest (lowest) percentage of departures in AOT_{440} found over Beijing (Karachi). At last, the annual mean direct aerosol radiative forcing at the top, bottom, and within the atmosphere for all sites were found in the range from -17.36±3.75 to -45.17±4.87 W m^{-2}, -64.6±4.86 to -93.7±10.27 W m^{-2}, and 40.5±6.43 to 68.25±7.26 W m^{-2}, respectively, with an averaged atmospheric heating rate of 0.9-2.3 K day^{-1}.

Index Terms –Aerosol optical depth, Single scattering albedo, Radiative forcing, Southeast Asia.

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Impact of transported dust on radiative forcing in North Africa through WRF-Chem model

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ABSTRACT:

The present work utilized the mineral dust emission schemes from the WRF-Chem model and assessed against the MODIS and CALIOP satellite retrievals to study the impact of dust on radiative forcing over North Africa.Weinter-compare two sets of six experiments conducted during June 2016 obtained at a resolution of 30km, one without dust and the other with the dust module turned on over the study domain. The results show that the WRF-Chem model simulations are generally consistent with the observations made by MODIS and CALIOP. The GOCART emission scheme captures very well with the aerosol optical depth (AOD) and dust emission source areas over North Africa, while the AFWA and Shao simulation schemes overestimated and underestimated, respectively with the observed AOD over the dust source regions . The simulated vertical extinction coefficient profiles are considerably underestimated except, for the AFWA extinction profile that has values close to the CALIOP observations. The radiative forcing calculated on the daily average revealed that the dust-inducedpresents a warming effect in the atmosphere and a strong cooling at the surface.The AFWA simulation shows a strong effect on both solar and infrared radiations while the GOCART and Shao are comparable.

Index Terms – Transported dust, Radiative forcing, WRF-Chem model, North Africa.

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Concentration dependent photoluminescence studies of Dy^{3+} doped Bismuth Boro-Tellurite glasses for lasers and wLEDs

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ABSTRACT:

Bismuth Boro-Tellurite (BiBT) glasses activated with dysprosium ions were propitiously fabricated using melt quench method to study the luminescent potentiality using spectroscopic techniques such as FT-IR, absorption, photoluminescence (PL) excitation, PL emission and PL lifetime spectral recordings. FT-IR studies reveal various functional groups present in the titled glasses. The experimental oscillator strengths measured from the absorption spectral features are subjected to Judd-Ofelt (J-O) theory to estimate radiative properties of the Dy^{3+} ions in BiBT glasses. The excitation spectrum recorded for 1 mol% of Dy^{3+} ions in BiBT glass in the range 340 to 500 nm show six excitation bands with an intense one at 452 nm. The PL spectra recorded under 452nm intense excitation wavelength displays three principal characteristic bands in blue, yellow and red regions and quenching was observed at 1 mol% of Dy^{3+} ions. The emission spectral information has been subjected to colorimetric analysis to evaluate CIE coordinates, CCT values and Y/B intensity ratio to have a look at the aptness of the titled glasses for white LEDs. The emission cross-section, branching ratios, quantum efficiency, CIE coordinates and CCT values evaluated finally reveals the superior nature of the BiBT glasses for various optoelectronic devices applications.

Index terms: BiBT glasses, Y/B ratio, CIE, LEDS

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Alkaline-Earth Boro Tellurite glasses doped with trivalent neodymium structural and spectroscopic properties for 1.06 μm photonic applications

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ABSTRACT:

Alkaline-Earth Boro Tellurite (AEBT) glasses doped with trivalent neodymium (Nd^{3+}) were synthesized by employing melt quenching technique to explore their structural, optical and photoluminescence properties. Energy Dispersive X-ray spectroscopy (EDX), optical absorption, Photoluminescence (PL) and PL decay were performed to understand their utility for photonic applications. The Judd-Ofelt (J-O) analysis applied for the absorption spectral features reveals covalent nature of Nd-O bond as well as the low symmetry around active ions. The emission spectra of Nd^{3+} doped AEBT glasses have three peaks corresponding to the transitions $^4F_{3/2} \rightarrow {}^4I_{9/2}$,$^4F_{3/2} \rightarrow {}^4I_{11/2}$ and $^4F_{3/2} \rightarrow {}^4I_{13/2}$ at the wavelength regions 887 nm, 1064 nm, and 1334 nm respectively. Among these transitions,$^4F_{3/2} \rightarrow {}^4I_{11/2}$ is the most famous NIR laser transition having high neodymium intensity. The absorption, emission and decay spectral studies, reveals that AEBT glass with 1 mol% of Nd^{3+} ion concentration (AEBTNd1.0) is optimum to generate a strong laser emission at 1064 nm suitable for NIR photonic applications.

Index terms: Judd-Ofelt, laser, stimulated emission, Absorption, Luminescence

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Thermal, Up-Conversion and Near-Infrared Luminescence studies of Erbium ions doped Alkaline-Earth Boro Tellurite Glasses

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ABSTRACT:

The Alkaline-Earth Boro Tellurite (AEBT) glasses doped with different concentrations of Erbium (Er^{3+}) ions were prepared by sudden melt quenching technique. The prepared samples were characterized by optical absorption, visible, Up-Conversion (UC), near-infrared (NIR) luminescence and luminescence decay to understand their luminescence properties. The Judd-Ofelt (J-O) intensity parameters (Ω_λ, λ = 2, 4, 6) were calculated from the absorption spectra. Different radiative properties such as total radiative transition probability (A_T), radiative lifetime (τ_R), radiative branching ratios (β_R), Stimulated emission cross-section (σ_{se}), effective bandwidth ($\Delta\lambda_p$), gain bandwidth (σ_{se} x $\Delta\lambda_p$) and optical gain (σ_{se} x τ_R) for Er^{3+} ions in the titled glasses were estimated. The Decay spectral curves for the $^4I_{13/2}$ level of Er^{3+} ions in AEBT glasses were recorded under 980 nm excitation for 1574 nm emission. The obtained results reveal that the titled glasses are suitable for the optical devices like solid state lasers and fiber amplifiers.

Index terms: Judd-Ofelt, Branching ratios stimulated emission, Absorption, Luminescence

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Structural and luminescence features of Dy^{3+} ions doped alkaline-earth boro Zinc tellurite glasses for optoelectronic devices

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ABSTRACT:

A Series of Alkaline-Earth Boro Zinc Tellurite (AEBZT) glasses doped with different concentrations of Dy^{3+} ions have been prepared by using melt quenching technique and characterized by using spectroscopic techniques such as XRD, Raman, optical absorption, excitation, photoluminescence (PL) and PL decay to understand their utility in optoelectronic devices such as lasers and white light emitting diodes (w-LEDs). The XRD spectrum reveals non-crystalline nature whereas the Raman spectrum revealed the phonon energy and various functional groups present in the undoped host glass. The intensities of the electronic transitions and the ligand field environment around the Dy^{3+} ions were studied by applying Judd-Ofelt (J-O) theory to the recorded absorption spectra of the AEBZTDy glasses. The J-O parameters were used to measure various radiative parameters for the prominent fluorescent levels of Dy^{3+} ions in the as-prepared glasses. The emission spectra of Dy^{3+} ions doped AEBZT glasses under 387nm excitation show three emission transitions $^4F_{9/2} \rightarrow {}^6H_{15/2}$ (blue), $^4F_{9/2} \rightarrow {}^6H_{13/2}$ (yellow), and $^4F_{9/2} \rightarrow {}^6H_{11/2}$ (red) of which the yellow transition observed at 575nm is highly intense. All the aforementioned results finally revealed that the AEBZT glasses doped with Dy^{3+} ions are aptly suitable for the design and development of optoelectronic devices such as w-LEDs and lasers.

Index terms: Glasses, Transition Probability, Total transition probability, excitation and Emission

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Fabrication of hybrid solar silicon PV system

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ABSTRACT:

Presently, in a city land cost for a solar plant to be set up is very high. An innovative idea of hybrid solar Si (silicon) PV system that contains a Silicon PV tree embedded with vertical axis wind turbine (VAWT) is proposed in this work. PV tree which acts as a vertical support and solar panels are placed in such a manner they appear as leaves of a tree. They are oriented towards south east, south and south west directions this makes the solar panel to be oriented towards the sun to capture maximum sun light. Secondly, a vertical axis wind turbine has been embedded on the top of PV tree to capture the energy from the following wind. The hybrid solar Si PV system is generally less noisy and takes full advantage of the wind spiraling effect upon hiring an object in its path. The two sources for generating electricity are contained in the same structure and operate simultaneously yet independently of one another from renewable energy sources such as the wind and sun energy. Thus, fusion of smartly designed hybrid solar Si PV system helps us to meet the growing power demand of our growing cites and also can increase production of the renewable system by 50.8% compared to that PV system.

Index Terms –Solar Si PV tree, Wind turbine, Lenz 2 VAWT, Solar irradiation

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Pre-storm behavior of electron density and total electron content over Indian sector

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ABSTRACT:

The dynamical behavior of Earth's ionosphere has an important role in trans-ionospheric communications in particular during disturbed geomagnetic storm conditions. In spite of many questions one of them being pre-storm enhancement behavior of electron density and total electron content. In the present study, identified 5 geomagnetic storms based on Kp index >= 6 in the year 2013 for the stations Hyderabad (17.38° N, 78.48° E), Bengaluru(12.97° N, 77.59° E) in the Indian sector. It is found that in two storms there is an enhancement in electron density(NmF2) and total electron content(TEC)over Hyderabad while it is not observed in Bengaluru. The origin of Pre-storm enhancements in NmF2 and TEC quiet remains unresolved due to their occurrence mechanisms. In present study an attempt is made to recognize the mechanisms which are responsible for the enhancements in electron density and total electron content in the F-region ionosphere.

Index terms: Ionosphere, Geomagnetic storm, Pre-storm enhancement, electron density

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A Review on Applications of various functional materials

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ABSTRACT:

The implementation of renewable energy sources, climate change, protection of the environment, health and ageing issues, antibacterial resistance as well as pushing forward information technology and digitalization are the major global challenges. To effectively handle these challenges, materials developed with a particular function and with an out-and-out application is the solution. Society requires such materials with special catalytic, electrical, optical and magnetic properties that define their functions in order to design devices for modern technologies and applications. The present paper focussed on the various types of functional materials and their applications.

Index Terms: Functional Materials, Magnetic materials, Nano Materials Optical Materials, Phosphors, Thinfilms

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Dy^{3+} Doped Glasses For White Light Applications : A Short Review

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ABSTRACT:

Recently published various Dy3+ ions doped glass materials were taken for analysis to understand their white light emission behavior and to correlate that behavior with their optical properties. The structural properties of the materials were analyzed using their Judd-Ofelt (J-O) intensity parameters. All the selected glasses have shown covalent nature for the Dy^{3+} -Oxygen bond and low symmetry around Dy^{3+} ion sites. The colour coordinates (X, Y) which are crucial in understanding white light behavior have found a relation with the optical property stimulated emission crosssection of the selected glasses. The glasses with higher σse values have the colour coordinates of X and Y > 0.4 which are far from the standard colour coordinates (X=0.333, Y=0.333) and the glasses with lesser σse values have the colour coordinates of X and Y < 0.4 which are nearer to the standard colour coordinates (X=0.333, Y=0.333).

Index Terms: Colour coordinates, Covalent nature, Dy^{3+} ions doped glasses, Judd-Ofelt intensity parameters, Low symmetry, Stimulated emission cross-section, Y/B ratio.

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Tm^{3+} ions doped alkaline-earth fluoro borate glasses for white LED's and visible lasers

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ABSTRACT:

A new series of Tm^{3+} ions doped alkaline-earth fluoro borate (AEFB) glasses were prepared by conventional melt quenching technique and characterized with XRD, absorption, excitation, photoluminescence (PL), fluorescence decay spectral measurements and CIE coordinates. From the absorption spectra, Judd-Ofelt (J-O) intensity parameters (Ω_2, Ω_4, Ω_6) have been measured using the least square fit method. The CIE chromaticity coordinates of Tm^{3+} (1 mol%) doped AEFB glasses are located in the white light region. The optimum doping concentration of Tm^{3+} ions is around 1 mol%, beyond which concentration quenching is observed. The decay spectral profiles luminescence transition were used to measure experimental lifetimes (τ_R). The results indicatethat Tm^{3+} doped AEFB glasses may have great potential as other visible photonic applications.

Index Terms: Judd-Ofelt parameters Dysprosium, Photoluminescence, Lifetime, Flouro Borate glasses