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DIASPORIC SUFFERINGS IN ABDULRAZAK GRUNAH'S *PARADISE* AND *BY THE SEA*

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Abstract

This paper analyzes the two novels exploring the pain and sufferings of the slave and an asylum seeker. Both *Paradise* and *By the Sea* features the protagonist struggling for their identity and construct their lives in abroad. Gurnah's novel always includes exile, displacement, loss, identity and effects of colonialism in East Africa. His writings reveals the suffering and experience of refugees and immigrants. Gurnah deal with memory of the characters' of their past. He creates his fictional characters constantly negotiate with their past and present and portrays how they build their own identities in new territory.

Keywords:

Diaspora, Sufferings, Identity, Migration, Refugees, Abdulrazak Gurnah.

This article aims to take a look at Abdulrazak Gurnah's diasporic sufferings in his novel *Paradise* (1994) and *By the Sea* (2001). These novels set on the East African region. His most of the works deals with ideas of belonging, memories recollection, effects of colonialism and migration. In his novels, *Paradise* and *By the Sea*, Gurnah presents the ideas of shifting as characters migrate from one place to another. The migration given rise to dislocation and Diasporic communities. Diasporic literature helps us to understand the multi-cultural relationships. Migration, displacement and diaspora are closely connected and they indicate a sense of dislocation, exile and translation.

> The term "Diaspora" has been increasingly used to describe the mass migrations and displacement of the second half of the twentieth century, particularly in reference to independence movements in formerly colonized areas, waves of refugees fleeing war-torn states, and fluxes of economic migration in the post-world war II era.

This article examines how he undergoes moving in his new territory and treating by their superiors. He deals with the thought of recreation, the self and cultural identity. In Gurnah's novels *Paradise* and *By the Sea*, he presents an idea of shifting protagonist and other characters of the novels move from one place to another as migrants.

Paradise is the fourth novel of Abdulrazak Gurnah. He presents the story of the twelve years old boy Yusuf runs an impoverished life with his father and mother in unnamed village.

STRATEGIES FOR EMPOWERING STUDENTS WITH MULTIPLE INTELLIGENCES IN VIRTUAL CLASSES

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Abstract:

Virtual Classrooms are being visualized as the future of education. Though it was predicted to take the center stage in the next few decades, it has hit the educational scenario well in advance due to the adverse effect of the pandemic caused by the Corona Virus Covid – 19. With the pandemic having a massive impact on the educational system, the need for online teaching and learning has become inevitable. The challenges faced by the teachers while teaching online has been immense. This paper focuses on suggesting a strategy of identifying the learning styles of students according to their learning intelligences suggested by Howard Gardner and adapting the teaching styles to have an inclusive learning system to motivate the students for improving the overall academic performance.

Key Words: Virtual Classroom, Challenges, Learning Styles, Multiple Intelligences,

The impact of the pandemic Covid – 19 corona virus is huge. Its effect on Higher Education is humungous. The effect of this outbreak of the global pandemic, has been massive on higher education across the globe. Learners across the world are affected by the closure of the educational institutions. This has resulted in massive online learning movement in the history of education. This impulsive shift away from the classrooms across countries have forced the universities and colleges to move to virtual and digital strategies. It is believed by many that this virtual classroom scenario will persist even after the pandemic is over.

At this juncture, the need for the emergence of a new hybrid model of education overcoming the digital divide is inevitable. The World Economic Forum states that "this pandemic has created a distinctive rise of distance learning, whereby teaching is undertaken remotely and on digital platforms." (World Economic Forum, "3 ways the coronavirus pandemic could reshape education," 2020, https://www.weforum.org/agenda/2020/03/3-ways-coronavirus-is-reshaping-education-and-what-changes-might-be-here-to-stay.)

India is a country blended with people belonging to the rich and the poor, the educated and the uneducated, the urban, the semi urban and the rural, the accessible and the inaccessible and the affordable and the unaffordable. The detailed study also strives to suggest strategies that can be followed in order to make this online education accessible and affordable to all the students and also to make the teaching reach the students effectively.

Students in a classroom have various learning styles. In a regular classroom, it is easy for the teacher to identify these learning styles and accommodate in their teaching as they have the opportunity to meet the students physically and observe them keenly. In a virtual classroom, it is not that simple. In a virtual classroom, the attention of the students can be kept in focus only when the teacher adapts to the learning styles of the students. Howard Gardner has identified and proposed eight types of intelligences according to their learning styles, in his book *Frames of Mind* (19)

Catherine Green and Rosie Tanner have also supported the view of accommodating Multiple Intelligences theory in teaching, especially when the classroom is in the virtual mode.

> We have four main reasons for our belief that accommodating Multiple Intelligences theory into online teacher education is worthwhile. Firstly, just as in an on-site classroom, online learners are individuals who have a range of experiences; each possesses his or her stronger or weaker intelligences. By being aware of these differences, an online instructor can differentiate and individualize instruction. (Catherrine Green andRosie Tanner, 2005)

Howard Gardner in his book (1999). (The disciplined mind: What all students should understand. New York, NY: Simon & Schuster.) has identified eight intelligences that the students in a classroom will possess. They are linguistic intelligence, logical-mathematical intelligence, spatial intelligence, musical intelligence, bodily-kinesthetic intelligence, naturalistic intelligence,

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BRIDGING THE GAP AND BUILDING COMPETENCIES IN UNDERGRADUATES – THE CLIL WAY

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Abstract

This paper discusses the school- university- work life gap and how English language course for Undergraduate programmes should play an active role in addressing the gap. It explores Content and Language Integrated Learning (CLIL) as a possible curricular framework and an instructional approach to help bridge gap across various disciplines with respect to language and communication skills. It provides a brief overview of what CLIL is and its relevance to English language courses across a range of academic disciplines and discusses the curricular objectives and content in the wider implications for student learning and development in their specific subject areas and career. The discussion could apply across Arts and Sciences that and other professional or vocational qualifications such as Engineering. The fundamental principles of CLIL are fairly straightforward but they do have their gaps and the framework does pose challenges as it has not yet been fully researched meaning there is scope for higher education institutions to engage in active research and forms of investigation such as action research and needs analysis to address these gaps.

Key Words: CLIL, *EAP, ESP, University transition, ESL,* English language course, *General English, Content and Language Integrated Learning, Lexical Approach*

Introduction

Students in the higher education contexts have dual needs when it comes to English Language Learning. They need to develop language skills for communicative competency and be able to successfully do their coursework in their respective academic disciplines. First year students often find themselves out of a familiar educational context into a new one, with higher expectations of them and their language skills. They get tested on content in their academic disciplines, while their language skills are tested at the same time and most of them struggle to perform or even cope. This means successful completion of higher secondary English language component in itself does not guarantee successful transition to university. Moreover, often the complaint is that graduates lack in communication and soft skills that form the core of employability skills (Bharathi 2016; Chakrabarty 2016), which are transferable. Acquisition of language skills are equally important determinants of employability and necessary for academic just as their mastery and skills in their specific content areas (Seikkula-Leino 2007).

In these contexts that content and language integrated learning (CLIL) could prove effective in addressing the gap, enable development of language skills in specific relation to their subject area, build motivation and transferable communicative competency, boost student success and motivation as there would be relevance and context (Seikkula-Leino 2007). Therefore, CLIL could be a possible means to enable this and it could be up to each college or institution to evaluate the needs of its learners in the light of the overall objectives and institutional mission before taking up the framework.

CLIL: an Overview

Content and language integrated learning (CLIL) is a generic term that refers to any educational situation where a second or foreign language is used for the teaching and learning of subjects other than the language itself (Marsh & Langé 2000). It often refers to the teaching of academic subjects in

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A POSTCOLONIAL PERSPECTIVE OF THE PREDICAMENT OF WOMEN IN BAPSI SIDHWA'S *WATER*

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ABSTRACT:

Postcolonialism is a postmodern intellectual discourse that analyses the cultural legacy of colonialism and imperialism. The vital aspects of postcolonial subject matters include location and dislocation, which results in identity crisis into existence. Thus, the principal theme of the postcolonial writing is the change of the native into something other than oneself or at the minimum, one who is in adversity concerning one's own societal identity. This study analyses certain postcolonial elements in Bapsi Sidhwa's novel *Water* which is set in 1938, when India was still under the colonial rule of British.

Keywords: Postcolonialism, Identity, Native, Displacement, Post-colonial element

Postcolonial era is a hardly essential time period in critical current literary studies. Post colonialism tends to replace terms like Commonwealth Literature, Anglophone Literature, and New Literatures in English, Third World Literature, and Literature of the Developing Nations. Even the postcolonial time period has its own personal train of complexities. It is so common that the means and scope of the term is debatable. Its use may be narrowed down for the purpose of this study to highlight the inequalities among the rich and negative countries in many domains - social, psychological, political, economic and cultural practices and patterns and the articulation of their equals in literature.

Sidhwa belongs to a minuscule minority community referred to as Parsi or Zoroastrian community which is nearing its extinction as a result of its strong doctrines and severe exclusivity. Bapsi Sidhwa is one of the pioneering woman novelists from Pakistan. As she hails from Parsi Community, the background of her novels is almost set in Parsi community. She tends to highlight the problems faced by the Parsi Community. In the pluralistic Indian society, they flourished due to their diligence and integrity very quickly. They have become a very rich commercial enterprise community.

In postcolonial India and Pakistan they had to lose their dominance over business, politics and education and inculcated a sense of lack of confidence and fear following the unheard of political happenings and the increasing communal violence. Accentuated through the external threats and the plights of the diminishing community, standing at the verge of extinction, contemporary Parsi writers like Boman Desai, Farukh Dhondy, Rohinton Mistry and Bapsi Sidhwa assert their ethnic identification and sincerely try to reconstruct their racial history of their writings.

Bapsi Sidhwa was born in Karachi in 1939. Her novels reflect her personal experiences of the partition of Indian subcontinent, abuse against women, her immigration to the United States etc. Her novels highlight the women's issues of the subcontinent and bring them into public discussion. She is well known for registering her perception on the partition of Indian subcontinent as a Parsi Woman.

Her five published novels are *The Pakistani Bride*, *The Crow Eaters*, *Ice- Candy-Man, An American Brat,* and *Water*. Sidhwa's first three novels focus on Parsi families and the Parsi community. Her fourth and fifth novels deal with post-colonial writings which are based on Indian tradition. The

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Research article

Strategic analysis of intimate partner violence (IPV) and cycle of violence in the autobiographical text –*When I Hit You*

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Abstract

Objectives

Intimate Partner Violence (IPV) is a globally recognized societal problem that requires intensive research to raise public awareness.

Aim

Accordingly, the purpose of the study is to analyze IPV at the physical, psychological, and social aspects of abuse.

Method

The methodology of the study correlates IPV to the personal experiences of notable Indian writer, Meena Kandasamy, according to the autobiographical account of her abusive married life in the award-winning novel When I Hit You, which depicts the horrible treatment of women by their perpetrators within a closed sphere. To substantiate, the selected autobiographical work is compared with Lenore Edna Walker's prominent Cycle of Violence theory, which best describes why women become victims and also the abuser's tactics in controlling the women in a violent relationship.

Results

The study's findings suggest that IPV, a serious global problem, requires government intervention and severe legal enforcement to protect women's lives from the clutches of the abuser.

Previous Next

Keywords

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'Invisible Yet Static': An Analysis of Structural Violence with Reference to Kilvenmani Massacre, India

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ABSTRACT

Violence remains one of modern society's most pressing global public health issues. As a result, the current study's objective is to examine the text, *The Gypsy Goddess,* in the concept of Structural Violence, which is one of the most lethal forms of violence, from a broader perspective in terms of political, economic, gender and health aspects. The methodology of the study incorporates a documentary text, *The Gypsy Goddess* by Meena Kandasamy, which aids with the illustrations of actual records and a survey of the victims of the Kilvenmani massacre, which happened in the state of Tamil Nadu, India, in which poor agricultural peasants were burned alive by wealthy landlords. The study's major findings offer a comprehensive look at the physical and psychological causes and consequences of underlying Structural Violence processes worldwide with reference to the select text. According to the text, the study's findings suggest that structural violence contributing factors are multifaceted and systemic. Besides, it reveals that people's collective efforts, combined with modified legal interventions, can help combat Structural Violence by creating awareness and providing impoverished communities with adequate services and resources.

Keywords: Gender, Kilvenmani massacre, legal interventions, politics, structural violence

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INTRODUCTION

Secular customs have long been ingrained in Indian culture. It is built on a synthesis of many spiritual cultures and traditional movements (Hariharasudan & Pandeeswari, 2020). The goal of social structures is to

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RUSHDIE'S *SHALIMAR THE CLOWN* A POSTCOLONIAL REPRESENTATION OF THE PAST INDIA

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Abstract
Salman Rushdie is one of the most important postcolonial writers in English literature. Through his literary contributions, he ushers in a new era of postcolonial literature. Rushdie is a world-renowned novelist whose outstanding works have garnered him accolades, thrills, and controversy throughout his illustrious career. Several Indian authors, including Amitav Ghosh and Rohinton Mistry, have been greatly influenced by his unquestionable creativity. As one of the world's most controversial and provocative contemporary novelists, Salman Rushdie stands out. Allegory, multiculturalism, magic realism and other postcolonial techniques are used in Rushdie's works to create alternative views of the colonial situation in a postcolonial context. Postcolonial literature is a wide range of topics are addressed in Rushdie's novel: historical, political, moral, social, racial, communal, cultural, and religious issues, as well as contemporary issues like terrorism and corruption. In his novels, these themes can be found. All of Rushdie's novels, as a postcolonial author, have brilliantly depicted the politics of both the East and the West. In most of Rushdie's works, the past of India is emphasised, and his complete works sometimes present a historical allegory. Shalimar the Clown is a historical novel rather than a story of India's modern history. In all of his books, Kashmir serves as a backdrop, and many of the allegories he uses refer to the location. It is his intention to entertain the reader, and the reader will find it intriguing to discover many historical allegories that he has employed in his work.
Key Words: Postcolonial, Politics, East, West, History

Rushdie depicts Kashmir in this *Shalimar the Clown* as a place where history and the passion play of those who can't endure it meet. Gurnah writes: "Rushdie returned to writing about India's subcontinent with Shalimar the Clown's focus on Kashmir as a significant political event. It was an important step for Rushdie's career." (07) History of Kashmir has been shown in the book, where Kashmir has been described as the state that grew up between the East and the West, surviving as India or more particularly Kashmira. Shalimar the Clown is a representation of the infidel who thinks the world belongs to him. Shalimar the Clown is mostly rooted in Kashmir, although it starts and concludes in Los Angeles. Three primary characters' stories are told by Rushdie: the lovely teenage dancer Boonyi, the Muslim tightrope walker and clown Shalimar Noman, and the European elderly Jew Max Ophuls.

Both Shalimar and Boonyi grow in two Kashmiri villages, Pachigam and Shirmal. Noman Sher Noman also known as Shalimar the Clown,

> the most beautiful boy in the world" is a performer and tight-rope walker. Shalimar marries his childhood friend Boonyi, a Hindu Brahmin girl. Noman declares to Boonyi "Don't you leave me now, or I'll never forgive you, and I'll have my revenge. I'll kill you and if you have any children by another man I'll kill the children" (SC 61).

Maximilian Ophuls, the American ambassador to India, once encountered a young woman named Bhoomi or Boonyi. They had an extramarital affair, and she gave birth to a daughter they called Kashmira. Then he brought Kashmira, renamed India, to the United States. It is apparent that Bhoomi symbolises the country of India and when a foreigner comes to our territory and attempts to be nice and eventually deceives us and takes away our property, what is his destiny is further depicted in this context. In the wake of learning about what had been happening behind Boonyi's back, Shalimar the Clown, Boonyi's husband, flew to the United States and shot Max Ophuls in the

INTERTEXTUALITY: A POSTMODERN STUDY OF KIRAN NAGARKAR'S *GOD'S LITTLE SOLDIER* AND *THE ARSONIST*

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Abstract :

Postmodernism refers to the depiction of life after World War II in art, culture and literature. The term 'Postmodernism' was first used in 1940's. On its first use in the 1940's, the term signified itself as one of the movements. Gradually, it was used in several other disciplines like architecture, politics, economics, art, culture and sociology. American literary critics Harry Levin and Irving Howe were the first critics, who had applied the term 'Postmodernism' to Literature written after World War II. And it was popularized by Ihab Hassan. In India, post 1980's is described as the Postmodern period. Several Indian writers have tried their talents in writing Postmodern novels and have succeeded in it. One such novelist is Kiran Nagarkar. The salient features of a Postmodern novel include pastiche, fabulation, intertextuality, irony, humour, historiographic metafiction etc., Among these, Intertextuality plays an inevitable role in a Postmodern text. The term, 'Intertextuality' is coined by Bulgarian-French literary critic, Julia Kristeva. Kiran Nagarkar's *God's Little Soldier (2006)* and *The Arsonist (2019)* are taken for an analysis and the Paper aims to study 'Kiran Nagarkar's *God's Little Soldier* and *The Arsonist* as Intertextual Texts'

Key Words : Kiran Nagarkar, Postmodernism, Intertextuality, Julia Kristeva, Techniques.

Intertextuality is one of the characteristic features of Postmodernism. The term, 'Intertextuality' was coined by Bulgarian French Literary Critic, Julia Kristeva. The term implies 'interdependence of two literary texts'. For instance the author will be quoting a sentence or a paragraph that has been taken from another text. Kiran Nagarkar has handled this concept of Intertextuality in a quiet strange and different way. His novels, *God's Little Soldier (2006)* and *The Arsonist (2019)* are interrelated.

God's Little Soldier revolves around the life of Zia Khan. He is the protagonist of the novel. He has an elder brother named, Amanat. Amanat is portrayed as a writer in the novel. Nagarkar narrates both the life of Zia Khan and Amanat simultaneously. Amanat publishes a novel entitled, *The Arsonist* and sends his book as a gift to his brother, Zia to read. Every now and then Zia reads the novel. Some passages or sometimes a whole chapter of *The Arsonist* is incorporated in *God's Little Soldier.* This particular novel, *The Arsonist* that has been written by the fictional character Amanat is later published as a novel by Kiran Nagarkar in 2019. Hence the novels *God's Little Soldier* and *The Arsonist* are interrelated and the concept of Intertextuality is clearly found.

Nagarkar calls his employment of story of *The Arsonist* in *God's Little Soldier* as 'a book within a book'. In Afterword of *The Arsonist*, he states that,

> … writing my novel *God's Little Soldier.* My task at that moment was to compose the opening pages of a 'book within a book', by Amanat, one of the two major protagonists. By the time *GLS* was done, it had sixteen pages of excerpts from Amanat's book, *The Arsonist.* (303)

Those sixteen pages of excerpts are transformed by Nagarkar, later as a novel that runs nearly three hundred pages. Julia Kristeva in her essay *Word, Dialogue and Novel* rightly defines Intertextuality as "a mosaic of quotations; any text is the absorption and transformation of another. The notion of intertextuality replaces that of intersubjectivity…"(85). A complete mosaic of quotations that run in *God's Little Soldier* is transformed into a novel named *The Arsonist.*

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The Plight of Women in Periphery: Nandini sahu's Sukamaa – A study

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Abstract: Post colonialism is the study of theory and Literature. It analyses colonizer and colonized experience. One of the significant parts in the realm of Post colonialism is Subaltern which identifies the colonial populations who are politically, socially, and geographically excluded from the ruling power. Inequalities and Injustice happens everywhere in the name of culture and tradition. They fight against all sorts of religious, socio and cultural discrimination. A contemporary women writer like Nandini Sahu depicts this sort of discrimination in her poetry. This paper aims to explicate how Nandini Sahu portrays the plight of tribal women in her poem Sukammaa and other poems.

Keywords: Subaltern, condition of tribal woman, culture, Poetess' view.

In Post colonial theory, the term Subaltern describes the lower social classes and the other social groups displaced to the margins of society. The term Subaltern which means "of inferior rank" was first used by the Italian Marxist philosopher Antonio Gramsi. Subaltern classes include workers, peasants and other groups. Thus the theory is principally designed to examine the voice of the Subaltern subject. Later, feminist writers concern women's cause, their subjugation to men and their exploitation that is physical, cultural, traditional, and religious.

In Indian English poetry from Toru Dutt to Kamaladas, Women writers depict the poignant, ironic voice against the plight of women in Indian society. Dr.Nandini Sahu is one such significant poet who depicts the plight of women and voices against the subaltern status of women. She is an Indian poet. She has written several books include poetry collections. Sukamaa and other Poems is her fourth collection consists of 48 crafted poems. The Poem deals with her views on women in general and on the marginalized poor women in particular.

The poem Sukamaa begins with the sad demise of Sukamaa who was the speaker's childhood domestic helper. She revisits her childhood days by recalling the devoted life of the old poor woman Sukamaa. She is Suka's mother and the foster mother of the Speaker and her sisters. She belongs to the kondh tribes. Kondhs are the largest tribal groups in Odisha which occupies the highest tribal population in India. It is one among the Adivasi tribal communities who speak kui language. Sahu has delineated the plight of such women who belong to that community. Through Sukamaa, Sahu attempts to expose ultimate harsh realities of the downtrodden women who are oppressed in the name of caste, creed and culture. Thus Sahu says,

The rural poor tribal
the Kondh old woman

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Dismantling the Colonial Situation in Vikas Swarup's *The Accidental Apprentice*

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Abstract:

Vikas Swarup in his novels, Q & A (2005) (adapted in film as Slumdog Millionaire), Six Suspects (2008) and The Accidental Apprentice (2013) shows the contemporary India. He documents the corrupted and bourgeois India in all fields. The paper speaks about the Novel, *The Accidental Apprentice* which exposes the postcolonial life in both village and city. The novel portrays the life of Sapna Sinha, a middle-class sales girl in an electronic shop at Delhi. During Colonisation Indians are puppets in the hands of colonisers. They erased the reality in India and left in an unreal world. Frantz Fanon, one of the renowned postcolonial writers, has written in his famous book *The Wretched of the Earth* that colonialism as a total project which rules every aspect of colonised people and their reality. The reality is completely shattered in the life of Indians. Education, carrier, food, lifestyle and so on, everything is imposed in the name of development. After Decolonisation, colonial impact can be seen in the colonised intellectuals. Sapna Sinha is portrayed as a victim during the time.

Key words:
Colonialism, Decolonisation, Reality, Dismantle, Bourgeois.

Vinay a Multi-Millionaire as well as owner of a corporate company chooses Sapna without her knowledge and he wiles her in his trap. She gets an offer from Vinay Mohan Acharya, to be a CEO of his ABC group of companies. At first, she denies his proposal as it is a prank TV show and later, she understands the situation of Acharya. Vinay Mohan Acharya owns Sapna as a product and he wants to invest her ability in ABC companies. It is the condition of India in the hands of colonised intellectuals that they can enforce or lay or invest anything in anywhere to anybody. Colonisers forced people to follow their ideology in all ways to make money. In India Deprived classes are not allowed to commit in their ideology. In the novel Sapna woks as a sales girl but she is constricted to be a CEO of ABC Companies which is planned by Acharya. Sapna approaches Acharya as there is a need for money. He uses the situation and forces her to sign the contract and makes her to face the real-life situations in the name of seven tests.

Vinay Mohan Acharya is a colonised intellectual, who occupies the mind of Sapna. According to Frantz Fanon, real Decolonisation is nothing but decolonising the mind of the native people. He further says that, to decolonise a nation is to create new men and dismantle the colonial situations. In this novel, Swarup uses Sapna Sinha as a colonised individual in the decolonised society. At the end of the novel Sapna proves that she is really decolonised in mind by her reply to Vinay's twin brother, Ajay Krishna Acharya. Ak Acharya shows the letter which is written by Vinay as his approval to appoint Sapna as CEO

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Explicating the Indianness in *Afternoon Raag* by Amit Chaudhuri

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Abstract

Indian writers in English who are writing abroad always got the propensity to blend Indian culture with foreign culture in order to make a distinction between these two cultural arena. This interweaving of cultures often betrays the authors' disposition towards a foreign ascendancy. Moreover, such an author believes that to encompass foreign cultural code in his or her text dealing mainly with Indian tradition will consequently amplify the elegance of the text. In fact, the author aspires to have a wide-ranging readership instead. This paper attempts to analyse Amit Chaudhuri's novel *Afternoon Raag (1993)*, in the perview of diasporic tendency.

Key Words: Postcolonialism, Diaspora, Nostalgia, Identity Crisis, Indianness

The Diasporic Literature is a part of Post Colonial Studies which engulfs the idea of home land, displacement, identity, agony of harsh journeys undertaken because of the economic coercion. In this vast area of writing, identity plays a crucial role to grasp the rudimentary idea of Diaspora. There are various facets of identities like political, social, cultural, economic and individual etc. Those aspects of identities play a pivotal role in the life of immigrant.The notion of home always renders a pleasant experience for immigrants and a yearning for home is an evergreen emotion in the heart of the immigrants.

Diasporic Literature is an inevitable part and parcel of Indian English Literature. It is essential to consider the linguistic and cultural diversity of India while discussing Indian Diasporic Literature. Due to the usage of the English language Indian Diaspora is evolving as an inevitable and individual genre. There are several Indian and Indian origin English language writers namely, V. S. Naipaul, Salman Rushdie, Vikram Seth, Amitav Ghosh, Anita Desai, Rohiton Mistry, Meena Alexander, JumphaLahiri, Chitra Banerjee Divakaruni and Amit Chaudhuri. Their major concerns or significant themes of their writings are emigration, displacement and other Diasporic conditions.

It is essential to analyse the fascination to the foreign land and preconception of foreign land of immigrants which they had before moving from their home land to other foreign countries. Immigration is not a strange matter, it is an age old thing. For instance, if we delve deep into history, humans had a tendency to migrate from one place to another in search of food and safety which could be found better in other places. This tendency still continues even in this modern world. There is a proverb in English that is 'Blue are the hills that are far away', which means one side always greener from other side, that is true in nature. Hope of getting enhanced life is an inevitable and rudimentary idea in immigrations. Aspiration for magnificent life style, scholarly education, favourable circumstances, excellent healthcare and especially economic well being are the fundamental causes for immigrations.

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Humanities and Social Sciences

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A Study of Anita Nair's *Lesson in Forgetting*: Suffragist Perspective

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Abstract

Anita Nair is famous Postmodern Indian English Writer. She has much perception into have to do with her studies, family, love and endeavoring for popularity and wealth. Anita Nair has depicted such an existence in her novel *Lessons in Forgetting*. Educated women failed in her life, because of marriage. A *Lesson in Forgetting* is a depiction of characters due to failed marriages particularly the psychological conflicts. This fiction is impressive in its skill and painful in its integrity. Nair has tried to show, how the women character betrayed by male dominated society and their sufferings, how they conquered for better life.

Key Words: sufferings, betrayal, patriarchy, self-reflection

Anita Nair is popularly known among the women dramatist in the postmodern writings. She writes for women to raise their level in the society. She tries to show the violence faced by women and fight back against them and how to set example for themselves and the hegemonic society. In all her novel, she makes women to be independent in their life.

Lessons in Forgetting, Meera belongs to an upper middle class family, feels like a queen in her domestic world. She leads a beautiful life in the Lilac's House till a major change came in her life. This house makes major changes in Meera's life. She gets married to Giri who came as a model, co coordinator to assist shooting for a film and falls for Meera seeing her beauty. He gets greed for the Lilac's House thinking that to be owned by Meera and decides to marry Meera. Giri's wrong assumption as Meera to be the owner but in reality that house is on leash to them.Giri thinks that if he marries Meera he can live and lead a lavish life and also thinks to sale the Lilac's House. Meera is very loyal, she submits her whole life to her husband. After marriage she has disclosed all her dreams, then she takes care of her husband. She forgets herself and her identity while taking care of her husband. Giri, her husband does not respect his wife. He leads his materialistic life with his wife. He does not love her and has no attachments towards her. Though Meera neither raise her voice nor words complete solace within him. She listens to his every word like a typical woman. This women character shows the genuine life of women in this society. She was entirely dependent on Giri . She could not perceive herself. She could not able to face the rasping actuality of being discarded by her husband from his life and his disloyalty after she rejected to sale the Lilac House.

Meera started to realize her change after being she was left alone by her husband to take care of the family and take the household duties upon her. She realizes very late that her perception

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Marriage, Sex and Sapphism in Manju Kapur's *A Married Woman*

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Abstract
This paper is to study about the New Woman Astha who is the protagonist of *A Married Woman* by Manju Kapur. It discusses the Marital, Sexual and Sapphism life of Astha. The roots of tradition, living up to the bench mark of the ideal Indian woman, sacrificing for family, putting self behind, devaluing herself, being content to live in the safely and security of husband. Home and family – continually come in conflict with her postmodern sensibilities that lend her wings. Wings to question that Is the role of woman only defined by her biology? This novel also takes a bold step in looking at taboo relationships such as Sapphism(lesbian) relationship. Her views may seem strange to some people but it is inner voice of all women who want to enjoy full stretch of their life at any cost.

Keywords: Marital status, lesbianism, marital-rape, psychological trauma.

Manju Kapur is an Indian writer and Professor of literature in Delhi University. She was born in 1948 in Amristar. She is a well-known novelist of international reputation, whose six novels, *Difficult Daughters* (1998), *A Married Woman* (2002), *Home* (2006), *The Immigrant* (2008), *Custody* (2011), and *Brothers* (2016) are appreciated worldwide. She deals with various themes such as Feminism, Diaspora, Social and Economic forces, Gender relationships and Lesbianism.

Marriage, Sex and Sapphism have been neglected as a subject in the pre-independence India but after the feminist way, which swept the entire world, it has come to stay as a research

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Postmodern Elements in Kiran Nagarkar's *The Arsonist*

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ABSTRACT

Postmodernism refers to the depiction of life after World War II in art, culture and literature. The term 'Postmodernism' was first used in 1940's. On its first use in the 1940's, the term signified itself as one of the movements. Gradually, it was used in several other disciplines like architecture, politics, economics, art, culture and sociology. American literary critics Harry Levin and Irving Howe were the first critics, who had applied the term 'Postmodernism' to Literature written after World War II. And it was popularized by Ihab Hassan. In India, post 1980's is described as the postmodern period. Several Indian writers have tried their talents in writing postmodern novels and have succeeded in it. One such novelist is Kiran Nagarkar. The elements of a postmodern novel include historiographic metafiction, intertextuality, irony, humour, fragmentation etc., The paper aims to study postmodern elements present in Kiran Nagarkar's *The Arsonist.*

Key Words: Postmodernism, Historiographic Metafiction, Intertextuality, Irony, Humour, Fragmentation.

Kiran Nagarkar is one of the eminent novelists. He has written eight novels. They are *Seven Sixes are Forty Three(1980), Ravan and Eddie(1995), Cuckold(1997), God's Little Soldier(2006), The Extras(2012), Rest in Peace(2015), Jasoda(2017)* and *The Arsonist(2019). The Arsonist* is taken for the study and the paper aims to study postmodern elements present in the novel. Postmodernism cannot be studied in isolation from Modernism. It grows from Modernism. Postmodernism shares many of the elements of Modernism. Some of the postmodern elements are historiographic metafiction, irony, humour, intertextuality, fragmentation etc., The first and foremost element that can be focused regarding Nagarkar's *The Arsonist* is 'Historiographic Metafiction.' The term, 'Historiographic Metafiction' was coined by Linda Hutcheon. In *A Poetics of Postmodernism,* she defines it as

> Historiographic Metafiction includes those postmodern works, usually popular novels, which are "both intensely self-reflexive and paradoxically lay claim to historical events and personages" This is categorically a postmodern art form that relies heavily on textual play, parody and historical reconceptualisation. (111)

Akin to the aforementioned statement, Kiran Nagarkar's *The Arsonist* recounts the life history of 15th Century historical personage, Indian mystic Poet and Saint, Kabir Das. Nagarkar has brought this 15th century mystic poet to the 21st century and transformed him into even more mysterious character in his novel. Even the history has not recorded the clear cut facts about

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Suffering, Solitude and Revolt in Charlotte Vale Allen's *Mixed Emotions* and Vaasanthy's *Vergalai Thedi* (Searching The Roots): An Existential Study

P.Hemalatha & Dr. K.M. Sumathi

The modern philosophical movement of existentialism gained recognition in Europe in the pre- and post-war periods. The word "existence" is used for "being" or "the state of existing". Existentialism is a revolt against naturalism. It is the theory of the human as a subject and defines human existence. It believes that there "is not any objective form of truth, but the truth is formed by personal choice. Existentialism does not support the following concepts: first, wealth and honour make a good life; secondly, social values control an individual. Thirdly, acceptance of what happens to us, and never try to change it. Fourthly, science makes life better. What is important in existentialism is that human being is free and his nature is made through his choice" (Senejani 2013). Existentialism holds a human responsible for making choices and therefore, responsible for his life. Some of the major existentialist thinkers and philosophers are Soren Kierkegaard, Friedrich Nietzsche, Albert Camus, Jean Paul Sartre and Simone De Beauvoir.

The existential literature deals with the themes of meaninglessness or absurdity, alienation, anxiety, identity crisis, and individuality. Jean Paul Sartre propounds that after stepping into the world a man struggles to elucidate life. Kierkegaard's idea of human anxiety, Camus' idea of the absurdity of life, the claim of Nietzsche that 'God is dead', in opposition to the deeply religious ideas of Kierkegaard, the father of Existentialism- form the core of existentialism.

The central trope of existentialism is an individual's non-confinement and emancipation in life. One is responsible for his life because of one's choices. There is no intervention by any god or society. An individual is bound to create his/her elucidation of the 'self', which leads to the idea of pessimism; there lies absurdity in the exegesis of life.

Department of History

Original Article

A RELOOKING ON MURAL'S THE PAINTING TRADITION OF ANCIENT TAMILS IN ROCK CUT CAVE TEMPLE KUDIMAIYANMALAI

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Abstract

The Cave temple at Kudimaiyamalai consists of sanctum, ardhamandapam and a mahamandapam the front mukhamandapam was scooped out during the 7th century A.D., There are forty five inscriptions found in the Rock cut cave temple out of forty five. On the left (South) side of the sanctum sanctorum entrance Grantha inscription records the name of the 7th or 8th string Veena's name as "***Parivathini***" also called as ***Vallabi*** or ***Vibanji***. By the side of the Lord Vinayagar the famous Musical inscriptions are appeared. The inscription records about the Ragas of music or musical notes, believed to be inscribed in 7th Century. The inscription is in 7 parts and starts with Sitham Namasivaya God of music. This paper throws light on the musical inscriptions of Kudimaiyanmalai in detailed manner.

Key Words: Parivadhini, Vallabi, Vibanji, Kalanju, Raga and Thulai.

The Pudukkottai[1] region has much archaeological significance of the human settlements from pre historic age[2]. There is historical splendour monuments with human excellence existed in the Kudimaiyanmalai rock cut cave temple[3]. The Melakovil rock cut cave temple called by the locals otherwise known as Thiru Metrali[4].

This Melakovil[5] is on the foot hills, excavated during 7th century, once called as Thirumulattanam and Thirumetrali.

The Cave temple consists of sanctum, ardhamandapam and a mahamandapam the front mukhamandapam[6] was scooped out during the 7th century A.D., Adjoining the ardhamandapam[7], the sanctum in side walls are finished neatly with motif on all four sides of the roof. The Siva Linga[8] is with square avudayar, an integral part of the mother rock. Lord Vinayagar and Dwarapalakas[9] are on the walls of the Sanctum in ardhamandapam. The ardhamandapam was supported by two square pillars and two pilasters with a platform enlarged by Raghunatha Thondaiman[10]. Somaskandar[11] and Chandikeswarar[12] are in sukhasana[13] in the Mukhamandapam.

These inscriptions belong to the Pandya[14] (Oldest) and the Chola period. The inscriptions records Lord Siva Kuduminathar[15] as "Thirunalagundrathu Perumanadigal[16]" the main record also states that the donations made to the temple in terms of money[17], gold[18] and lands[19]. The rock cut cave might have been excavated during 7th century or before with the presence of ***Parivadhini[20]*** (a musical instrument -7 String ***Veena***) inscription.

One of the Chola King Koparakesaripanmar Parantaka I Chola's[21] 15th year rule inscription mentions that his son Kothandaraman donated 15 ***thulai[22]*** of gold towards burning of a perpetual lamp. Koparakesaripanmar's

Department of Economics

SOCIO-ECONOMIC CONDITIONS ON WOMEN AGRICULTURAL WOMEN LABOURERS IN DINDIGUL DISTRICT, TAMILNADU.

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INTRODUCTION

In India, agriculture is an engine of growth and poverty reduction in countries where it is the main occupation of the poor. But the agricultural sector in many developing countries is underperforming, in part because women, who represent a crucial resource in agriculture and rural economy through their roles as farmers, labourers and entrepreneur, almost everywhere, face more severe constraints than men in access to productive resources. Efforts by national governments and the international community to achieve their goals for agricultural development, economic growth and food security will be strengthened and accelerated if they build on the contributions that women make and take steps to alleviate these constraints.Women make essential contributions to the agricultural and rural economies in all developing countries. Their roles vary considerably between within regions and are changing rapidly in many parts of the world, where economic and social forces are transforming the agricultural sector. Rural women often manage complex households and pursue multiple livelihood strategies. Their activities typically include producing agricultural crops, tending animals, processing and preparing food, working for wages in agricultural or other rural enterprises, collecting fuel and water, engaging in trade and maintaining their homes. Many of these activities aren't defined as "economically active employment" in national accounts but they are essential to the well being of rural

Department of Maths

Bipolar Neutrosophic Fuzzy Structure of H-ideals on Fuzzy (α,β) Translation and Multiplication in INK-Algebra

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Abstract

In this paper, we define the notion of Bipolar Neutrosophic Set in INK-algebras, Bipolar Neutrosophic sub algebra, Bipolar Neutrosophic H-ideal, Bipolar Neutrosophic (α, β) translation and Bipolar Neutrosophic (α, β) multiplication in INK-algebras. Relation between these notions has been established.

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1.Introduction

L.A.Zadeh introduced the concept of fuzzy sets in 1965. A new branch of philosophy, which actually studies the origin, nature and scope of neutralities is introduced by Florentine Smarandache in 1995 and this concept is well known as neutrosophy, In neutrosophic logic each proposition is approximated to have the percentage of truth in a subset (T), the percentage of indeterminancy in a subset (I) and the percentage of falsity in a subset (F). Neutrosophic logic is an extension of fuzzy logic.In fact, the neutrosophic set is the generalization of classical set, fuzzy conventional set, Intuitionistic fuzzy set and interval valued fuzzy set.Neutrosophic logic is used to overcome the problems of impreciseness, indeterminate and inconsistencies of data etc. The theory neutrosophy is so applicable to every field of algebra. The Neutrosophic set has three independent parts, namely truth-membership degree, indeterminancy membership degree and falsity membership degree provided the sum of these values lies between 0 and 3; therefore it is applied to many different areas, such as algebra.In 1994, the notion of bipolar fuzzy sets was proposed by Zhang as a generalization fuzzy sets. Lee discussed Bipolar fuzzy sub algebras and bipolar fuzzy ideals in BCK\BCI algebras and T. Priya discussed Bipolar fuzzy sub algebras and bipolar fuzzy ideals of PS-algebras. In this paper we introduce the concepts of Bipolar neutrosophic sub algebras, Bipolar neutrosophic (α,β) translation, Bipolar neutrosophic (α,β) multiplication and Bipolar neutrosophic H-ideals in INK-algebras. The notion Bipolar neutrosophic (α,β) translation, Bipolar neutrosophic (α,β) multiplication and Bipolar neutrosophic H-ideals with several related theorems are investigated. Also, the relation Bipolar neutrosophic (α,β) translation, Bipolar neutrosophic (α,β) multiplication and Bipolar neutrosophic H-ideals in INK-algebras are introduced

2. Preliminaries

Definition 2. 1 : Fuzzy set

If X is an universe of discourse and X is a particular element of x, then a fuzzy set A defined on X and can be written as collection of ordered pairs.

$A = \{(x, \mu_{\tilde{A}}(x)); x \in X\}$

For example,

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k-TRIANGULAR PRIME CORDIAL LABELING OF MAXIMAL OUTERPLANAR GRAPHS

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Abstract

In this paper, we study graph labeling, namely, k- triangular prime cordial labeling for $k = 1, 2, 3, 4, 5, 6$. This is a simple extension of prime cordial labeling where the vertex labels are defined as the higher order triangular numbers. Also we show that the maximal outerplanar graphs are k- triangular prime cordial under certain conditions.

2020 Mathematical Sciences Classification: 05C78.
Keywords and Phrases: riangular graceful labeling, cordial labeling, cordial prime labeling, maximal outerplanar graph.

1. Introduction

A labeling of a graph G is a mapping that carries a set of graph elements, usually the vertices and edges into a set of numbers, usually real numbers or subsets of a set. For detailed study on different types of labelings we refer to [2,5,16,18].

Rosa [15] introduced a labeling of G called β-valuation, later on Golomb [4] called as "graceful labeling" which is an injection f from the set of vertices $V(G)$ to the set $\{0, 1, 2, ..., q\}$ such that when each edge $e = uv$ is assigned the label $|f(u) - f(v)|$, the resulting edge labels are distinct. A graph which admits a graceful labeling is called a graceful graph.

In this paper, for a graph $G = (V, E)$ we introduce the k-triangular prime cordial labeling for $k = 1, 2, 3, 4, 5, 6$ and study on maximal outerplanar graph structure. We consider only finite simple undirected graphs. The set of vertices and edges of a graph G will be denoted by $V(G)$ and $E(G)$ respectively, where $|V(G)| = p$ and $|E(G)| = q$. For graph theoretic notations, we follow Bondy and Murthy [1].

2. Triangular labelings of graphs

In this section first we discuss the triangular numbers and related labelings of graphs.

For any integer k, the k-th order triangular number is a number obtained by adding all the k-th powers of positive integers less than or equal to a given positive integer n. That is, the n-th term of k-th order triangular number is $1^k + 2^k + ... + n^k$, and is denoted by T_n^k.

A triangular graceful labeling of a graph G with q edges is an injection map t from the set of vertices $V(G)$ to the set $\{0, 1, 2, ..., T_q^1\}$ such that when each edge $e = uv$ is assigned the label $|t(u) - t(v)|$, the resulting edge labels are a sequence of distinct consecutive triangular numbers say $\{T_1^1, T_2^1, ..., T_q^1\}$. Here T_q^1 is the q-th triangular number of the triangular series $T_1^1 = 1, T_2^1 = 3, T_3^1 = 6, ..., T_n^1 = \frac{1}{2}n(n + 1)$. A graph which admits a triangular graceful labeling is called a triangular graceful graph.

Hegde and Shankaran [6] introduced a labeling of G called triangular sum labeling. This labeling is an injection f from the set of vertices $V(G)$ to the set of non-negative integers such that when each edge $e = uv$ is assigned the label $f(u) + f(v)$, the resulting edge labels are a sequence of distinct consecutive triangular numbers say $\{T_1^1, T_2^1, ..., T_q^1\}$. A graph which admits a triangular sum labeling is called a triangular sum graph.

Murugesan et al. [10] introduced centered triangular sum labeling of graphs. This labeling is an injection f from the set of vertices $V(G)$ to the set of non-negative integers such that when each edge $e = uv$ is assigned the label $f(u) + f(v)$, the resulting edge labels are a sequence of distinct consecutive centered triangular numbers say $\{C_1^2, C_2^2, ..., C_q^2\}$. Here C_i^2 is the i-th centered triangular number of the centered triangular series $C_1^2 = 1, C_2^2 = 4, C_3^2 =$

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Total Face Edge Sum Divisor Cordial Graphs

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Abstract

In this paper, we introduce and investigate the total face edge sum divisor cordial labeling of fan graph with n vertices, wheel graph, gear graph and closed helm graph.

Keywords : face edge sum divisor cordial graph, total face edge sum divisor cordial labeling, total face edge sum divisor cordial graph, wheel graph.

Introduction

We begin with simple, finite, planar, undirected graph. A (p,q) planar graph G means a graph G = (V,E), where V is the set of vertices with $|V| = p$, E is the set of edges with $|E| = q$ and F is the set of interior faces of G with $|F|$ = number of interior faces of G. For standard terminology and notations related to graph theory we refer to Harary [3]. For graph labeling we refer to Gallian [2]. In [1], Cahit introduced the concept of cordial labeling of graph. In [10], Yilmaz et al introduced the concept of E-cordial labeling of graph. Varatharajan et al.[7] introduced the concept of divisor cordial labeling of graphs. The concept of sum divisor cordial labeling was introduced by Lourdusamy et al.[5]. Lawrence et al introduced the concept of face edge product cordial labeling of graph in [4]. Mohamed Sheriff et al. introduced the concept of face sum divisor cordial labeling of graph in [6]. In [8], Vijayalakshmi et al. introduced the concept of edge sum divisor cordial labeling of graph. In [9], Vijayalakshmi et al. introduced the concept of face edge sum divisor cordial labeling of graph. The present work is focused on some new families of total face edge sum divisor cordial labeling of fan graph with n vertices, wheel graph, gear graph and closed helm graph.

Definition 1.1 Let a and b be two integers. If a divides b means that there is a positive integer k such that b = ka. It is denoted by $a|b$. If a does not divide b, then we denote $a \nmid b$.

Definition 1.2 Let G = (V(G),E(G)) with p vertices and q edges and $f : E(G) \to \{0,1\}$. Define f* on V(G) by $f^*(v) = \Sigma\{f(uv)/uv \in E(G)\} \pmod 2$. The function f is called an E-cordial labeling of G if the number of vertices labeled 0 and the number of vertices labeled 1 differs by at most 1 and the number of edges labeled 0 and the number of edges labeled 1 differs by at most 1. A graph that admits E-cordial labeling is called E-cordial.

Definition 1.3 Let G = (V(G), E(G)) be a simple graph and $f : V(G) \to \{1,2,...,|V(G)|\}$ be a bijection. For each edge uv, assign the label 1 if $f(u)|f(v)$ or $f(v)|f(u)$ and the label 0 otherwise. The function f is called a divisor cordial labeling if $|e_f(0) - e_f(1)| \leq 1$. A graph with a divisor cordial labeling is called a divisor cordial graph.

Definition 1.4 Let G = (V(G), E(G)) be a simple graph and $f : V(G) \to \{1,2,\ldots, |V(G)|\}$ be a bijection. For each edge uv, assign the label 1 if $2|(f(u)+f(v))$ and the label 0 otherwise. The function f is called a sum divisor cordial labeling if $|e_f(0) - e_f(1)| \leq 1$. A graph which admits a sum divisor cordial labeling is called a sum divisor cordial graph.

Definition 1.5 Let G = (V(G),E(G)) be a simple graph and $f : E(G) \to \{1,2,...,|E(G)|\}$ be a bijection. For each vertex v, assign the label 1 if $2 \mid f(a_1)+f(a_2)+\ldots+f(a_s)$ and the label 0 otherwise where $a_1,a_2,\ldots,a_s$ are edges incident with the vertex v. The function f is called a edge sum divisor cordial labeling if the number of vertices labeled with 0 and the number of vertices labeled with 1 differ by at most 1. A graph which admits an edge sum divisor cordial labeling is called an edge sum divisor cordial graph.

Definition 1.6 A face sum divisor cordial labeling of a graph G with vertex set V is a bijection f from V(G) to $\{1,2,\ldots, |V(G)|\}$ such that an edge uv is assigned the label 1 if 2 divides f(u)+f(v) and 0 otherwise and for face f is assigned the label 1 if 2 divides $f(u_1)+f(u_2)+\ldots+ f(u_k)$ and 0 otherwise, where $u_1,u_2,\ldots,u_k$ are vertices corresponding to the face. Also the number of edges labeled with 0 and the number of edges labeled with 1 differ by at most 1 and the number of faces labeled with 0 and the number of faces labeled with 1 differ by at most 1. A graph which admits a face sum divisor cordial labeling is called a face sum divisor cordial graph.

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EDGE SUM DIVISOR CORDIAL GRAPHS

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ABSTRACT
In this paper, we introduce an edge sum divisor cordial labeling of graph and investigate the an edge sum divisor cordial labeling of path, cycle, fan, wheel, closed helm, flower graph and friendship graph.
Keywords : Sum divisor cordial labeling, Edge sum divisor cordial labeling, Edge sum divisor cordial graph, Wheel.

INTRODUCTION
We begin with simple, finite, planar, undirected graph. A (p,q) planar graph G means a graph G = (V,E), where V is the set of vertices with |V| = p and E is the set of edges with |E| = q. For standard terminology and notations related to graph theory we refer to Harary [3]. For graph labeling we refer to Gallian [2]. Cahit introduced the concept of cordial labeling of graph in [1]. In [6], Yilmaz et al introduced the concept of E-cordial labeling of graph. Varatharajan et al.[5] introduced the concept of divisor cordial labeling of graphs. The concept of sum divisor cordial labeling was introduced by Lourdusamy et al.[4]. The present work we introduced an edge sum divisor cordial labeling of graph and focused an edge sum divisor cordial labeling of path, cycle, fan, wheel, closed helm, flower graph and friendship graph.

Definition 1.1 Let a and b be two integers. If a divides b means that there is a positive integer k such that b = ka. It is denoted by a|b. If a does not divide b, then we denote a∤ b.

Definition 1.2 Let G = (V(G),E(G)) with p vertices and q edges and f : E(G) → {0,1}. Define f* on V(G) by f*(v) = Σ{f(uv)/uv∈E(G)}(mod2). The function f is called an E-cordial labeling of G if the number of vertices labeled 0 and the number of vertices labeled 1 differs by at most 1 and the number of edges labeled 0 and the number of edges labeled 1 differs by at most 1. A graph that admits E-cordial labeling is called E-cordial.

Definition 1.3 Let G = (V(G), E(G)) be a simple graph and f : V(G)→{1,2,...,|V(G)|} be a bijection. For each edge uv, assign the label 1 if f(u)|f(v) or f(v)|f(u) and the label 0 otherwise. The function f is called a divisor cordial labeling if $|e_f(0)-e_f(1)| \leq 1$. A graph with a divisor cordial labeling is called a divisor cordial graph.

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A NEW GENERALIZATION OF T_{BS}-$g^{\ddot{}}$-SPACES

K. GOWRI, T. RAMACHANDRAN AND V. SANGEETHASUBHA

1. ABSTRACT

In 2004, Lellis Thivagar and Ravi introduced a new form of open sets in bitopo- logical spaces. They investigated the basic properties and characterizations of the new sets in detail. In 2006, Ravi [13] submitted the aforesaid work for his Ph. D. From his Thesis, the following properties and definitions are used to pursue further research. Throughout the paper, (X, τ_1, τ_2), (Y, σ_1, σ_2) and (Z, U_1, U_2) or (simplyX, Y and Z) denote bitopological spaces. We introduce a new type of weaker form ofopen sets in bitopological space as follows.

[0]2010 Mathematics Subject Classification: 54E55

*Keywords and phrases. bitopological space, BS-ğ-open, BS-g*p-open, BS-T_ω-space.*

2. INTRODUCTION

Levine introduced the notion of $T_{1/2}$-spaces which properly lies between T_1-spaces and T_0-spaces. Many authors studied properties of $T_{1/2}$-spaces: Dunham, Arenas et al. etc. In this paper, we introduce the notions called T_{BS}-ğ-spaces, ${}_gT_{BS}$-ğ-spaces and ${}_\alpha T_{BS}$-ğ-spaces and obtain their properties and characterizations.

3. PRELIMINARIES

Definition 3.1. *A subset M of a bitopological space X is called a* BS-*preopen set if*$M \subseteq$ BS-*int(*BS-*cl(M)).*

The complement of a BS-pre-open set is called BS-preclosed.

The BS-preclosure of a subset M of X, denoted by BS-pcl(M) is defined to be the intersection of all BS-preclosed sets of X containing M. It is known that BS-pcl(M)is a preclosed set. For any subset M of an arbitrarily chosen bitopological space, the BS-semi-interior (resp. BS-α-interior, BS-preinterior) of M, denoted by BS-sint(M)

(resp. BS-α int(M), BS-pint(M)), is defined to be the union of all BS-semi-open

(resp. BS-α-open, BS-preopen) sets of X contained in M.

Remark 3.2. The collection of all BS-ğ-open (resp. BS-ω-open, BS-αg-open, BS- gsp-open, BS-gs-open, BS-α-open, BS-g*p-open) sets is denoted by BS-ĞO(X) (resp. BS-ωO(X), BS-αGO(X), BS-GSPO(X), BS-GSO(X), BS-αO(X), BS-G*PO(X)).

We denote the power set of X by P(X).

Definition 3.3. *A bitopological space X is called*
(1) BS-$T_{1/2}$-*space if every* BS-*g-closed subset of X is* BS-*closed in X.*

(2) BS-T_b-*space if every* BS-*gs-closed subset of X is* BS-*closed in X.*

Definition 3.4. Let X be a bitopological space and M ⊆ X. We define the BS-sg- closure of M (briefly BS-sg-cl(M)) to be the intersection of all BS-sg-closed sets containing M.

Proposition 3.5. *Every* BS-*closed set is* BS-ğ-*closed.*

Proof. If M is a BS-closed subset of X and N is any BS-sg-open set containing M, then N ⊇ M = BS-cl(M). Hence M is BS-ğ-closed in X.

The converse of Proposition 3.5 need not be true as seen from the following example.

Example 3.6. *Let* $X = \{\alpha,\beta,\gamma\}$, $\tau_1 = \{\varphi, X, \{\alpha,\beta\}\}$ *and* $\tau_2 = \{\varphi, X, \{\beta,\gamma\}\}$. *Then* the sets in {φ, X, {α,β}, {β,γ}} are called BS-open and the sets in {φ, X, {α}, {γ}} are called BS-closed. Then BS-ĞC(X) = {φ, {α}, {γ}, {α,γ}, X}. Clearly, the set {α,γ} is a BS-ğ-closed set but it is not a BS-closed set in X.

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RESEARCH ARTICLE

A Supply Chain Model with Ordering Cost Reduction and Rework under Trade-Credit

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ABSTRACT

The consequence of investing in reducing setup cost and trade credit financing on the integrated inventory models is an object of analysis for a long period of time in the integrated production-distribution single-vendor single-buyer inventory system. To fascinate more deals, the customer orders an amount greater than or equal to a fixed quantity, sellers frequently issue a trade credit. In this paper, a supply chain with a single vendor and a single buyer is demonstrated, along with an integrated production-distribution inventory model while considering the vendor's allowable delay period to the buyer. Further investment can further lower the cost of vendor setup. Reduced lead times and ordering costs are interdependent. In order to examine the order of quantity, a number of deliveries, optimal values of lead time, the joint total expected cost (JTC), lead time crashing cost, and the ordering costs, a mathematical model is developed by adopting the case that the ordering cost-time relationship is a linear function. The implications of the numerical illustration clearly show that the buyer trades off the advantages of payment delay. The sensitivity analysis of the ideal solution in relation to various system factors also yields some significant management insights.

Keywords: Trade credit, Ordering cost reduction, Lead time reduction, Rework, Integrated inventory model.

INTRODUCTION

In the last decade, reduction in ordering costs and lead time has attracted considerable research attention.Later, numerous researches addressed the reduction of ordering cost or lead time or both to extend their work. Many

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A CLOSED LOOP SUPPLY CHAIN INVENTORY MODEL WITH DISTRIBUTION-FREE APPROACH IN ENVIRONMENTAL INVESTIGATION

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Abstract

This paper presents a centralized manufacturing stock version for limitless making planes horizon of multi echelon closed loop supply chain, consisting a supplier, manufacturer, remanufacturer, retailer and collector. The retailer's demand is satisfied by new and remanufactured goods obtained from the manufacturer respectively. The proposed model considers the retailer's demand and returns to the remanufacturer as random. The manufacturer produces the product in a limited quantity, and they supply it in multiple batches to the retailer as an alternative. In this model we also examine environmental impacts in terms of exploration, carbon emissions, and energy usage, as well as annual disposals. The model will guide relevant institutions industry planning CLSC (closed loop supply chain) inventory management system

2020 Mathematics Subject Classification: 90B05.

Keywords: Multi-echelon production-inventory model, random demand and return rate, closed-loop supply chain, remanufacturing, inventory control, carbon emission.

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RESEARCH ARTICLE

Face Edge Sum Divisor Cordial Graphs

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ABSTRACT

In this paper, we introduce a face edge sum divisor cordial labeling of graph and investigate the face edge sum divisor cordial labeling of a triangular snake graph, middle graph of path, total graph of path and friendship graph.

Keywords : Edge sum divisor cordial labeling, Edge sum divisor graph, face edge sum divisor cordial labeling, face edge sum divisor graph, Triangular snake.

INTRODUCTION

We begin with simple, finite, planar, undirected graph. A (p,q) planar graph G means a graph G = (V,E), where V is the set of vertices with |V| = p, E is the set of edges with |E| = q and F is the set of interior faces of G with |F| = number of interior faces of G. For standard terminology and notations related to graph theory we refer to Harary [3]. For graph labeling we refer to Gallian [2]. In [1], Cahit introduced the concept of cordial labeling of graph. In [9], Yilmaz et al introduced the concept of E-cordial labeling of graph. Varatharajan et al.[7] introduced the concept of divisor cordial labeling of graphs. The concept of sum divisor cordial labeling was introduced by Lourdusamy et al.[5]. Lawrence et al introduced the concept of face edge product cordial labeling of graph in [4]. In [8], Vijayalakshmi et al. introduced the concept of edge sum divisor cordial labeling of graph. Mohamed Sheriff et al. introduced the concept of face sum divisor cordial labeling of graph in [6]. The present work is focused on some new families of face edge sum divisor cordial labeling of a triangular snake graph, middle graph of path, total graph of path and friendship graph.

Department of Commerce

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WORK STRESS AMONG WOMEN PROFESSIONALS IN DINDIGUL DISTRICT

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Abstract

One of the fastest growing trends in the world over the past two decades has been increase in the number of women fully employed outside the house. Projections made for 21 century indicate that women will account for one half of the total workforce and 2/3rd of the labour force growth. Women will fill two out of every three newly created jobs. The present study aims to find out the work stress among women professionals in Dindigul district. A samples of 120 respondents selected randomly were studied. A questionnaire method of survey was used to find out the work stress among women professionals. The data were collected by using questionnaire as an instrument. Percentage analysis and cross tabulation was applied in the present study. The findings and observations are the result and outcome of the interpretations made during the study of analysis.

Keywords: Work Stress, Nature of Stress, Distress and Demographic Variables

Introduction

Research has been undertaken to establish the extent to which women in India experience stress due to dual roles. In a study carried out on women doctors, engineers, college teachers, clerks, nurses and peons it was found that not all women experienced the same degree of role conflict or role over load. Women belonging to high status and high-educated groups experienced significantly fewer roles stress than their counterparts from low status and low educated groups. The explanation is that women from high status groups had access to a large number of facilities, which helped lessen some of the role overload and role conflict.

Today, we know much more about stress than ever before. Internet search revealed 25,68,931 documents on stress on a single site (www.alltheweb.com). We have heard of work place stress for women. Today there is a talk of trauma at work place for women. Definition of perfect women – A perfect woman is one who can understand and empathise with a man's aspiration .A man who is usually a provider and a pillar of strength, A woman contributes to his professional as well as personal growth. There is a successful man beside a successful woman.

Stress in individual is defined as any interference that disturbs a person's health i.e. mental and physical well being. It occurs when the body is required to perform beyond its normal range of capabilities. The results of stress are harmful to individuals, families, society and organisation. The word, "stress" has been derived from the Latin Word, "Stringere" which means to draw tight. The term is used to refer to hardship, strain, adversity or affliction. Various terms have been synonymously used with stress such as anxiety, frustration, conflict, pressure, and so on. Every human being has his/her own understanding

Department of Chemistry

A NEW LOW-COST ION EXCHANGERS

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ABSTRACT

Resorcinol – Formaldehyde Resin (RFR) is the prepared base for cross linking agent for blending of Sulphonated *Psidium Guajava L.*Charcoal (SPGC). A few composite cation-exchangers were prepared by varying the amount of SPGC (sulphonated carbon prepared from a source of cheap and renewable plant material) in the blends from 0 to 100% *(w/w).* Optimum principal reaction conditions for the preparation of blends were determined. All the important physico-chemical, and thermal properties of the composites resins have been determined and analysed. The composites are insoluble in various organic solvents and reagents. The composites are thermally stable and stable towards various reagents. It was found that the ion-exchange capacity (IEC) of the composite resins, decreased with the increasing percentage of SPGC in the blend.. The composites up to 30% *(w/w)* blending retains the essential properties of the original RFR, since the *Psidium Guajava L.*, is the low cost, freely available plant material. Therefore, the composites could be used as low cost ion-exchangers, when SAMC partly replaces the original RFR up to 30% *(w/w)* blending without affecting the properties of RFR.

Keywords: Resorcinol – formaldehyde Resin – Sulphonated *Psidium Guajava L.*Charcoal – Cation Exchange Capacity – Composite resins – Ion Exchangers .

1. INTRODUCTION

Industrialised nations of the world are taking active measures to control the environmental pollution caused by chemicals. In the wastewater treatment, usually a decreasing level of pollutants is achieved rather than the selective removal and recovery. Ion exchange is an appropriate technique for removal and recovery, as it is employed in the separation and concentration of ionic materials from liquids [1]. Many ion exchangers owe their origin to petroleum products and there is a continual increase in their cost. Hence, there is an urgent need to find out the new low cost ion exchange resin (IERs) and reduce the cost of IERs by blending it with sulphonated carbons prepared from plant materials. Earlier studies show that the cheaper composite ion-exchangers could be prepared by partially blending the macro porous phenol-formaldehyde sulphonic acid resin matrix by sulphonated charcoals prepared from coal[2], Saw dust[3], Spent Coffee[4], Cashew nut husk[5], Wheat husk[6], Turmeric plant[7], Spent tea, Gum tree bark[8], *Accacia nilotica* [9] and *Egyptian bagasse pith* [10]. activated carbons obtained from agricultural wastes[11], *Terminalia chebula* Retz., Carbon[12] *Achyranthes aspera,*Linn., Carbon[13], *Eugenia jambolana,* Lam, Carbon[14], Heavy metals are also removed by bamboo activated carbon, natural clinptitolite, titanate nanoflowers and poly(Hydroxy ethyal methacrylate/Malemic acid) hydro gel[15-18].Attempts have been made to prepare cheaper cationic resins from natural products. Ion-exchange process finds a valuable place in the treatment of metal wastes from plating and other industrial processes.

The aims and objectives of the present work are to synthesise, characterise the new composite ion exchangers of Resorcinol – Formaldehyde Resin (RFR) type blended with sulphonated *Psidium Guajava L.*charcoal (SPGC) and estimate the column exchange capacity for some selective metal ions.

II. MATERIALS AND METHODS

2.1 Chemicals

The raw/plant material used was *Psidium Guajava L.*. This is a plant material freely available in Tamil Nadu, India. Resorcinol and formaldehyde used were of Fischer reagents (India). LR grade of con. sulphuric acid (Sp.gr.= 1.82) was used. The plant material was locally collected, cleaned, dried and cut into small pieces of about 0.5cm length. The other chemicals / reagents used were of chemically pure grade (AnalaR) procured from SD fine chemicals, India.

2.2 Methods

500 g of *Psidium Guajava L.* (In Tamil: Koyya In English: Guava) was carbonised and sulphonated by con. sulphuric acid, washed to remove excess free acid and dried at 70^0C for 12 h. It was labeled as SPGC.

Pure Resorcinol – Formaldehyde resin was prepared according to the literature method [3, 6 – 8]. It was then ground, washed with distilled water and finally with double distilled (DD) water to remove free acid, dried, sieved (210 – 300 µm) using Jayant sieves (India) and preserved for characterisation [3,6-8,19]. It was labeled as RFR.

A NEW COMPOSITE ION EXCHANGERS FOR WASTE WATER TREATMENT

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ABSTRACT

Phenol – formaldehyde resin (PFR) was prepared and blended with sulphonated charcoals (SCs) prepared from a plant material. Composite ion exchange resins (IERs) were prepared by varying the amount of SCs (10-50%*w/w*) in the blends. All the important physico - chemical properties have been analysed. Composites up to 20% (*w/w*) blending retain almost all the essential characteristics and Cation Exchange Capacity (CEC) of the original PFR. It is concluded that blending of PFR by SCs will reduce the cost of IERs.

1. INTRODUCTION

It is necessary duties of industrialized nations to protect our environment from various pollutants caused by toxic metal ions.Many of the industry reduce their polluted level and not to get valuable metal ions.It is very important to recovery and recollect of various metal ios from solution[1]

Since petroleum based Ion-exchangers (IERs) are very high cost, low cost ion exchange method was adopted. So it is important to prepare low cost IERS from plant materials by mixing their sulphonated carbon form with Phenol-Formaldehyde polymeric matrix. Early study showed that Phenol-Formaldehyde polymeric matrix blended with Sulphonated Carbons (SCs) prepared from coal [2], saw dust [3], spent coffee [4], cashew nut husk [5], wheat husk [6], turmeric plant [7], spent tea, gum tree bark [8], *Accacia nilotica* [9] and Egyptian bagasse pith [10].

Number of methods has been adopted for preparing low cost IERs which is used to remove metal ions from solution. Ion-exchange process finds a valuable place in the treatment of waters and waste water discharged from plating and other industrial processes containing metal ions.

The aims and objectives of the present work are to synthesise, characterise the new composite ion exchangers of PhOH – HCHO type/cationic matrices blended with sulphonated *Alangium salvifoliium L.*Carbon (SASC) and to estimate the column exchange capacity (CEC) for some selective metal ions.

2. EXPERIMENTAL

2.1 Materials

Alangium salvifoliium L. Carbon (ASC) is enormous source of plant material and easily available in Tamil Nadu, India. Phenol and formaldehyde used were of Fischer reagents (India). LR grade of con. sulphuric acid (Sp.gr.= 1.82) was used. Plant material was collected, cleaned and cut into small pieces of about 0.5cm length and then dried. All other chemicals / reagents obtained from SD fine chemicals, India.

2.2 Methods

Alangium salvifoliium L. Carbon (500g) was carbonised and sulphonated by con. sulphuric acid. Excess of free acid is washed number of times by doubled distilled water. Then heated at 70^0C for 12 h [6-10] and then dried. The powdered form of sulphonated carbon named as ASC.

PFR was obtained as per literature method [3, 6 – 8]. Solid PFR was grinded.Excess sulphuric acid was removed by double (DD).Then dried and sieved by Jayant sieves (India) to get 210 – 300 µm size. It is preserved for further characterisation [3,6-8,11].

As per literature method all composite IERs were obtained.[3,6– 8]. Composites with 10, 20,30,40 and 50% (*w/w*) of ASC respectively were labeled as AS1,AS2,AS3,AS4 and AS5.

Department of Zoology

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STUDIES ON IMPACT OF HEAVY METAL CHROMIUM ON CATLA CATLA WITH REFERENCE TO BIOCHEMICAL PARAMETERS

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ABSTRACT
Qualitative and quantitative assessment of heavy metals in the Thermal Power Plant effluent was performed to study the impact of their toxic effects on various biomarkers (carbohydrate, protein and lipid profiles). Heavy metals present in the water were in the order Fe > Cu > Zn > Mn > Ni > Co > Cr. Fe and Ni exceeded and Cr was equal to the USA standards set by UNEPGEMS. Glycogen in liver ($p < 0.001$) and muscle ($p < 0.01$) depleted significantly. Insignificant ($p < 0.05$) decline in blood glucose (−21.0%) and significant ($p < 0.05$) elevation in both total protein and globulin in serum, liver and muscle was noted. Albumin decreased significantly ($p < 0.01$) in serum but showed significant ($p < 0.05$) increase in liver and muscle. Thus A:G ratio fell in serum and rose in liver and muscle. Similarly lipid profile also gets altered where significant elevation in serum total lipid ($p < 0.01$), total cholesterol ($p < 0.01$), phospholipid ($p < 0.05$), triglycerides ($p < 0.001$), LDL ($p < 0.01$) was observed but significant ($p < 0.05$) decline in VLDL was recorded. These biomarkers suggested that fish become hypoglycemic, hyperlipidemic and hypercholesterolemic. Heavy metals also provoked immune response as evident from the rise in globulin. In conclusion the Thermal Power Plant wastewater containing heavy metals induced stress, making fish weak and vulnerable to diseases.[1] Chromium and its derivatives such as sulphates, oxides, chlorides, nanoparticles etc have been found to have deleterious effect on neurology, ionoregulatory, physiology, biochemistry, metabolism and histological parameter in Catla catla fish.[2]

KEYWORDS: Glucose, glycogen, protein, lipid profile, ionoregulatory, nanoparticle.

INTRODUCTION
Chromium (Cr) is a naturally occurring element present in the earth's crust, with oxidation states (or valence states) ranging from chromium (II) to chromium (VI).[3] Chromium compounds are stable in the trivalent [Cr(III)] form and occur in nature in this state in ores, such as ferrochromite. The hexavalent [Cr(VI)] form is the second-most stable state.[4] Elemental chromium [Cr(0)] does not occur naturally. Chromium enters into various environmental matrices (air, water, and soil) from a wide variety of natural and anthropogenic sources with the largest release coming from industrial establishments. Industries with the largest contribution to chromium release include metal processing, tannery facilities, chromate production, stainless steel welding, and ferrochrome and chrome pigment production. The increase in the environmental concentrations of chromium has been linked to air and wastewater release of chromium, mainly from metallurgical, refractory, and chemical industries. Chromium released into the environment from anthropogenic activity occurs mainly in the hexavalent form [Cr(VI)].[5] Hexavalent chromium [Cr(VI)] is a toxic industrial pollutant that is classified as human carcinogen by several regulatory and non-regulatory agencies.[5,6,7] The health hazard associated with exposure to chromium depends on its oxidation state, ranging from the low toxicity of the metal form to the high toxicity of the hexavalent form. All Cr(VI)-containing compounds were once thought to be man-made, with only Cr(III) naturally ubiquitous in air, water, soil and biological materials. Recently, however, naturally occurring Cr(VI) has been found in ground and surface waters at values exceeding the World Health Organization limit for drinking water of 50 µg of Cr(VI) per liter.[8] Chromium is widely used in numerous industrial processes and as a result, is a contaminant of many environmental systems.[9] Commercially chromium compounds are used in industrial welding, chrome plating, dyes and pigments, leather tanning and wood preservation. Chromium is also used as anticorrosive in cooking systems and boilers.[10, 11, 12]

The study was carried out to evaluate the toxicity in gill tissue of edible fish Catla catla using FTIR spectra. Fourier selfdeconvolution obtained by curve fitting was applied in the lipid (3000–2800 cm−1), carbohydrates

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COMPARE STUDIES OF SOUTHERN –NORTHERN- WESTERN BLOTTING

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ABSTRACT
The extraction of biomolecules, DNA, RNA, and protein, is the most crucial method used in molecular biology.[1] These biomolecules can be isolated from any biological material for subsequent downstream processes, analytical, or preparative purposes.[2] Southern blotting, Northern blotting and Western blotting are the major blotting to find out DNA, RNA and protein respectively. In the world all life are standing in amino acid molecules. Because DNA means deoxyribonucleic acid and main ingredient of nucleic acid is amino acid. Amino acids are the building block of protein and proteins are the long chain of amino acids. There are some important factors of amino acids are charge, hydrophilicity or hydrophobicity, size and functional groups.[3]

KEYWORDS: Amino acids, protein, blotting, hydrophilicity, functional group.

INTRODUCTION
The blot analysis technique is a powerful method to detect specific biomolecules in samples of complex composition. It can be applied to biomolecules that will adhere stably to a support material such as a nitrocellulose, nylon or paper membrane and are still able to bind their cognate ligand.[4] DNA, RNA and Protein blot analysis techniques are developed by Edwin M. Southern (in 1975 at Edinburg University), James Alwine David Kemp and George Stark (in 1977 at Stanford University) and Harry Towbin and colleagues (in 1979) respectively. For DNA purification required four important steps: effective disruption of cells or tissue; denaturation of nucleoprotein complexes; inactivation of nucleases, for example, RNase for RNA extraction and DNase for DNA extraction; away from contamination.[6] RNA is especially unstable due to the ubiquitous presence of RNases which are enzymes present in blood, all tissues, as well as most bacteria and fungi in the environment.[7,8] Strong denaturants has always been used in intact RNA isolation to inhibit endogenous RNases.[6] Protein purification is required to determine its unique characteristics, including size, charge, shape, and function.[9] Specific buffer conditions are recommended to be maintained because of the sensitivity of proteins toward environmental pH changes.[10] The hydrolyzation of protein and detergent are the main process for protein degradation.

Principle of the Southern, Northern and Western blotting
The southern blotting: The DNA to be analyzed is digested with restriction enzymes and fractionated by size by the process of agarose gel electrophoresis followed by the identification by labeled probe hybridization. The DNA stands are denatured by alkaline treatment and are transferred to nylon or nitrocellulose membrane or filter in sandwiched between gel and stock paper towels which draws the transfer buffer from gel through capillary action by the blotting process. The desire DNA is detected by using a labeled probe (single strand DNA) complementary to the desire DNA.[5]

The northern blotting: Total RNA isolation is performed using the Tri-Reagent protocol. RNA samples (30µ g each) are run on 15% acrylamide denaturing (urea) Criterion precast gels (Bio-Rad), and then transferred onto Hybond-n + membrane.[5] Northern blotting starts with the formaldehyde contain agarose gel electrophoresis of separate RNA sample by size, based on the charge of nucleic acid sequence. RNA is single strands, not required for restriction enzymes. Since gel molecules are fragile in nature, the separated sequences are transferred to the nylon membranes. The selection of nylon membrane is contributed to the factor that nucleic acids are negatively charged in nature. Once the RNA molecules are transferred it is immobilized by covalent linkage. Aminobengoxy methyl filter paper is placed instead of nitrocellulose filter paper. The probe is then adde, the probe can be complementary an ssDNA sequence.[5]

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FEATURE EXTRACTION FROM SEGMENTED JASMINE FLOWER IMAGES

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ABSTRACT

Feature extraction is a sort of dimensionality reduction that efficiently represents region of an image as a compact feature vector or the process in which certain features of interest within an image are detected and represented for further processing. This research work proposes a hybrid feature descriptor based on color, texture, and shape. The feature set includes two color features: Average Color Difference (ACD) & Color and Edge Directivity Descriptor (CEDD), a texture feature using Local Binary Pattern (LBP) and shape feature using Zernike Moments (ZM). Image descriptors derived from different color spaces often exhibit different properties, among which are high discriminative power and relative stability over the changes in photographic conditions such as varying illumination, hence, the color features are derived from different color spaces like YIQ, HSV and L*a*b. Then the feature vectors are normalized and fused to improve the classification performance.

KEY WORDS Average Color Difference (ACD), Color and Edge Directivity Descriptor (CEDD), Local Binary Pattern (LBP), Zernike Moments (ZM).

INTRODUCTION

This paper presents a hybrid image descriptor based on color, texture, and shape for jasmine image classification. The color cue is often applied by the human visual system for object and scene image classification. Indeed, color images, which contain more discriminative information than grayscale images, have been shown to perform better than grayscale images for image classification tasks. Image descriptors defined in different color spaces usually help improve the identification of object, scene and texture image categories [1]. Color histogram

Segmentation of Jasmine Flower Image using Multi Histogram Based OTSU Thresholding

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Abstract

Segmentation is a procedure to extract region of interest from an image, which has to be used for further image analysis steps. In general, image segmentation results in different parts of an image. However most of the algorithms are interested in two partitions: foreground and background. This paper focuses on segmenting the jasmine flower image into two regions: background and the flower region. Among various segmentation approaches, thresholding is one of the most successfully implemented approaches for binary (two-part) segmentation due to its simple implementation and effective performance. Otsu thresholding is one of the frequently used thresholding methods from the literature. This research paper proposed a Multi-Histogram based Otsu Thresholding (MHOT) to improve Otsu's thresholding performance further and to make it more suitable for jasmine flower segmentation.

Keywords : Thresholding, OTSU Thresholding, Multi Histogram based Thresholding (MHOT), Segmentation.

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1. Introduction

` Identifying regions of interest are called as image segmentation, which is one of the basic step for any kind of image analysis. Segmentation divides the image into more meaningful regions or objects. The further analysis step might consider a specific region/object from the segmentation. Hence, the image dimension has been extensively reduced which in turn reduces the time complexity of the algorithm along with improving the performance.

In the overall, image segmentation methods are categorized into classes: one based on discontinuity and the other one is based on similarity between pixels [8]. In another context, the segmentation approaches could be an edge based and region based segmentation. The discontinuity between pixels defines the edges in the image, these pixels are identified to define the boundaries between the regions. Each closed boundary defines a region. Histogram and gradient based methods are the two basic edge based segmentation methods [12]. Region based segmentation method partitions the image into regions of homogeneous neighboring pixel. The similarity is estimated based on predefined criteria. Region growing, Region Splitting & Merging and Thresholding are the various region-based segmentation methods [12].

Among various region-based segmentation methods, thresholding is a widely

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HYPOTHYROID ANALYSIS WITH EMCLUSTER USING FREQUENT PATTERN MINING TECHNIQUES

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Abstract

Data mining involves identification of sequential patterns though huge amount of data. In data analysis process cluster classification analysis and machine intelligence were employed. Data mining helps in better analysis of medical bioinformatics. Classification is used for prediction outcomes and association is used to find rules affiliated with items having co-occurrence. The Weka software includes data pre-processing tools, classification / regression algorithms, clustering algorithms, association rule mining algorithms with attribute / subset evaluation methods for feature selection process. It support multiple platforms and it's written in java. Weka is used to define filters to transform the data in terms of Discretization, Normalization, Re-sampling, Attribute selection etc., Analysis of Bioinformatics gene expression has performed to predict the accuracy of frequent pattern mining algorithm in the diagnosis of hypothyroid.

Keywords: Bioinformatics, Co-occurrences, Gene expression, Sequential patterns.

Introduction

Frequent itemsets play an essential role in many data mining tasks that try to find interesting patterns from databases such as association rules, correlations, sequences, classifiers, clusters and many more of which the mining of association rules is one of the most popular problems. Frequent Pattern Mining (FPM) is used for finding relationships among the items in a large database obtained from the cloud environment. Frequent itemset mining is a study in data analysis techniques for bioinformatics. Satish kumar david Amr, T.M.Saeb(2013) ,suggested that data mining "a major way of creating knowledge", is a useful way in the field of medicine, genetics, bioinformatics. Guerra L, McGarry M, Robles V, Bielza C, Larrañaga P, Yuste R (2011) in their paper they explained the classification of techniques as unsupervised and supervised learning techniques.

In weka software we have filters as "Weka.filters.supervised" that is the Classes below weka.filters.supervised in the class hierarchy are for supervised filtering, i.e. taking advantage of the class information. A class must be assigned. Then the "Weka.filters.supervised" in this class hierarchy are for unsupervised filtering, e.g. the non-stratified version of Resample. A class should not be assigned here. The present study focus on the clustering and classification techniques of the frequent patterns in the gene database. Data clustering is the task of discovering groups of objects in a data set that exhibit high similarity. The goal of classification is predicting the target class accuracy for the case in data. This paper analyzed the algorithms such as naive Bayes, Decision Tree, and REPTree as shown in Table 1.

Data Mining Software - WEKA

WEKA software is a useful tool for data mining tasks suggested by Satish kumar david Amr, T.M.Saeb (2013). It is used in environment for Knowledge Analysis. Weka means data mining / machine learning tool developed by Computer Science department, University of Waikato, New Zealand. It is the set of machine learning algorithms applied directly to a dataset for data mining tasks as, data pre-processing, classification, regression, clustering, association rules, and visualization. Weka is open source software issued under the General Public License (GNU). Satish kumar david Amr, T.M.Saeb(2013) in their paper they have listed the WEKA applications as probe selection of gene expression arrays ,automated protein data annotation, automatic cancer diagnosis, plant genotype discrimination, classifying gene expression profiles and computational model for frame- shifting sites and extracting rules from them. The main features are data pre-processing tools, learning algorithms and evaluation methods, Graphical user interfaces (includes data visualization), Environment for comparing learning algorithms.

GENERATIVE ADVERSARIAL RECURRENT NEURAL NETWORK SCHEME BASED INTRUSION DETECTION SYSTEM FOR THREE-DIMENSIONAL WIRELESS SENSOR NETWORK

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Abstract

Intrusion Detection System (IDS) is an important component in the overall network and data security. With the rapid advancement in network technologies, detection of attacks based on the analysis of contextual information may be specific to individual applications and networks. A malicious node can behave abnormally in various ways like holding the data incoming the route by itself, it forward the incoming data to another abnormal route, a node receives the data by using other ID as Sybil node etc. These activities create leads data loss, data misuse, data corruption, utilizing the network resources without network permission, destroy the network resources etc. The existing IDSs cannot resolve flow distribution imbalances where provide a low resulting in poor IDS detection performance and false alarm rates are increasing, especially due to low frequency attacks. To address this problem, the proposed new model uses a Generative Adversarial Recurrent Neural Network (GARNN) with an attack prevention system to handle traffic and malicious user detection visualized in 3Dimension WSN. These attacks are detected using IDS obtained by a deep learning model using KDD CUP99 set trained data. Then collected dataset trained into pre-processing for reducing noise, check null values. After that, traffic analysis for identifying the suspicious activity trained into impacts of features scaling analysis selects the best features of attack detection such as network impact ratio, Adversary Behavior, scaling transmission. Finally, the proposed GARNN algorithm is used to classify and 3D visual representation to reflect the attacks in WSN.The prevention system can help to block the malicious users and provide a security. The network activities are monitor store on event recording for analysis the traffic. The attack prevention method tracks the packet capture activity, network behaviors form buffer content. When the attack classifier form deep learning model the prevention system execute network protocol analysis for other network route. In this overall process for improve the attack detection accuracy and network prevention.

Keywords: Intrusion Detection System (IDS), attack identification, Generative Adversarial recurrent neural network (GARNN), 3Dimension, Wireless sensor network.

1. Introduction

As the Internet has grown in popularity and development, it has become increasingly relevant to people's lives. However, the Internet is a double-edged sword, and although it is convenient, it also has many problems. Among countless issues, network security is the primary issue. The number of network intrusions is increasing in Wireless Sensor Network (WSN), and the losses caused are great, especially the consumption of server resources by the intrusions.3D deployment represents an essential role in establishing an efficient WSN. Three-Dimensional (3D) WSNs are at the forefront of many advanced industrial applications.3D WSN also requires a very complex and computationally intensive analysis of insect coverage of sensor nodes placed in the 3D field.

IDS are playing an important role in development as computer and network attacks increase. IDS monitor's intrusion patterns by analyzing events that occur in computer systems or networks.A network Intrusion Detection (ID) system is used to detect malicious or unwanted intrusion in the

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RESEARCH ARTICLE

Cluster Predictive Model Using Affinity Propagation Algorithm to Group Mushroom 5.8s rRNA Sequences

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Abstract

Background: The main emphasis of the article is biological information on a distinct species of mushroom (Phylum Basidiomycota) data collection of 5.8s rRNA sequences. Macrofungi from the phylum Basidiomycota are predominantly used as therapeutic mushrooms in several countries. During the rainy season, hundreds of macrofungal basidiocarps were discovered in Tamilnadu. The internal transcribed spacer (ITS) and 5.8S rRNA gene sequence markers, which have been collected from NCBI, were used to isolate at least thirty of these strains that fall under the Basidiomycota kingdom (suborders of Polyporales, Hymenochataeles, and Russuales), which have the therapeutic properties of the Basidiomycota kingdom. **Objectives:** This article's main objective is to organise the sequences according to similarity utilising multiple sequence alignment and an algorithmic perspective. **Methods:** In this paper, we use 30 × 30 pairwise similarity matrix data of these thirty 5.8s rRNA mushroom sequences obtained using the clustal omega tool to develop an affinity propagation approach. As a continuation of earlier work, this will be evaluated against k-means, hierarchical clustering based on the ideal cluster, and time and space complexity. **Findings:** The affinity propagation algorithm typically discourages providing the initial number of clusters; therefore, the optimal number of cluster values and grouping of clustered results obtained from the affinity propagation algorithm are also the same as the results obtained from the previous existing research work using the k-means, hierarchical agglomerative clustering algorithm. **Novelty:** The overall suggested technique involves applying the cluster validation metrics Silhouette score, Calinski-Harabasz Index, and Davies-Bouldin Index methodologies to find the ideal number of clusters. The CD-hit Clustering tool does not offer these metrics, and the Cluster Omega tool does not support this kind of extension work. This follow-up work assists bioinformatics researchers in obtaining favourable results by utilising the existing software prior to working in wet laboratories; rather than wasting a lot of chemical resources, this result

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Research paper

An assessment of machine learning algorithms for healthcare analysis based on improved MapReduce

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Abstract

Peoples who're specially affected with heart sickness and it's far one of the man-kill illnesses in the international level. Most of researchers to awareness at the prediction, clustering, rule generation, decision tree and machine learning algorithm for figuring out and predicting the danger of the sufferers primarily based on the medical information. The overall performances of the crucial functions are based on the machine-learning concept. By studying the algorithm, the researcher can pick out the time and reminiscence wanted for the execution. As such, there are many different types of machine learning algorithms are categorized into three important classifications namely unsupervised learning, supervised learning and reinforcement learning. Unsupervised learning consists of all varieties of clustering algorithms at the same time as supervised learning algorithm consists of all of the category strategies. But the author is considered the two algorithms are Supervised and Unsupervised learning algorithm to examine the overall performance. This research paper includes the six elements to evaluate the overall performance of K-Means, Navie-Bayes and enhanced PSNB-IMR Algorithm with various parameters.

Introduction

The Volume of facts are expanded daily for nearly in all vicinity of software because of digitalization of the world. In particular, clinical associated facts are commonly utilized in prediction, clustering, rule generation, selection tree and device studying set of rules. However, there are greater a hit device studying algorithms are applied to discover and manner to therapy sicknesses of coronary heart associated fitness problems to the human being. The researcher enforces the device studying set of rules is called, PSNM: IMR Parallel Semi Naïve Bayes Algorithm with Improved Map Reducer .A heart specialist can acquire info on every out patient approximately one hundred instances greater regularly than every day on a normal foundation with periodic health center appointments, every so often giving the health practitioner an early be aware approximately worries that would forestall a coronary heart attack. The facts amassed via way of means of those clinical units is maximum regularly voluminous and exponentially growing; this includes rigorous and nuanced analyzes each to enhance medical selections and to direct take a look at into higher procedures, for this reason improving results.

Data evaluation and deep studying strategies are used to construct progressive equipment to assist physicians and people within side the healthcare enterprise make early-level selections on coronary heart attacks. Big Data is advanced via way of means of a growing multitude of means, together with Web clicks, net transactions, user-

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RESEARCH ARTICLE

Determination of Efficient Crop Identification using WAA Algorithm

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ABSTRACT

In the agriculture environment, sustainability refers to the successful management of agricultural resources to satisfy human needs while at the same time maintaining or enhancing the quality of the environment and conserving natural resources for future generation. Farmers typically select crops for cultivation based on their conventional methods and previous agricultural experience; however this may go wrong because of a natural disaster. Hence, a decision making model must be established to enable farmers to make consistent decisions on farming. In this paper, we have shown the comparative analysis of identify the finest crop using RC tool with weight Aggregation Analysis Algorithm which is used to be cultivated. Each crop in the data set can be analyzed by the developed model. The model is able to accomplish the optimum agricultural development strategy. This strategy generates better than the current production plan.

Keywords: Fuzzy soft set, Weight Aggregation Analysis Algorithm, Relative Closeness.

INTRODUCTION

The one important way of getting revenue in India as Agriculture. India's geographical area covered forty three percent by the agricultural sectors. The current cultivation system will increase the productivity by applied the technological changes in farming activities. Although, optimizing the choice now seems to be a wonderful solution to current crop problems. This is a mathematical process which focuses on optimizing the output of many input variables which influence the outcome relatively.

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INFORMATION DIAGRAMS OF KAWASAKI DISEASE

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subramani.

ABSTRACT

Kawasaki Disease is a vasculitis problem that is staggeringly dangerous to young people. Kawasaki Disorder can cause outrageoussymptoms of ischemic coronary ailment or structure into ischemic coronary sickness, provoking end in youths. Researcherslikewise, clinicians need to analyze different data and data resources for explore portions of Kawasaki Ailment. Data Charts have transformed into a critical man-made consciousness method for managing consolidating various types ofstunning data and dataresources. In this paper, we present a philosophy for the improvement of Data Diagrams of Kawasaki Sickness. Itconsolidates a broad assortment of data resources associated with Kawasaki Ailment, including clinical principles, clinical primers, drug data bases, clinical composition, and others. It gives a key joining supporting of data anddata concerning Kawasaki Contamination for clinical survey. In this paper, we will show that this affliction specific DataOutlines are significant for exploring various pieces of Kawasaki Sickness.

Keywords: Kawasaki Disease, Knowledge Graph, Semantic Search.

INTRODUCTION

In children with Kawasaki illness, the walls of the small to medium-sized blood arteries that transport blood throughout the body enlarge (are inflamed). Coronary artery inflammation from Kawasaki illness frequently affects the blood vessels that carry oxygen-rich blood to the heart.Because it also results in swelling of the glands (lymph nodes) and mucous membranes within the mouth, nose, eyes, and throat, Kawasaki illness was formerly known as mucocutaneous lymph node syndrome.Kawasaki disease in children can cause high fevers, swollen hands and feet with peeling skin,as well as red eyes and tongues. However, if Kawasaki disease is treated within 10 days of start, the majority of kids recover without experiencing any major issues.[1] Children are typically hospitalized for two to five days.High-dose aspirin is given every six hours as part of the treatment along with intravenous gamma globulin (IVIG), which is infused through your child's IV.These drugs aid in reducing blood vessel swelling and inflammation. The risk of coronary aneurysms can be lowered but NOT entirely eliminated by IVIG.If administered within the first 10 days of the disease, the infusion is most beneficial. When you give within the first 10 days of illness, your risk of getting coronary abnormalities drops from 25% to less than 5%.Your child will keep taking high-dose aspirin after being released from the hospital until the fever and inflammatory symptoms subside.Children continue to take a low-dose aspirin daily for, typically, six weeks. [2]

KNOWLEDGE GRAPHS

Knowledge graphs are knowledge bases that use a graph-structured data model or topology to integrate data in knowledge representation and reasoning. Knowledge graphs are frequently used to contain interconnected descriptions of phenomena, such as things, events, circumstances, or abstract ideas, as well as the semantics behind the terminology that is utilised. [3]Some of the predicates p have fixed interpretations in the RDF and RDF Schema languages [1]. These include the predicates rdf:type to indicate type membership, rdfs:subClassOf to indicate (transitive) containment of subclasses, and others. rdfs:domain and rdfs:range are used to indicate whether any subject or object satisfying a certain predicate belongs to a particular type. Knowledge graphs can include language constructions from the Web Ontology Language OWL [10], which permits the application of cardinality constraints on relations, disjointness between classes, and other semantic relations. A given knowledge network can automaticall

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PARTICLE SWARM OPTIMIZATION ALGORITHM FOR DETECTION LIVER DISEASE

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ABSTRACT:

Information mining is a critical piece of information examination in general and one of the main regimens disciplines in information science, which utilizations progressed investigation procedures to find valuable data in informational indexes. [1]The liver is fundamental for processing food and freeingyour collection of poisonous substances.Liver sickness can be acquired (hereditary). Liver issues can likewise be brought about by various elements that harm the liver, for example, infections, liquor use and corpulence.Over the long haul, conditions that harm the liver can prompt scarring (cirrhosis), which can prompt liver disappointment, a hazardous condition.[2].In this Paper described about Detection andLocation System of Hepatitis using SVM and K-Means Algorithm

Keywords: Liver, Hepatitis C, SVM

INTRODUCTION:

Information digging is demonstrating useful for medical services, however it has likewise accompanied a couple of patient protection concerns. Monstrous measures of patient information being shared during the information mining process increments patient worries that their own data could fall into some unacceptable hands.[4].In this paper describe about various rashes around hebattis using Particle Swarm Optimization and Modified Particle Swarm Optimization

RELATED WORKHEBATATIS C

Hepatitis C is a liver disease that can prompt serious liver harm. It's brought about by the hepatitis C infection. Around 2.4 million individuals in the U.S. have the infection. Be that as it may, it causes not many side effects, so the majority of them don't have the foggiest idea. The infection spreadsthrough a contaminated individual's blood or body liquids.[5]

PERSISTENT HEPATITIS C SIDE EFFECTS

On the off chance that you don't get analyzed and treated, you could have the sickness for a really long time and not know it. Specialists call this the constant structure, since it endures quite a while. Certain individuals who've had it for some time seek Hepatitis C side effects and treatmentHepatitis C is important for a gathering of hepatitis infections that assault the liver. It is generally tracked down in contaminated blood. It is additionally seldom tracked down in semen (cum) and vaginal liquids.The infection is typically gone on through utilizing defiled needles and needles or different things with contaminated blood on them. It can likewise be gone on through unprotected sex, particularly when blood is available.It frequently has no perceptible side effects. Certain individuals' bodies can clear the disease all alone however others might create ongoing (long haul) hepatitis C and should accept antiviral treatment to fix the disease and forestall liver harm.[6]

Table 1[7]

Hepatitis DataSet The informational index contains research facility upsides of blood benefactors and Hepatitis C patients and segment values like age

A Comparative Analysis of Crop Selection Using RC Tool with Weight Aggregation Analysis Algorithm

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Farmers typically select crops for cultivation based on their conventional methods and previous agricultural experience, however this may go wrong because of a natural disaster. Therefore, a model for decision making must be established to enable farmers to make consistent decisions on farming. In this paper, we have shown the comparative analysis of crop selection using RC tool with weight Aggregation Analysis Algorithm which is used to be cultivated. Each crop in the data set can be analyzed by the developed model. The model is able to accomplish the optimum agricultural development strategy. This strategy generates better than the current production plan.

Keywords: Fuzzy soft set, Weight Aggregation Analysis Algorithm, Relative Closeness Method.

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1. Introduction

The primary source of income in India is agriculture. About 2/3rd of India population, it is the only source of income. Agricultural sectors accounted for almost 43 percent of India's geographical area. For decades, simple food crops have been produced using farming. Due to the recent technological changes, have influence over the current cultivation system. The main challenge of existing farming activities are high demand, poor income and inorganic crops. In order to solve this, the crop must be selected based on the specific region. Decision on crop selection will increase productivity and optimize benefit. It cannot be rendered with single parameters; instead, it is necessary to consider further criteria. In order to address several problems in different systems, several decision-making methods were developed earliest. None of them have the greatest results. Although, Optimizing the choice now seems to be a wonderful solution to current crop problems. This is a mathematical process which focuses on optimizing the output of many input variables which influence the outcome relatively. For instance, if we want to optimize profit, more water-intensive crops will be required. In drought areas, it is important to minimize the use of water, however it may conflict the benefit target. Therefore, the farming process itself is complex and farmers change their farm practices naturally based on previous crop output and resource availability. The crop portfolio success depends in part upon water quality, soil-based nutrients (which may rely on previous plot assignments) and crop water requirements. The key objective of this paper is to apply the decision-making optimization strategy for crop selection.

2. Related works

Al [3] introduced the concept of soft set theory as a general mathematical tool for dealing with uncertainty. The solutions of such problems involve the use of mathematical principles based on uncertainty and imprecision. In this paper, They recalled the definition of a soft set, its properties and its operations. Ananthi [2] Suggested the idea focused on fuzzy sets. When the fluidity can occur, the brightness amount should be assumed in-pixel in the images for the calculated degree. When the ambiguity of the images is treated effectively in the fuszy package, when particularly IFSs is processed. When the activation of the segmentation can be calculated by the satellite by which the unknown capture images can be decreased. Then, the segmentation of the deficit of the crops for the clustering technique will fuse an image, since it depends on the interval between the intuitionist fuzzy set Cui [7]proposed a novel extract approach for the optimized sub-set function. Cultivation depending on the forms to be tracked for algorithm items dependent on the vector machine help classification. The performance provided by the technologies can be best rated with a total accuracy of about 89.6 percentage points.

Arri.M [4] In this article, the methods of extension are relying on the de-composition of the system as they establish a decomposition-based methodology for adaptive model, which helps them to approximate for the mean randomness that the scattering canopy is based on each pixel of the image. P.K.Maji [15] defined the concept of the core is twofold. First, it can be used as a basis for computation of all reducts, then the core is included in every reduct, and its computation is straightforward. Secondly. the core can be interpreted as the set of the most characteristic part of knowledge, which cannot be eliminated when reducing the knowledge.

Leila [14]discussed adaptive neuro-fuzzy inference system (ANFIS) was used to predict the grain yield of irrigated wheat in Abyek town of Ghazvin province, Iran. Due to large number of inputs (eight inputs) for ANFIS, the input vector was clustered into two groups and two networks were trained. (Lagos-Ortiz et al., 2019) Presents an professional knowledge support program for rice, coffee and cocoa production, focused on the user's input, and external details, such as position and environment, which will assist the selection processes, tracking, surveillance, detection, pest prevention, selection of fertilizer, among others. (Manav Singhal, 2011) described a mobile based application, namely Krishi Ville, for farmers. This application takes care of the updates of various agricultural commodities, agricultural news updates, weather forecast updates etc. Pethalakshmi [18]studied and reviewed the concept of the soft set theory, and their development in the various fields of its existing literature is carried out such as Medical, Agriculture and Business etc.

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QUALITY CONTROL IN FOOD INDUSTRY THROUGH STATISTICAL TECHNIQUES

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ABSTRACT

Restaurants are on the rise and is growing rapidly in Indian market every day. The current situation in the country is all the adult members in a family have to earn to live a happy life, and therefore the time available for them to spend in their homes is getting reduced day by day. This makes them so busy in their work outside and they prefer to dine outside. Because of this, the food industry is growing at a rapid rate and at the same time, they have to maintain the quality and taste of their food items in order to retain their customers. In this connection, the researcher thought of applying statistical tools in maintaining and controlling quality at the restaurants during food production process itself, so that necessary control action can be taken at once, if any deviation is found. The researchers had selected one of busy restaurants in South Bengaluru area and studied the possibility of applying statistical quality control tools like X-bar chart and R chart for quality control and collected data on fixed intervals from the customers on quality of food and taste of food. The study revealed that the control charts were useful in detecting deviations in the perception of customers on quality and taste of food and the findings can be used to modify the food production process from time to time, if required.
Keywords: Restaurant, production process, Quality control, X-bar chart, R-chart,

1. Introduction

Quality has become one of the main customer choice variables in the shaping customer satisfaction. The peculiarity is boundless, whether or not the buyer is an individual, an association, a retail location, or a tactical safeguard program. Thus, understanding and further developing quality is key element prompting achievement in business, growth, and an upgraded cutthroat position. There is a significant profit from speculation from worked on quality and from effective utilization of quality as a fundamental piece of by and large business methodology. The articulation 'quality' typically alludes to the standards of an incredible item or administration that satisfies or surpasses client's assumptions. The nature of item can be assessed in various aspects, viz. Reliability, Serviceability, Durability, Perceived Quality, Conformance to Standards, Esthetics, Features, and so on. The customary definition for quality is

IMPACT OF SUPPLY CHAIN MANAGEMENT ON E-COMMERCE - A PERSPECTIVE STUDY

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Abstract
E-Commerce means business efficiency at all operation levels. It does not just mean trading and shopping on the Internet. The SCM is the backbone of E-Commerce also a very critical component of E-Commerce. The study on the impact of Supply chain on E Commerce aims to explain the efficiency of E-Commerce in industrial supply chain management, how effectively E-Commerce is applied on industries and the functions of supply chain management. The study explains the different types of technology for supporting E-Commerce, servers in the present and future content. To understand and develop the E-Commerce and supply chain management. The research methodology adopted for the study is of a descriptive type. This method is suitable for answering the type of research questions posed for this study. In a descriptive research phenomenon of the study, are not controlled or modified and are just measured and reported. In addition, the association between the studied variable can be tested and the relationships or causal effects can also be described.

Introduction
India has a potential for transforming itself into a hub of mass manufacturing. It means business efficiency at all operation levels. Supply Chain Management means coordinating, scheduling and controlling procurement, production, inventories and deliveries of products and services to customers. Jaana Auramo, et al. (2005) in their study on "BenefiWebster, et al., (2006) in their study on "E-Business Strategy Development: An FMCG Sector Case Study", this paper sets out to discuss the development of an E-Business strategy by a UK soft drinks company. It is based within the Fast Moving Consumer Goods (FMCG) sector (also known as Consumer Packaged Goods), which is characterized by powerful retailers, tier-1 suppliers of industrial end products and ingredient/raw material producers further upstream. The paper aims to examine the tensions created at tier-1 level relating to the adoption of E-Business solutions for B2B activities. The results of the survey indicate a lack of enthusiasm among Princes' supply chain members for the adoption of E-Commerce generally and for internet-mediated E-Commerce solutions in particular. The empirical survey is limited to the UK soft drinks sector and allows for the development of descriptive findings. These findings, discussed within the theoretical context of the paper, have potentially wider implications for the FMCG sector as a whole. The work has significant implications for the development of Princes' E-Business strategy, and by extrapolation for other companies operating in similar commercial environments. "BenefiYifeng Zhang and Siddhartha Bhattacharyya (2008) in their study on "Analysis of B2B E-Marketplaces: An Operations Perspective", the phenomenon of business-to-business (B2B) E-marketplaces has triggered a lot of interest among researchers in recent years. This study aims to fill such a gap. Employing agent based simulations, we find that supply network agents tend to keep more inventories and backlog loses fewer orders in the E-marketplace than in traditional supply chains. And this effect is profounder for the upstream agents, distributors and manufacturers than for downstream agents, retailers. Managerial implications of these findings are discussed.

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INVESTMENT PATTERNS THROUGH CSR FOR HIGHER EDUCATION - A PERCEPTIVE STUDY

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ABSTRACT

CSR in Education has mostly involved steps to promote education, scholarships, sponsorships, increasing access to education and higher education. Other CSR practices for the education sector gaining increasing popularity include promoting gender equity by targeting girls, providing toilets or other infrastructure, establishment of institutes for teachers, libraries for rural school education etc. The study aims to elicit responses from CSR and NGO functionaries who deal with education projects through various sector specific lenses. The aim is to develop an understanding of current challenges and opportunities in sector for both sides, while highlighting the major commonalities and divergent opinions on key aspects related to education. The study is based on primary research and assessment of secondary data related to the thematic areas that emerges from analysis of the primary research. The study attempts to describe the role of CSR and NGOs and their perspectives for education enhancement across the country. Nature of research being descriptive as it attempts understand divergent opinions and endeavours to substantiate emergent themes.

INTRODUCTION

Investment in STEM education, digital education, capacity building of teachers. Upgrading and capacity building of the school management and leadership development is another essential component which requires much attention and action. The issues in the education system related to accessibility, quality, retention, poor capacity of teachers, academic issues -especially a curriculum that is not updated, enrolment, pedagogy, girl enrolment and retention issues, skill building etc. have serious consequences on the growth and development potential of the country. The magnitude and scale of such challenges require concrete efforts and funds from all stakeholders and collaborations between government, educational institutions and corporate to help accelerate educational reform and bring about the desired social development. Even though the education sector receives maximum attention in terms of CSR spends, mere involvement from financial perspective to strengthen the education system is not enough. CSR models need to address long-term issues across the systemic chain to accelerate change in the education sector. Not much evidence is available on trends as well as gaps that could help companies perceive the right social needs and identify relevant opportunities for interventions. With the quantum of CSR investments, it is vital for the companies to make informed decisions. Along with focus on classroom construction, providing books or scholarships, attention should also be given to supporting processes or organisations with clear, easily measurable learning outcomes. Behaviour change communication has also not gained much attention in this context. Along with the need to invest at all levels of education, it is essential to identify gaps and understand the CSR focus in generating sustainable, scalable and impactful education models to help drive the country's economic growth and address issues plaguing the sector. Several stakeholders are working towards an overall improvement of education in India, with the Government being central. Many NGOs undertake projects and initiatives addressing one or multiple challenges highlighted earlier. In addition, companies invest substantial resources through CSR to enable NGOs to achieve maximum impact in the communities they operate in. Studies comment on the CSR investment in

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EFFECTS OF CUSTOMER EXPERIENCE CLUES ON CUSTOMER LOYALTY IN INDIAN MOBILE NETWORK SERVICES

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ABSTRACT

The present study examines the relationship between mechanic clues and customer loyalty with respect to Indian major mobile network service providers. One of the components in customer experience is mechanic clues. The analyses made on the basis of responses from 580 customers of mobile network services. The validity and reliability of the model and hypothesis are examined through path regression modeling procedure. The findings suggest that customers are satisfied with availability of 24 hours customer support and providing online support for all services. The service providers are more sensitive towards improve their brand value and competitive advantage and at the same time the customers are expected more staff in customer care centre and receive the customers with pleasing manner.

Key words: Customer experience, customer loyalty, mechanical clues, mobile network services.

INTRODUCTION

Buyers would prefer not only to purchase a product or service; they need an incredible customer experience that complements the product or service. This is the reason it is critical to convey a dimension of customer experience that delights customers and builds an everlasting association with customers. Customer loyalty and fulfillment is affected by a customer's emotions/feelings and experiences they share with the brand. Customers don't simply purchase a product, they see the whole procedure as an experience or memory they review while doing the business with the organization once again. Customer experience is the sum of all experiences and minutes an organization has previously, after and keeping in mind while utilizing a specific organization's product or service. It is the customer's impression of the brand. Customer experience is an emotional association. Customers need to experience it for themselves, and this relies upon the manner in which the customer was treated from the starting till in the customer journey.

Customer Experience Clues

Customer experience has turned into the new trend in the present marketing field rising as the new age differentiator. Customers tend to perceive or sense experience clues or remember them by their absence. These intimations can comprehensively be named Functional (What of the experience) and Emotional - Mechanic and Humanic (How of the experience). In connecting with firms, customers deliberately and unknowingly filter experience clues and compose them into a lot of impressions, some progressively normal or calculative and others increasingly emotional. Experience clue is anything in the service experience the customer sees by its presence or absence. Customers' mind-sets may have specific effect on how they think and act in service experiences in light of the interpersonal nature of these experiences (Gardner, 1985). Subsequently, it appears to be important that organizations try to oversee experience clues in manners that positively impact customers' mind-set. One chance to do this is with the tangible components of the service experience – mechanic clue. Berry, Carbone and Haeckel (2002) proposed that anything that can be perceived or sensed or perceived by its absence - is an experience clue. Each clue conveys a message, recommending something to the customer. The composite of the considerable number of clues makes up the customer's absolute experience.

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RECONCEIVING PRODUCTS AND MARKETS FOR THE SUSTAINABLE DEVELOPMENT OF TIRUPUR'S HOSIERY INDUSTRY

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Abstract: *The hosiery industry in Tirupur is the outcome of the sustained efforts of the entrepreneurs in Tirupur. From a humble beginning of Rs 75 crores in 1987, the town now exports around Rs25000 crores. Over the years the entrepreneurs here have kept up with the changing technology. They have streamlined their production processes to match international standards. Their focus primarily was on upgrading the quality of their products to compete in the international market and they were also quite successful in their efforts. But in the process they had caused serious environmental degradation. The entrepreneurs here are actively engaged in CSR activities for the upliftment of the society. But what is now required is a socially responsible entrepreneur who is willing to reconceive his products and markets. This can happen only by switching over to eco friendly methods of production. This article discusses the feasibility of this transition for Tirupur.*

Key words : Environmental degradation, Reconceiving products, Sustainable development

I. INTRODUCTION

Entrepreneurs across the globe are unified on the idea of contributing to the society. They do this through their Corporate Social Responsibility (CSR) initiatives which extend into a wide range of activities such as promoting education, empowering women, improving mental health, eradicating poverty, protecting environment and so on. In this way every business tries to compensate for the resources they utilise from the economy. But we have reached a stage where these activities are inadequate and the society is in need of something beyond CSR. What the society now needs is a socially responsible entrepreneur who can redefine his products and markets to achieve sustainable development. By integrating eco friendly processes and methods into production an entrepreneur can redefine his products thereby ensuring sustainable development.

This article discusses the possibility of applying this concept to the hosiery industry in Tirupur. Tirupur is a classical example for a natural cluster. The entrepreneurs in Tirupur have come a long way against odds without much support from the government. Majority of them belong to one community (Gounder) and their communal affinity has helped Tirupur to emerge into a successful knitwear export cluster. Starting with a humble beginning of just 75 crores in 1987, Tirupur now exports around 25000 crores [1] of knitwear to the rest of the world. Though the town has made remarkable achievement, it was only at the cost of its environment. Textile production is one of the highly pollutant processes in the world. The concentration of industrial activities in Tirupur has depleted and deteriorated the water resources thereby affecting the quality of life at Tirupur. This article discusses the possibility of reconceiving products and markets for Tirupur to achieve sustainable development.

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SCIENTOMETRIC DIMENSION OF RESEARCH OUTPUT ON VIRTUAL LEARNING ENVIRONMENT: A SCOPUS BASED EVALUATION OF TWO DECADES

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ABSTRACT

The virtual learning environment has gained momentum in recent days, especially during the pandemic period. Most learners are in virtual learning mode these days. This paper identifies the research productivity in the field of the virtual learning environment by the faculty of social sciences, as indexed in the Scopus database from 2000 to 2019. Out of the 6923 articles considered for the analysis, 3419 publications (49.38 percent) are journal articles. The journal "Computers and Education" published 226 articles (3.26 percent) and Castro, M contributed 23 articles as the most prolific source and author respectively. The United States of America contributed 1627 articles (23.50 percent). The Open University of the USA published 69 articles and topped the most productive institutions' table. It is suggested to extend more funds to the young researchers to contribute papers in the most talked-about field of the day 'Virtual Learning Environment'.

Keywords : *Virtual Learning Environment, Research productivity, Scientometrics, Productive Institutions, Prolific Authors.*

Introduction

The Virtual learning environment is the current trend study in education. The innovative ideas in educational technology have created new teaching and learning tools in a Virtual learning environment like a virtual classroom, virtual reality, and flipped classroom. The Virtual learning environment provides the experimental ideas of the curriculum. Students easily understand science, mathematics, and biology through a virtual learning environment. The Teachers provide the pictures, lessons, videos, audio, and practical examples of the subject in the virtual learning environment. In these Google online days, the concept of blackboard teaching decreases. This paper focuses on the scientometric study of the research publications related to the virtual learning environment. This study explores the growth and development of the publications on "virtual learning environment" as indexed in the Scopus database and contributed by the Social Sciences faculty.

Definition of Scientometric Study

The term scientometric was coined in 1969 by the Russian scientists Nalimov and Mulechenko. The main aim of the scientometric study is to provide a quantitative analysis of the keyword, author productivity, affiliating institutions, and journals. In the last two decades, library and information science professionals published more number of papers in scientometrics. The Scientometric study provides the visibility of the publications in the specific field, authors' collaboration, affiliations, and sponsoring institutions.

Significance of the Study

The role virtual learning environment is the most wanted one for all higher education institutions and provides the facilities in physical and virtual modes. In recent years highly utilized these VLE based activities

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