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OCEANIC EXPLORATION: CHALLENGES AND SURVIVAL AS DEPICTED IN PETER BENCHLEY'S *JAWS*

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In the postmodern era, sea novels have gained much popularity as the writers have resolved to change their literary discourse into something novel which aims to protect the ecosystem. With the glaring scientific evolution and technical developments, it is imperative to explore man's relationship with nature. Peter Benchley, the reputed American marine novelist posits the facts in and around the ocean through his novel *Jaws*. The shark myth employed in *Jaws* instructs the people not to combat with the natural world.

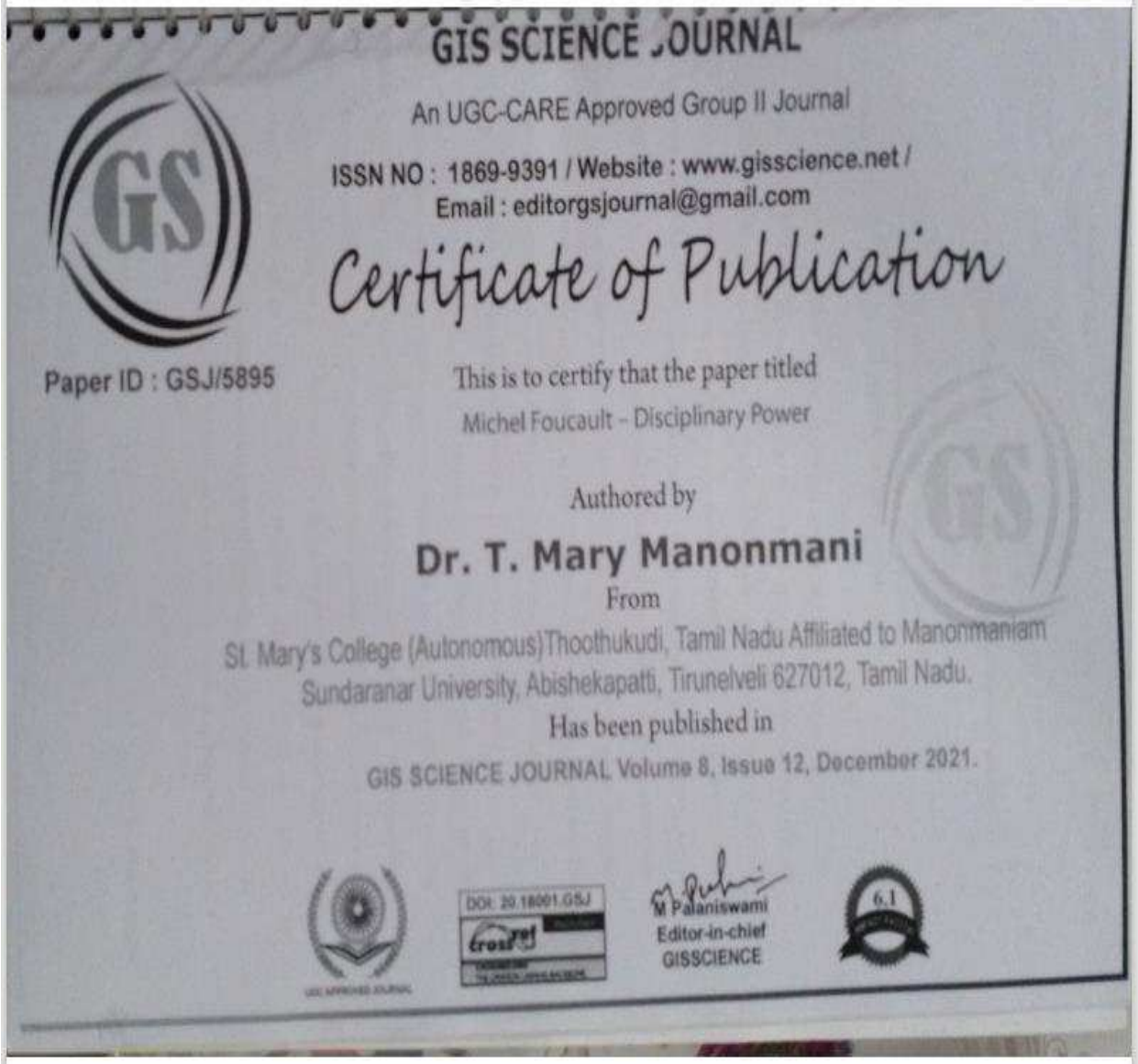
Jaws constitutes the environmental crisis in the form of life-threatening white sharks in the summer resort of Amity Island. This paper examines the challenges confronted by the mariners Martin Brody, Quint and Matt Hooper in the oceanic world and how they strive to trap the fish with an objective to protect the people of the town. The conflict between man and nature, modernity, the degeneracy in capitalism and struggle for survival shape the narrative of the novel. The paper throws light on the fact that all the organisms on earth are interconnected and any kind of resistance to the established order will disturb the whole ecological system.

Key Words: Nautical, expedition, conflict, resistance, predetermined, discourse.

Marine literature deals with a genre of literature with a setting on or near the sea that focuses on man's relationship to the sea and sea voyages and highlights nautical culture in these environments. In the domain of nautical literature, issues like intricate human correspondence with the marine creatures, its uncertainties, romance and sea warfare form the crux of the fiction. Many people have not trodden the path of nautical fiction and so it has gained immense popularity in world literature. It includes notable literary works like Herman Melville's *Moby Dick* (1851), Joseph Conrad's *Lord Jim* (1899–1900), popular fiction like C.S. Forester's *Hornblower Series* (1937–67) and works by authors that straddle the divide between popular and literary fiction, like Patrick O'Brian's *Aubrey-Maturin Series*. It discusses diverse themes, such as masculinity and heroism, investigations of social hierarchies, and the psychological tumults of the individual in the hostile environment of the sea.

Peter Benchley, the American novelist, and screen writer was a staunch advocate of marine conservation. Written for posterity, his first novel *Jaws* published in 1974 was a classic in marine literature that recounts the story of threatening sharks deviating from the traditional path of themes. Outwardly the novel appears to be a horrific tale of sharks but a thin thread of corruption of capitalism pervades in the story. Peter Benchley in an interview with National Geography said that every individual was fascinated with either sharks or dinosaurs. *Jaws* is about a great white shark which threatens the lives of humans in Amity Island. It is full of fear, suspense, and thrill. Having read the life of the New York fisherman Frank Mundus who caught a shark which weighed 4, 550 pounds in Montauk in 1964, Peter Benchley was inspired to write this novel. He strived to protect the animals he described in his novel. Martin Levine, Founder and Executive Director of the shark institute appreciates and calls him "a shark conservationist." The article posted in the blog comments: ". . . Jaws reminds me of how novels attuned me to adult frailties. It's going overboard to say it exposed me to the sharkish side of humanity. . ." (Curnutt)

Benchley's works feature the perils that lurk on or near the water. Besides his interest in diving, tennis and wildlife, his interest in oceanic life is great. This paper aims to bring about man's encounter with the power of nature through the metaphor of sharks that create shocking waves in the veins of the inhabitants of Amity and also highlights the shark's struggle for survival. It also throws light on the challenges man faces in his attempt to catch the horrific fish. In the fight between man and nature, man



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A Foucauldian Concept of Ethics

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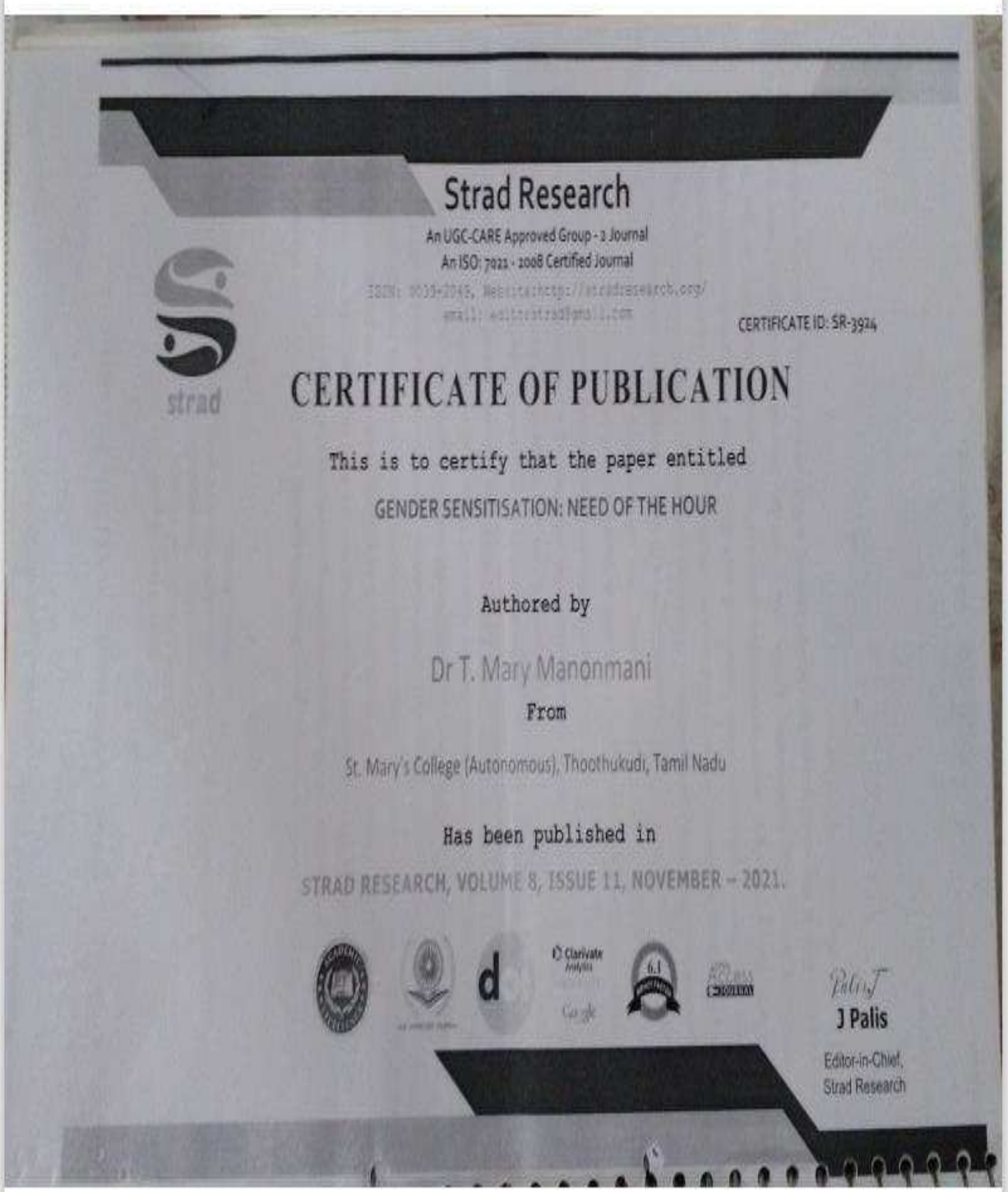
Abstract

This paper explores the evolution of 'ethics' in course of time and how it influences the life of humankind. The paper also deals how the great French Philosopher and psychiatrist Michael Foucault considers ethics as being developed on the basis of the continuity of events that occurred in history and how the discontinuities that had happened in the past were conveniently forgotten. Ethics hence changes its face now and then and it depends on the history and culture. Foucault states that each man has got his own ethics, "*Man prescribes rules* for his judgement, which is logic, for his discourse, which is grammar, *for his desires, which is ethics*. He then believes himself to have reached the summit of theory". If the discontinuities were registered through 'situation based ***discourses'*** with 'case based reasoning', then, ethics might have been changed then and there and there would not have been necessity for cosmic concern.

Discourse is not like a confession or well prepared lecture that is spoken with introduction and warning. The knowledge gained from that kind of speech or actions is to be registered and written that may link the discontinuities in history. Unless the like events that are occurring at different places and times are recorded brought into history they will be termed as uncommon (a discontinuity) and would be forgotten.

According to Foucault, "morality" is the real behaviour of individuals in relation to the rules and values. Following or resisting a set of codes is one's morality. Ethics is freedom to have one's morality. If many individuals have same type of morality there the ethics of the people is uniform and it becomes a continuity. On the other hand the deviation in morality becomes discontinuity.



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GENDER STUDIES AND QUEER THEORY IN YANN MARTEL'S *SELF*

R.Infantina*
F.Mary Priya#

ABSTRACT

Abstract

Self is a fictional autobiography. Gender studies and Queer Theory is the manner in which gender and sexuality is discussed. Queer theorists started their way of introducing about queer people who undergo sociological and psychological problems. The protagonist is shocked to accept that there are only two genders and forlorn that he cannot marry his playmate because of same gender. The various partners as a man and a woman the protagonist has encounter with both genders. The protagonist lost his parents, engender a lifelong quest. He connects himself to the world, which seemed natural in his childhood. At the age of 18 he wakes up in the morning and discovers himself as a woman. These spontaneous gender changes represent psychological fluidity, it says that it is an external form and it is not a determined identity. The protagonist travels through Europe exploring her sexuality and starts writing her novel. A violent rape shatters her world, suggesting the necessary impermanence of happiness. The change of sex from male to female, and back to male, thwarts expectation of sexual identity. The novel rejects plot and character and focuses on individual consciousness with random change of sex.

Keywords- Psychological analysis, engender, external form , determined identity, Sexual identity.

Yann Martel states that one's Gender identity cannot be biologically determined. It states that Gender can be seen as a social creation centered on natural or biological difference of sexes. Working with gender and queer theory is like a breakdown to the binaries such as male and female, the in-betweens. It gives the cultural definitions of sexuality. Sex is not something stable and fixed but it's a way to fluidity. The body is considered as a 'prison' of gender and sexuality. Queer theory is a new way of explaining human experience. Words take gender forms. The society is making an indirect way of explaining male and female through some manners. To explain about gender and sexuality as a single characteristic is highly impossible.

Yann Martel was born on June 25, 1963, in Salamanca , Spain. His parents are both civil servant, came from French Canadian descent and Martel spent his childhood living in several different countries throughout the world, including Rica, France, India, Iran, Mexico, Turkey, Canada and the United States. His parents belong to 19th and 20th century of early feminism and though he absorbed from them that there is no opposition of sexes. His family eventually settled in Canada. Martel attended Trent University during 1980s and graduated with a B.A. from Concordia University in 1985. After college he worked at variety of jobs, as librarian, tree planter, dishwasher, security guard. During the academic year of 2002 through 2003, Martel served as the

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Antibacterial studies on *Hypnea musciformis* against selected bacterial pathogens

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Abstract

This study evaluates the antibacterial activity of red algae *Hypnea musciformis* (Rhodophyta), collected from Gulf of Mannar, India. The algal extracts were tested for their antibacterial activity against ten clinical isolates of Gram positive and Gram negative bacteria *Bacillus subtilis, Staphylococcus aureus, Staphylococcus epidermis, Staphylococcus simulans, Escherichia coli, Klebsiella pneumoniae, Proteus mirabilis, Vibrio cholerae, Pseudomonas aeruginosa* and *Salmonella typhi*. The highest inhibition activity was obtained against *Staphylococcus epidermis* and *Escherichia coli*. The extract of *Hypnea musciformis* was characterized by Gas chromatography–mass spectrometry (GC–MS). The compounds with antimicrobial activity were identified as phenols, unsaturated aldehyde, volatile matter, long chain, branched chain hydrocarbons, alcohols, acid ester, steroids, fatty acid and ester.

Key words: Antibacterial activity; *Hypnea musciformis*; Gram positive; Gram negative.

Introduction

Various natural antimicrobial compounds have been recorded in marine environment more than those in the terrestrial one (Ireland *et al.*, 1988). Marine organisms such as marine algae are source material for structurally unique natural products with pharmacological and biological activities (Schwartsmann *et al.*, 2001). Among the marine organisms, the macroalgae (seaweeds) occupy a special site as a source of biomedical compounds (Manilal *et al.*, 2010). Seaweeds have been recognized as potential sources of the antibiotic substances. Synthesis of different metabolites from seaweeds is an indicator of the presence of antimicrobial active compounds (Chiheb *et al.*, 2009).

Seaweeds contain different substances which incorporated medicine and pharmacotherapy, whereas some of the isolated substances have bacteriostatic and bactericidal properties (Gorban *et al.*, 2003). Different diseases were treated with antibiotics, extracted from terrestrial sources that were used as therapeutic agents; new compounds were present in oceans and have commercial value (Smit, 2004). Clinical and public health problem due to antibiotic resistance and multi-resistant bacteria are difficult and sometimes impossible to treat (Levy, 2002). Using antibiotics in different medicines has a significant role in the emergence of bacterial strains resistant to antibiotics (Bacon *et al.*, 2000). Recently, new mechanisms of resistance have resulted in the simultaneous development of resistance to several antibiotic classes creating very dangerous multidrug resistant (MDR) bacterial strains, some also known as "superbugs" (Sande-Bruinsma *et al.*, 2008). The required number of new antimicrobial agents is higher than ever due to the rapid presence of new infections, emergence of multidrug resistance in common pathogens, and the potential for use of multidrug-resistant agents in bioweapons (Peters *et al.*, 2008). Organisms resistant to more than one class of antimicrobial agents are identified as multidrug resistant organisms (MDROs) (Sameera *et al.*, 2010).

This work aims to evaluate the antimicrobial activity of *Hypnea musciformis* extract from Gulf of Mannar against some of the collected clinical bacterial isolates, in order to find alternative drugs as promising source of pharmaceutical agents.

Indian Hydrobiology, 20(2): 257–262, 2021

Antifungal studies on *Hypnea musciformis* against medically and agriculturally important fungi

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Abstract

The resistance of pathogens to antibiotics commonly used has enhanced morbidity and mortality and has triggered the search for new drugs. This work aims to evaluate the antifungal potential of Semi Purified Fraction (SPF) of *Hypnea musciformis* on some medically important fungi: *Aspergillus flavus, Candida tropicalis, Candida albicans, Cryptococcus gastricus* and *Trichophyton rubrum* and agriculturally important fungi: *Fusarium oxysporum, Rhizoctonia solani* and *Penicillium expansum.* Minimum Inhibitory Concentrations (MIC), Minimum Fungicidal Concentrations (MFC) and antifungal assay was carried out to determine the lowest concentration at which the fungal growth was suppressed. A result showing *Candida albicans,* causing infections in immunocompromised patients were highly susceptible to SPF of *Hypnea musciformis* at lower concentrations. In conclusion, extracts of *Hypnea musciformis* are of great value as natural antimicrobials and can be used safely as antifungal agents. Antimicrobial therapy is a key factor to success against pathogens poised to ravage at risk or infected individuals.

Key words: Antifungal; Medically; Agriculturally important fungi; Fungicidal.

Introduction

Currently, multiple drug resistance of human pathogenic microorganisms is due to the indiscriminate use of the commercial antimicrobials commonly used for the treatment of infectious diseases (Karaman *et al.*, 2003). However, the outbreak of antimicrobial resistance, jointly with the shortage of newly developed antimicrobial drugs, brings a great threat to the health of both human and animals (Cheng *et al.*, 2016). Fungal diseases cause considerable morbidity and mortality globally and elevate health care costs (Vallabhaneni *et al.*, 2016). The paucity of effective antifungal agents and emergency of drug resistance prompted researchers to develop novel antifungal agents (Denning and Bromley, 2015). The search for new, more specific and better adapted antimicrobial agents has been further stimulated by the occurrence of fatal opportunistic infections associated with AIDS, antineoplasic chemotherapy and transplants (Penna *et al.*, 2001). As a consequence of the increasing demand for biodiversity in screening programs for potential therapeutic activities of natural products, there is an increased interest in marine fauna and flora throughout the world (Sasidharan *et al.*, 2010). In this context, tropical marine algae have proven to be a rich source of bioactive compounds of potential biomedicinal interest (Robles-Centeno *et al.*, 1996; Plaza *et al.*, 2010). Because of enormous crop losses worldwide due to pesticide-resistant plant pathogenic fungi the demand for the development of novel antifungal strategies in agriculture has increased. In the current investigation, screening of methanolic extracts of *Hypnea musciformis* against pathogenic fungi is done in order to detect new sources of antifungal agents.

Materials and methods

Algal collection

Hypnea musciformis (Rhodophyta), were collected from Gulf of Mannar along the

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NANO STRONGLY α^*AS- CONTINUOUS MAPS AND NANO PERFECTLY α^*AS- CONTINUOUS MAPS IN TOPOLOGICAL SPACES

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Abstract

Lellis Thivagar introduced nano topological spaces and studied some of their properties. nano α^*AS introduced by I. Sahaya Dani and P. Anbarasi Rodrigo in nano topological spaces. The purpose of this paper is to introduce and investigate the notion of Strongly nano α^*AS Continuous and Perfectly Nano α^*AS Continuous. We also examine some of the relations and properties of such functions.

1. Introduction

Levine introduced and investigated the concept of strong continuity in topological spaces. Sundaram introduced strongly g-continuous maps and

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Keywords: Nano α^*AS – closed sets, Strongly Nano α^*AS – continuous maps, Perfectly Nano α^*AS – continuous maps.

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CONSUMERS PERCEPTION OF ECO-FRIENDLY PRODUCTS IN THOOTHUKUDI

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Dr. G. Stella Beatrice Nirmala, Research Supervisor of Commerce Department, St. Mary's College (Autonomous), Thoothukudi.

Abstract:-
Eco-friendly products which are considered to be less harmful to the environment than its regular counterparts. If more people start buying eco-friendly products, pollution would not be so rampant, our planet would have a timeout to breathe and regenerate, and our families and communities would be healthier in the long term. Moreover, eco-friendly products are not only great for the environment, but also beneficial for human health. This present study is an endeavor to analyse consumer perception on eco-friendly products among the users of the eco-friendly product in Thoothukudi District. . The data has been collected from a total of 174 respondents in Thoothukudi District through a well-structured questionnaire. Eco-friendly product consumers are becoming more environmentally conscious and are demanding eco-friendly products from manufacturers, which leads to a sustainable environment.

Keywords: Eco-friendly product, sustainable environment, pollution, environmental, conscious consumer, perception

Introduction:-

Eco-friendly means earth-friendly or harmless to the environment. This term most commonly refers to products that contribute to green living or practices that help conserve resources like water and energy. Eco-friendly products also prevent contributions to air, water, and land pollution. Eco-friendly, all-natural products ensure safety from all dangerous chemicals and allow families to avoid risky additives that can cause any of these issues. Using eco-friendly products improve the quality of life in terms of mortality, age, diseases, and illnesses. They ensure the safety of families and the planet.

List of eco-friendly products:

Consumer Buying Behaviour on Eco-Friendly Products in Thoothukudi

ArunaDevi.P*, Dr. G. Stella Beatrice Nirmala,**

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** Research Supervisor, Commerce Department., St. Mary's College (Autonomous), Thoothukudi, - 627012, Tamil Nadu, India.

Abstract:-

Consumers are becoming more conscious of environmental issues, health-conscious, safe life, and interest to purchase all types of eco-friendly products. Eco-friendly products are the best solution for all environmental problems like climatic change, global warming, and natural disaster. Consumers who buy eco-friendly products are called green consumers. Eco-friendly producers are called green entrepreneurs. Buying and selling of eco-friendly product transactions called green marketing or eco-friendly business. The present research paper is an attempt to investigate buying behaviour towards eco-friendly products among the consumers in Thoothukudi city. The research is conducted with probing questions on the concept of eco-friendly products, mode of awareness, various reasons for purchasing eco-friendly products, and perception of consumers with eco-friendly products. The data has been collected from 185 respondents of different areas in Thoothukudi . Both primary and secondary data have been used for this research paper. Data has been analysed using SPSS. Research findings reveal that eco-friendly products are more effective than non-eco-friendly products.

Keywords: Eco-friendly product, Green consumer, Green entrepreneurs, Green marketing, Green consumer perception, Eco-friendly business

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A STUDY ON CUSTOMER'S PREFERENCE OF E-BANKING AFTER COVID-19

Dr. P.Banumathi
M.Com, M.Phil, PhDAssociate Professor of Commerce, St. Mary's College (Autonomous), Thoothukudi

Abstract

As all of usknow Internet Banking is turning into famous in each a part of the world in which Internet Banking is being followed via way of means of many people. After this pandemic people cannot use earlier banking system This is important time to alternate over conventional banking to fashionable banking. So, we are able tohave a look at the choice of e-banking with inside the time of covid-19. The often-used offeringsvia way of means of customers is internet banking and mobile banking. The Banking Industry is possibly to be the major actor in E-business. Banks have mentionedan internet presence with numerousobjectives and maximum of them are the usage of the net as a brand-newdispensing system. There had been a few precise issues which are restricting the e-banking adoption they may be specifically mind set closer to technology, protection and privacy concern, trust in banking firms, the e-banking culture, and abilities and penetration. The banks have already began out to awareness on growing and refining E-banking offerings as they have gotbegan out to paintings together with diverse usefulness businesses to allow customer to carry out several functions online. Here in this situation, they concentrate greater of their e-business.

Keywords: E-banking, technology, covid-19, mobile banking

Introduction

Electronic banking has many names like e banking, virtual banking, online banking, or internet banking. It is simply the use of electronic and telecommunications network for delivering various banking products and services. Through e-banking, a customer can access his account and conduct many transactions using his computer or mobile phone.Banks offer various types of services through electronic banking platforms. These are of three types:

Level 1 – This is the basic level of service that banks offer through their websites. Through this service, the bank offers information about its products and services to customers. Further, some banks may receive and reply to queries through e-mail too.

Level 2 – In this level, banks allow their customers to submit instructions or applications for different services, check their account balance, etc. However, banks do not permit their customers to do any fund-based transactions on their accounts.

Level 3 – In the third level, banks allow their customers to operate their accounts for funds transfer, bill payments, and purchase and redeem securities, etc.

Most traditional banks offer e-banking services as an additional method of providing service. Further, many new banks deliver banking services primarily through the internet or other electronic delivery channels. In this pandemic situation (COVID-19) some banks are offering

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A STUDY ON CUSTOMER'S PREFERENCE OF E-BANKING AFTER COVID-19

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An Assortment of Literature Review: E Learning during Covid – 19

Dr.T. Priyanka, Dr.A.J. Excelce, Mrs.C. Shilpa Rao,Ms.A. Amora, Dr.T. SangeethaSudha,

Abstract

Covid 19 has affected different people in different ways. It has changed totally everyone's lives globally, almost all the section of people and people belonging to different sector of work has lost their living and also they are forced to move on to digital platform to run their routine work. All the sectors started working in online mode, especially the educational system. Teachers, students and parents all played a vital role in this digital learning. Therefore this paper inscription was to gather all the literature review related to e learning, that is to share the knowledge and ideas of different authors view about e learning.

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Section

Articles

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A STUDY ON WORK LIFE BALANCE OF TIRUNELVELI MUNICIPAL CORPORATION WORKERS'

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Abstract: In order to attract and retain employees, an Organization has to develop a high work life Balance. Organization by adopting Work Life balance programmes ensure to create excellent work condition and job for its workers. The psychological wellbeing, worker friendly working and Work time are positively and significantly influencing the level of work-life balance among corporation workers in Tirunelveli Municipal Corporation. To improve the work life balance of corporation workers in Tirunelveli Municipal Corporation, the government should provide good working conditions, fair compensation and rewards, better growth and opportunities and trainings and they should also take care of the welfare of their workers.

Key Words: Work-Life Balance, corporation Workers & Tirunelveli Municipal Corporation.

Article History

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Corresponding author: S.SUTHARSANA

1. Introduction

In today's world every successful employee has to pass through the dilemma of work life balance in personal and their work life. A foremost portion of workers' productive time is spent at the workplace. Any problem either at the workplace or in the family will absolutely disturb the overall performance so it is necessary to address the various elements related to work and family which can directly or indirectly distress the overall performance of employees and job satisfaction. Thus Work-life balance is about effectively managing the misrepresenting act between paid work and other activities- including spending time with family. Balancing these two extremes is the cause of burn out of corporation workers and hence the employers recognized this as an important factor and want to introduce the work life balance approaches.

Dr. S. Bulomine Regi

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St. Mary's College (Autonomous), Thoothukudi affiliated to Manonmaniam Sundaranar University, Tirunelveli, Tamil Nadu, India

Orcid id: https://orcid.org/0000-0002-2040-9001

Abstract

Traveling is an essential aspect of the human experience. However, the scope of travel has shifted dramatically throughout time. Traveling used to entail simply getting from one location to another. A passenger train transports passengers between stops where they can board and exit. A guard/train manager/conductor is responsible for the train's safety. Passenger trains are a form of public transportation that frequently serves as the backbone of the system, with buses flowing into stations. The goal of this study is to analyze and identify passenger travel behavior, as well as to try to enhance the service quality provided by southern railways in the Tirunelveli junction. 150 passengers were polled for primary data. Garrett Ranking Analysis was used to analyze the data.

Keywords: Train, Passengers, Service Quality, Quality Enhancement

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RESEARCH ARTICLE

Screening and Evaluation of Biodegradability of Polythene by Soil Bacteria

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ABSTRACT

Increase in plastics has resulted in the degradation of environment and other life forms because of its non-degradable property and persistent presence in the soil. The rise in plastics may lead to various changes in the regulation and recycling of waste resources. In order to avoid such problems, plastics are now degraded biologically with the help of microbes. The present study deals with the isolation of such potent bacteria, isolated from various soils that are capable of degrading plastics. Five different strains of bacteria such as ***Streptococcus, Staphylococcus, Clostridium, Proteus*** and ***Pseudomonas*** species were isolated from various soil sources and identified based on their morphological characters and biochemical test results. The biodegradability of 10 micron plastics by these bacterial strains were determined for 15 days and it was found that ***Pseudomonas sp.*** was able to reduce the plastics by 70% whereas ***Clostridium sp***. did not degrade the plastics. Biodegradation of plastics by bacteria can be made most efficient by altering the factors that govern the process. It promises a reduction in plastic pollution in the future. Hence it is recommended to perform the enzymatic test of plastic samples, and production of isolated enzyme in large scale for degradation of plastic material.

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Abstract

The aim of this paper is to introduce a new concept of Neutrosophic closed sets namely Neutrosophic generalized semi alpha star closed sets (Neutrosophic $gs\alpha^*$ – closed sets) in Neutrosophic topological spaces. Properties and characterizations of Neutrosophic generalized semi alpha star closed sets are derived and compared with already existing sets.

Keywords: $N_{eu}gs\alpha^*$ –closed sets , $N_{eu}gs\alpha^*$ –open sets , $N_{eu}gs\alpha^*$ –interior , $N_{eu}gs\alpha^*$ – closure.

抽象的

本文的目的是在中智拓扑空间中引入一个新的中智闭集概念，即中智广义半阿尔法星闭集（Neutrosophic gsα^*-闭集）。导出了中智广义半阿尔法星封闭集的性质和特征，并与现有的集进行了比较。

关键词：N_eu gsα^*-闭集，N_eu gsα^*-开集，N_eu gsα^*-内部，N_eu gsα^*-闭包。

I. INTRODUCTION

The term "neutrosophic" etymologically comes from "neutrosophy" which means knowledge of neutral thought . F.Smarandache[6] first introduced the concept of Neutrosophic set theory and it is based on intuitionistic fuzzy sets by K.Atanassov's[2] and also based on fuzzy sets by L.A.Zadeh's[15] . It includes three components , truth , indeterminancy and false membership function . The real life application of neutrosophic topology is applied in Information Systems , Applied Mathematics etc . R.Dhavaseelan and S.Jafari[4] has discussed about the concept of generalized neutrosophic closed sets .

In this paper, we introduce some new concepts in neutrosophic topological spaces such as Neutrosophic $gs\alpha^*$ –closed sets and Neutrosophic $gs\alpha^*$ –open sets. We also studied the relationship between Neutrosophic β –closed set , Neutrosophic α –closed set, Neutrosophic pre-closed set, Neutrosophic semi-closed set, Neutrosophic generalized Closed set,etc.

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Abstract

The aim of this paper is to initiate the new concept of α_{Ng}-irresolute function, α_{Ng}-open map α_{Ng}-closed map in Nano Topological Spaces. Further, some of their basic properties and condition for a function to be α_{Ng}-open are investigated.

Keywords : α_{Ng}-irresolute, α_{Ng}-open, α_{Ng}-closed

1.Introduction

Levine[2] derived the concept of generalized closed set in topological space. Pious Missier and Anbarasi Rodrigo[7] studied α^*-open set in topological space. The notion of Nano Topology was introduced by Lellis Thivagar[3] defined in terms of approximations and boundary region of a subset of an universe using an equivalence relation on it. He also defined Nano-interior, Nano-closure and Nano-continuity. Bhuvaneswari and Mythili Gnanapriya[1] introduced Nano generalized closed set and Nano generalized continuous functions and studied their properties. Arul Jesti and Suganya[9,10] define α_{Ng}-open set and α_{Ng}-continuous function and discussed some of their properties. In this paper, we introduce a new function called α_{Ng}-irresolute function, α_{Ng}-open map α_{Ng}-closed map in Nano Topological Spaces and its properties are discussed.

2.Preliminaries

Definition 2.1:[7] Let U be a non-empty finite set of objects called the universe and R be an equivalence relation on U named as the indiscernibility relation. Then U is divided into disjoint equivalence classes. Elements belonging to the same equivalence class are said to be discernible with one another. The pair (U, R) is said to be the ***approximation space***.

Let $X \subseteq U$

1. The lower approximation of X with respect to R is the set of all objects which can be certain classified as X with respect to R and it is denoted by $L_R(X)$. That is $L_R(X) = \bigcup_{x \in U}\{R(x)/R(x) \subseteq X\}$ where $R(x)$ denotes the equivalence class determined by X.
2. The upper approximation of X with respect to R is the set of all objects which can be possibly defined as X with respect to R and it is denoted by $U_R(X)$. That is $U_R(X) = \bigcup_{x \in U}\{R(x)/R(x) \cap X \neq \phi\}$
3. The boundary region of X with respect to R is the set of all objects which can be classified neither as X nor as not X with respect to R and is denoted by $B_R(X)$. That is $B_R(X) = U_R(X) - L_R(X)$.

Proposition 2.2:[4] If (U, R) is an approximation space and $X, Y \subseteq U$, then

1. $L_R(X) \subseteq X \subseteq U_R(X)$
2. $L_R(\phi) = U_R(\phi) = \phi$ and $L_R(U) = U_R(U) = U$
3. $U_R(X \cup Y) = U_R(X) \cup U_R(Y)$
4. $U_R(X \cap Y) \subseteq U_R(X) \cap U_R(Y)$
5. $L_R(X \cup Y) \supseteq L_R(X) \cup L_R(Y)$
6. $L_R(X \cap Y) = L_R(X) \cap L_R(Y)$
7. $L_R(X) \subseteq L_R(Y)$ and $U_R(X) \subseteq U_R(Y)$ whenever $X \subseteq Y$

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RESEARCH ARTICLE

Screening and Evaluation of Biodegradability of Polythene by Soil Bacteria

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ABSTRACT

Increase in plastics has resulted in the degradation of environment and other life forms because of its non-degradable property and persistent presence in the soil. The rise in plastics may lead to various changes in the regulation and recycling of waste resources. In order to avoid such problems, plastics are now degraded biologically with the help of microbes. The present study deals with the isolation of such potent bacteria, isolated from various soils that are capable of degrading plastics. Five different strains of bacteria such as ***Streptococcus, Staphylococcus, Clostridium, Proteus*** and ***Pseudomonas*** species were isolated from various soil sources and identified based on their morphological characters and biochemical test results. The biodegradability of 10 micron plastics by these bacterial strains were determined for 15 days and it was found that ***Pseudomonas sp.*** was able to reduce the plastics by 70% whereas ***Clostridium sp***. did not degrade the plastics. Biodegradation of plastics by bacteria can be made most efficient by altering the factors that govern the process. It promises a reduction in plastic pollution in the future. Hence it is recommended to perform the enzymatic test of plastic samples, and production of isolated enzyme in large scale for degradation of plastic material.

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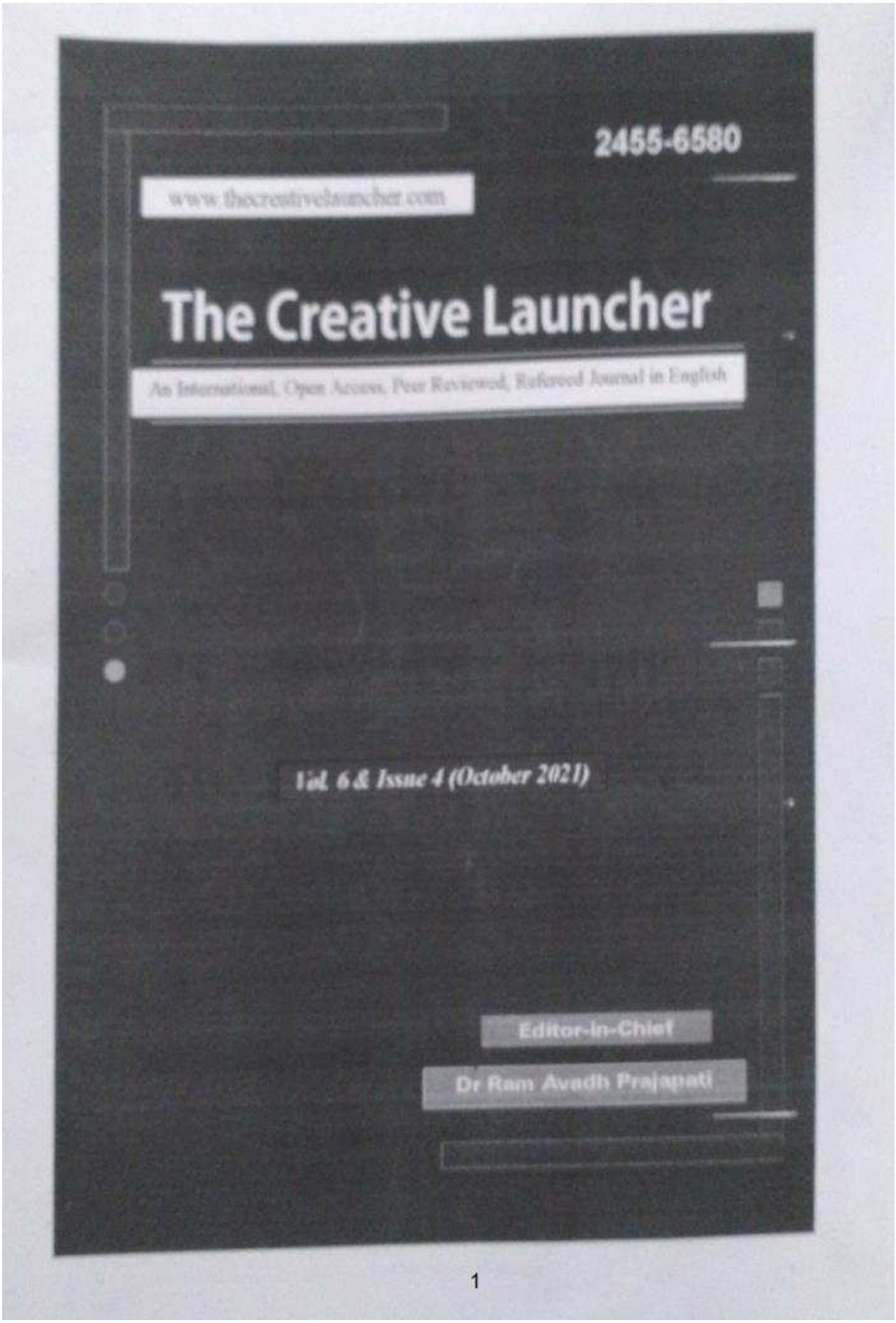
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A Discussion of Acoustical Parameters in Binary Mixtures at different Temperatures: An Ultrasonic Study

Padmavathi P[1*], Irudaya Sahaya Lancy A[1], Krishna Kumar Pandey[2], Mathana Gopal A[1], Moses Ezhil Raj A[3], Poongodi J[4]

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ABSTRACT

In this analysis, the ultrasonic velocity, density and viscosity of DMSO were measured at different temperatures of 308K, 313K, 318K, 323K, 328K and 333K with butanol. Acoustical parameters such asacoustic impedance (Z), adiabatic compressibility (β_a), Intermolecular freelength (L_f), relaxation time (τ), internal pressure (π_i) have been determined from these. The variety of derived parameters was used to analyze the form and scope of interactions between the binary molecules.

Keywords : Ultrasonic velocity, DMSO, Alcohol, Acoustical parameters, free length, adiabatic compressibility

I. INTRODUCTION

In understanding the nature of the molecular interaction between them, thermodynamic and acoustical research on binary/ternary liquid mixtures play a vital role [1,2]. Ultrasonic studies are commonly used in the food industry, the pharmaceutical sector and the automotive industry [3-5]. Ultrasonic techniques have clarified the essence of the bonding, the frequency of the interactions, the properties and the composition of the binary and ternary liquid mixtures.

Butanol is used to raise octane and oxygenate as a solvent, ethanol denaturant, paint remover component and gasoline. To minimize pain and accelerate the healing of wounds, burns, and muscle and skeletal injuries, DMSO is used topically. To treat painful conditions such as headache, inflammation, osteoarthritis, rheumatoid arthritis and extreme facial pain called tic douloureux, DMSO is often used topically. The present study records the acoustical parameters of the DMSO binary system with butanol at different temperatures.

II. Materials and Methods

AR graded samples of DMSO and butanol were purchased from chempure pvt. Ltd. and used without purification. Ultrasonic interferometer (Model F-81, Mittal Enterprises) is used to measure ultrasonic velocity at 2MHz frequency. The temperature can be varied and maintained constant by

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A Study on Sustainable Development of Entrepreneurial Skills

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Associate Professor and Director of Self Supporting Courses

Kamaraj College(Affiliated to Manonmaniam Sundaranar University,Tirunelveli)

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In this study ,the concept of entrepreneurship and the importance of skill development is analysed.The goal was to identify the skills required and the strategies to be adopted by the company ,products/services, corporate image and management systems. Implementing ideas is not an easy process but involves a crucial role to define a business idea and implement it successfully. It studies the new sources of innovation, factors to reduce the risk, use creativity tools, learn from the market which are the basic requirements for an entrepreneur.

Introduction

Sustainable development means adopting business strategies and activities that meet the needs of the enterprise and its stakeholders.

A successful entrepreneur has to learn a lot of skill to run his business successfully. One such important skill is the act of decision-making. An entrepreneur has various new managerial functions and techniques which helps to manage the capabilities in an economy.

Impact of Customer Satisfaction and Brand trust on Brand Loyalty:

A brief study on the growth of Cosmetic Industry

P.Maria Sahaya Rossiyana,M.Com,M.Phil,NET

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Abstract: This study finds out the impact of customer satisfaction and brand trust on Brand Loyalty in the cosmetic industry. The study found out that there is a significant impact of customer satisfaction and Brand Trust on Brand Loyalty. That means that if the customer is satisfied and he trusts the brand there are more chances that he will be loyal to the brand. Customer satisfaction is important because it provides marketers and business owners with a metric that they can use to manage and improve their businesses and hence enhance Brand Loyalty. The study also includes the growth of cosmetic industry during pandemic and its future development.

Keywords: Brand loyalty; Brand Trust; Customer Satisfaction; cosmetic growth

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12 பகு
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22 பகு Pa

A STUDY OF WOMEN EMPLOYMENT IN PRIVATE SECTOR BANKS IN TIRUNELVELI DISTRICT

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And

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ABSTRACT

In any economy, the banking sector is critical to agriculture, small businesses, and various industries. This paper examines the work satisfaction of female bank employees in Tamilnadu's Tirunelveli District. The critical goals of the research areas are listed below.

1. *To study the socio-economic status of women private bank employees.*
2. *To examine the employment status of women in private sector banks.*
3. *To understand the reasons for joining the banking sector*
4. *To find the occupational stress and health problems faced by women employees*
5. *To examine job satisfaction of women in private sector banks.*

The study is based on primary and secondary sources. The primary data relates to January 2021. The questionnaire was distributed through online Google forms to 150 women private bank employees in lockdown due to Covid 19. Secondary facts have collected from books, journals, newspapers, the internet and bulletins. Percentage, standard deviation, Garret ranking method, multiple regression analysis, chi-square test, and probability analysis used. Hence education, length of service and monthly salary are the predictor variables of job satisfaction in private sector banks. Therefore, this study covers a wide range of independent variables that significantly influence the job satisfaction of female employees working in private banks through an investigation. Besides, the private sector banks must regularly conduct work-life balance and family counselling programmes for their female employees. Also, the private sector banks should encourage discussions with their female employees through social media to understand and meet their work-life balance aspirations and needs.

Keywords: Banking sector, backbone, economic development, job satisfaction, work-life balance.

A STUDY OF WOMEN EMPLOYMENT IN SERVICE SECTOR IN RADHAPURAM TALUK OF TIRUNELVELI DISTRICT

T.MIRUNA DEVI
PhD. Research Scholar in Economics, Sarah Tucker College (Autonomous), Tirunelveli
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Thoothukudi

ABSTRACT

Participation of women in economic activity in India is widespread from times immemorial. Women constitute almost half of any country's human endowment. They play a vital role in social growth. An employed woman, plays a dual role, that of a housewife, a financial contributor to the family, many a time, the sole earner. The present study is empirically focusing on the factors governing the employment pattern of women labour, their status and satisfaction, their motivational forces and the socio-economic conditions of the women labour in the service sector in Radhapuram Taluk of Tirunelveli district.

A sample of 140 working women is chosen for the study by adopting a simple random sampling method. Out of these 140 working women, 12 types of women working in the service sector such as teacher, doctor, nurse, telecommunication, housekeeping, bank staff, hotel and restaurant, travel agent, salesgirls, beauty parlour, tailoring and xerox and DTP have been taken for the study. For analysing the primary data and the secondary data, mean, standard deviation, 't' test, chi-square test, and Garrett's ranking statistical tools have used. The meaning of 't' was measured to determine the significant difference in women's satisfaction in the service sector based on family. The estimated value of 't' was found to be 0.5184, lower than the table value of 1.97, which is essential at the level of 0.05. The null hypothesis is thus acknowledged, and it is assumed that there is no substantial difference in the satisfaction of women in the service sector and the form of family.

Keywords: economic growth, economic necessity, human resources, motivational forces, entrepreneurship.

TREND AND GROWTH STATUS OF MICROFINANCE IN INDIA - A REVIEW

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And

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Assistant Professor of Economics, Ambai Arts College, Ambasamudram, Tirunelveli District Affiliated to Manonmaniam Sundaranar University, Abishekapatti, Tirunelveli – 627012, Tamil Nadu, India.

Abstract:

Every continent and country have recognised and adopted Micro Finance as an anti-poverty programme. As the Micro Finance movement spreads around the world, more and more groups are offering loans to the needy. Introducing self-employment generation schemes that assist people earn money and become more efficient at earning their own living through microfinance programmes allows small loans to be made to the lowest of the poor. In addition to lending, microfinance programmes offer services such as training and development. Using Self Help Groups (SHGs) and Joint Liability Group (JLG) with banks, Micro Finance is a cost-effective and complementary method of rural credit disbursement that promotes the quick and timely availability of institutional credit in an economical and effective manner and in small funds without an excessive legal and procedural framework. Progress in MFI outreach and extension in India has been impressive. Microfinance and MFI outreach in India are examined in this research in light of this setting. It is found that the trend coefficient was found to be statistically significant for MFI loan disbursed by India. It includes an average MFI Loan Disbursed and MFI disbursed amount increased by 18.51 percent and by 13.92 percent respectively per annum during the study period. Thus, the growth rates are 13.97 percent and 10.85 percent for MFI Loan Disbursed and MFI Disbursed Amount, respectively. In the case of in Bank Loan Disbursed to SHGs, the trend coefficient was found to be statistically significant. It indicates, on average, the quantity in the Bank Loan Disbursed to SHGs that had increased by 6.82 percent annum over the study period. The growth rate is found to be 6.38 percent for India Bank Loan Disbursed to SHGs. R^2 indicates a variation explained by the time variable nearly from 61 percent to 79 percent on the dependent variable. The Indian government and the Reserve Bank of India must take the necessary steps to

Supply and Demand Trends of World Gold Reserves

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D. Amutha
St. Mary's College, Tuticorin

Muthu Maha Laxmi
St. Mary's College (Autonomous)

Date Written: September 8, 2023

Abstract

Gold is a deliberate metal whose monetary history has been important across the globe. In this case, the gold-exchange system served as a means of limiting inflation and providing currency stability. India and China have emerged as huge and crucial markets, and as a result, the global market for gold has undergone a fundamental and profound change. This paper provides insight into the growth and demand and supply of gold worldwide.

The study's main objectives are:

1. To discover how much official gold World government possesses
2. An endeavour to understand the demand and supply of gold by studying the global market
3. The aim of this study is to explore the evolution of Indian jewellery production.
4. To study the growth and behaviour of global gold reserves and the growth and behaviour of global gold demand and supply.

This is an empirical study. Co-efficient of variation, percentage method, linear trend, and compound growth rate are statistical tools that are used. Secondary data collected from books, newspapers, journals, the Internet, and recordings is all considered secondary. Because it was found that the two trend coefficients were statistically significant at the 5% level, it has been assumed that the trend in the two components is upward. The annual growth rate of the world gold reserves, global demand, and global supply of gold is 0.83% and 8.42%, respectively. Growth in global demand and supply of gold was found to be greater than in the world's gold reserves. In terms of the compound growth rates, world gold reserves are increasing at 0.84% per year, while global demand and supply of gold are both increasing at 8.91% per year. It is important to concentrate on the question of whether gold is a significant asset in India in terms of ongoing research.

Keywords: gold jewels, gold-exchange system, global demand and supply, domestic market, economic uncertainties

JEL Classification: all

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10 Pages • Posted: 12 Oct 2021

D. Amutha
Ratnavel Subramaniam College of Education for Women

Muthu Maha Laxmi
St. Mary's College (Autonomous)

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Abstract

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IMPACT OF LOANS ISSUED AND THE RECOVERY OF LOANS BY COMMERCIAL BANKS IN THE POST REFORM PERIOD

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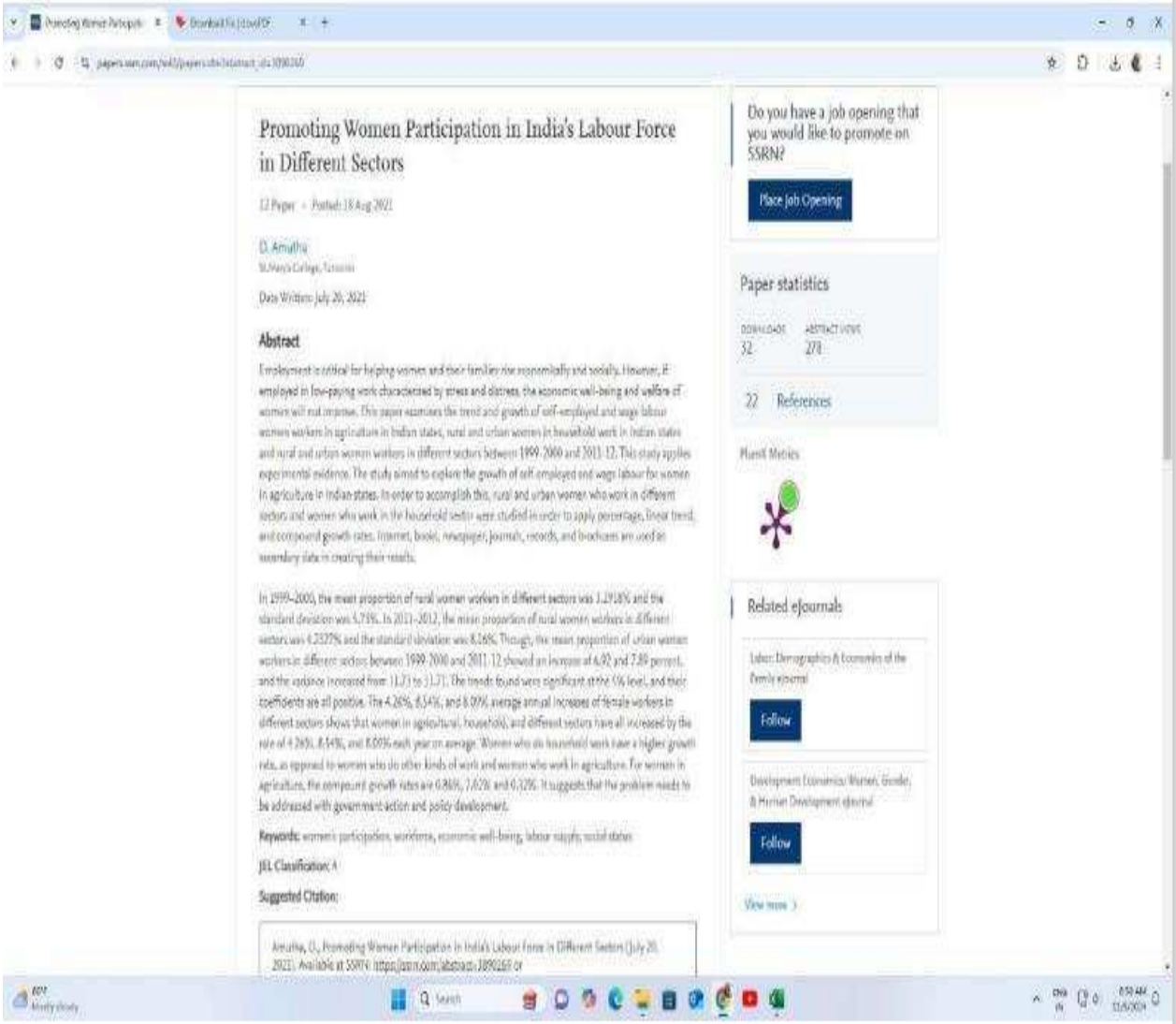
Abstract

The economy's backbone is its banking system. Economic development is strongly aided by a well-developed financial system, which leads to higher national income and living standards. The presence of integrated, established, and regulated financial markets and institutions that cater to the financial needs of both the household and corporate and government sectors characterises an organised financial system. The study's goal is to determine the effects of banking reforms in India by looking at lending and reinstatement of commercial bank loans over the post-reform era, which spans 1990-91 to 2019-20.

The study draws on secondary data from a variety of sources, including annual reports from various banks, the RBI newsletter, various Indian banking reports, Indian Bank Association publications, the Indian Banking Institute, the National Bank Management Institute, and various journals in related fields. Mean, Standard Deviation, CAGR, correlation co-efficient, and co-efficient of variations are all percentage techniques that have been used.

According to the study, from 1990-91 to 2019-20, the average amount of loans issued was Rs. 3121.18, whereas the average amount of loans recovered in the post-reform period was Rs. 13754.34. However, between 1990 and 2019, the total amount of loans issued and loans recovered grew at a positive CAGR of 2.47 percent and 5.51 percent, respectively, with a high CV of 16.80 percent and 1.28 percent and a high CV of 16.80 percent and 1.28 percent. Between issued loans and loan recovery, the post-reform period has a 0.914 correlation coefficient. The association between loans that have been issued and those that have been recovered is undeniably beneficial. This demonstrates that, following the reform, a greater rate of loan issuance led to a higher rate of debt collection from loan beneficiaries. The bank's loan recovery performance has thus been rated satisfactory in the post-reform period.

Keywords: financial system, economic development, economic reforms, technical efficiency, correlation coefficient.



Promoting Women Participation in India's Labour Force in Different Sectors

12 Pages • Posted: 18 Aug 2021

D. Amutha
St.Mary's College, Tuticorin

Date Written: July 20, 2021

Abstract

Employment is critical for helping women and their families rise economically and socially. However, if employed in low-paying work characterized by stress and distress, the economic well-being and welfare of women will not improve. This paper examines the trend and growth of self-employed and wage labour women workers in agriculture in Indian states, rural and urban women in household work in Indian states and rural and urban women workers in different sectors between 1999-2000 and 2011-12. This study applies experimental evidence. The study aimed to explore the growth of self-employed and wage labour for women in agriculture in Indian states. In order to accomplish this, rural and urban women who work in different sectors and women who work in the household sector were studied in order to apply percentage, linear trend, and compound growth rates. Internet, books, newspaper, journals, records, and brochures are used as secondary data in creating their results.

In 1999–2000, the mean proportion of rural women workers in different sectors was 1.29185% and the standard deviation was 5.79%. In 2011–2012, the mean proportion of rural women workers in different sectors was 4.2327% and the standard deviation was 8.268%. Though, the mean proportion of urban women workers in different sectors between 1999-2000 and 2011-12 showed an increase of 6.92 and 7.89 percent, and the variance increased from 11.71 to 13.71. The trends found were significant at the 1% level, and their coefficients are all positive. The 4.26%, 8.54%, and 8.09% average annual increases of female workers in different sectors shows that women in agricultural, household, and different sectors have all increased by the rate of 4.26%, 8.54%, and 8.09% each year on average. Women who do household work have a higher growth rate, as opposed to women who do other kinds of work and women who work in agriculture. For women in agriculture, the compound growth rates are 0.86%, 7.62% and 6.12%. It suggests that the problem needs to be addressed with government action and policy development.

Keywords: women participation, workforce, economic well-being, labour supply, social status

JEL Classification: A

Suggested Citation:

Amutha, D., Promoting Women Participation in India's Labour Force in Different Sectors (July 20, 2021). Available at SSRN: https://ssrn.com/abstract=3890269 or

Impact of COVID-19 on Various Sectors of the Economy

8 Pages • Posted: 20 Apr 2021

D. Amutha
St. Xavier's College, Tuticorin

Date Written: April 17, 2021

Abstract

COVID-19 has wreaked havoc on the economy in a variety of ways. The effect of the world corporation on various aspects of the Indian economy and the economies of South Asian countries is investigated in this research paper. This study's main goals are as follows:

1. To understand impact of COVID-19 on overall Indian Economy and South Asian countries. 2. To know Impact of COVID-19 on different sectors and 3. To find out the GDP growth rate of the economy. India's economy is the world's fifth biggest, with a gross domestic product (GDP) of $2.94 trillion, surpassing the United Kingdom and France to take fifth place in 2019. India's GDP is also $10.51 trillion in purchasing power parity (PPP), surpassing Japan and Germany and placing India as the world's third largest contributor to GDP. According to data released by the International Monetary Fund, India's GDP growth premium over emerging economies (EMs) is expected to drop to a seven-year low of 5.1 percent in the current fiscal year 2019-20, owing to poor investment, credit problems, currency volatility, slower demand growth, and increasing inflation (IMF). The study depicts the actual GDP growth rate when taking into account market inflated final goods and services rates. According to the ADB's COVID-19 pandemic outlook, inflation in the sub-region will be moderate, averaging 4.1 percent in 2020, as food inflation in India eases due to improved agriculture. Because of this minor inflationary rate in South Asia, the pandemic would cause the real GDP growth rate in all countries to slow down. With subsidies and price caps on basic goods, the Maldives remarkably low inflation will remain the same, despite an expected deterioration in the recommended recruitments. Pakistan, on the other hand, would experience double-digit inflation due to rising food prices. Annual inflation in South Asian countries increased significantly from 3.3 percent in 2019 to 2.4 percent in 2020, with real GDP rising by 6.6 percent. According to Central Statistics, India's nominal GDP reached 728.6 USD billion in December 2019, and its GDP deflator (implicit price deflator) increased by 2.9 percent. In March 2019, India's GDP per capita was 2,044.6 USD. Steps taken to halt its spread, such as state lockdowns, halted economic activity and could have a significant effect on both consumption and investment.

Keywords: Indian Economy, Economic Impact, COVID-19, credit issues, currency fluctuations

JEL Classification: A2

Suggested Citation:

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PROBLEMS AND PROSPECTS OF INDIAN TEXTILE INDUSTRY

8 Pages • Posted: 18 Nov 2021

D. Amutha
St. Mary's College, Tuticorin

Date Written: November 10, 2021

Abstract

The textile sector in India is extremely fragmented and labour-intense. Small and medium-sized businesses (SMEs) and the unorganised sector dominate the textile industry. Another area of worry is the lack of foreign investment in the textile industry. There are no favourable government policies or tax structures for this industry. Since the textile business is so fiercely competitive, companies must constantly compare their products to those of the world's best and strive to improve both their quality and their production methods. To learn more about the Indian textile sector, the researcher wrote this study. There are opportunities and problems discussed in this article. At one end of the spectrum, the Indian Textile Industry provides a wide range of Biological functions, including hand-spun yarns and hand-woven textiles. Hosiery, knitting, and dispersed power looms make up the majority of the Textiles Industry. The Indian textile business is distinct from other textile industries because of its close ties to agriculture and the country's long-standing traditions and ancient culture. Direct and indirect job creation and net foreign exchange profits have made the textile industry a significant contribution to the economy of the United States over the years. Manufacturing accounts for about 14 percent of industrial output, 4 percent of GDP, and 13 percent of export earnings. In India, it is the largest employer, providing work for approximately 45 million people. Agriculture is the primary source of work, while the textile industry is the second-largest source of employment. As a result, the growth and development of India's textile sector has provided much-needed stimulus for the country's economy. In addition to its contribution to the national economy, the handloom industry in India ensures the economic development of rural areas. Weaving is one of the country's most important economic activity, employing more than 65 lakhs people directly, of whom more than 40 percent are women and the bulk of them are low-caste and severely impoverished. It makes up 19% of all the textile made in the country.

Keywords: Indian textile industry, national economy, economic prosperity, industrial output, employment generation

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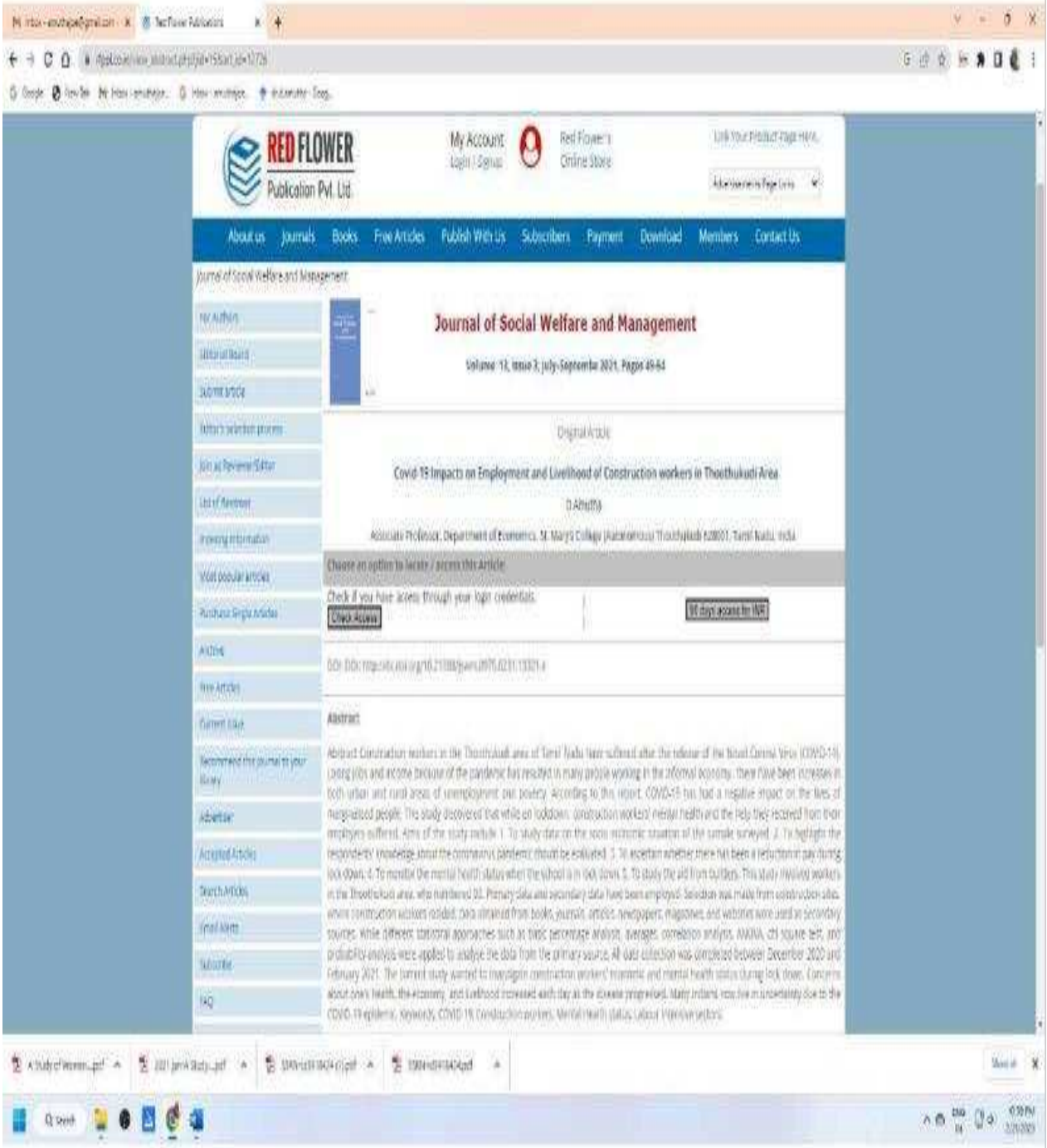
Amutha, D., PROBLEMS AND PROSPECTS OF INDIAN TEXTILE INDUSTRY (November 10, 2021). Available at SSRN: https://ssrn.com/abstract=3960734 or http://dx.doi.org/10.2139/ssrn.3960734



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Original Article

Covid 19 Impacts on Employment and Livelihood of Construction workers in Thoothukudi Area

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DOI: DOI: https://doi.org/10.21088/jswm.0976.0233.13321.4

Abstract

Abstract Construction workers in the Thoothukudi area of Tamil Nadu have suffered after the release of the Novel Corona Virus (COVID-19). Losing jobs and income because of the pandemic has resulted in many people working in the informal economy, there have been increases in both urban and rural areas of unemployment and poverty. According to this report, COVID-19 has had a negative impact on the lives of marginalized people. The study discovered that while on lockdown, construction workers' mental health and the help they received from their employers suffered. Aims of the study include: 1. To study data on the socio economic situation of the people surveyed. 2. To highlight the respondents' knowledge about the coronavirus pandemic should be evaluated. 3. To ascertain whether there has been a reduction in pay during lock down. 4. To monitor the mental health status when the school is in lock down. 5. To study the aid from outdoors. This study involved workers in the Thoothukudi area, who numbered 50. Primary data and secondary data have been employed. Sandban was made from construction sites where construction workers resided. Data obtained from books, journals, articles, newspapers, magazines, and websites were used as secondary sources. While different statistical approaches such as basic percentage analysis, averages, correlation analysis, ANOVA, chi square test, and probability analysis were applied to analyse the data from the primary source. All data collection was completed between December 2020 and February 2021. The current study wanted to investigate construction workers' economic and mental health status during lock down. Concerns about one's health, the economy, and livelihood increased each day as the disease progressed. Many Indians, now live in vulnerability due to the COVID-19 epidemic. Keywords: COVID-19, Construction workers, Mental Health status, Labour Intensive sectors.

Review Article

Journal of Social Welfare and Management
Volume 13 Number 4, October-December 2021
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Covid 19 Outbreak: Effect on Societyin India

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Abstract

Indian business has been taken by surprise by the appearance of Covid-19. When Covid-19 hit the market, the economy was already in a chaotic position. It is possible to limit a highly contagious disease with legislative acts such as social exclusion, house confinement and even the lockout of a whole country. As a part of the study, researchers will examine the impact of COVID-19 on India's health status and describe the level of satisfaction with government corrective measures for COVID-19. Sixty one percent of respondents are concerned about their mental health, seventy-nine percent are unsure of the future, 91.23 percent are concerned about the future of their family and children, 68.42 percent are concerned about their health, and 61.40 percent are fatigued, according to the research. However, 25 persons claimed they were not hungry. 90% of the respondents thought that lock down could limit the spread of the epidemic, while just 10% were unsure. At 84.21%, respondents are satisfied with local/district/state authorities' efforts to contain this epidemic; at 15.79% they are dissatisfied. Out of 57 people who took part in the survey, In the wake of the COVID19 epidemic, our country faces a number of social and economic challenges. In terms of social and economic life, the lockdown and COVID19 attacks have been devastating. Human psychology and social behaviour have been altered by this global pandemic, according to studies. COVID-19's economic and psychological impact on India was also examined in this study. Much of India's population suffered psychological effects as a result of the crisis, according to a recent survey. They wear masks and wash their hands frequently to avoid the spread of the sickness. If we follow all of the Indian government's COVID19 instructions, we will be able to stop this deadly pandemic.

Keywords: Covid-19; Social distance; Home isolation; Lock down; Mental health.

Introduction

Since Coronavirus emerged at the end of 2019, it has gone beyond national borders. It is being distributed to mobile and interdependent populations all over the world. The SARS-CoV-2 coronavirus socio-economic impact mentioned in middle and low-income countries is officially known as COVID-19 (Shretta, R., 2020). The nation of India shut down for eleven weeks due to fears of a bioterrorist attack. During that time, robust public health measures were implemented.

Socio economic fallout from the pandemic poses a

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ON SOFT CONTRA $g^*\beta$-CONTINUOUS FUNCTIONS IN SOFT TOPOLOGICAL SPACES

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Abstract: We introduce a new class of soft contra generalized star beta continuous function (contra $g^*\beta^s$-conts function) in soft topological spaces. Also we present almost contra $g^*\beta^s$-continuous functions and we derive some basic properties.

Keywords and Phrases: Contra $g^*\beta^s$-continuous, almost contra $g^*\beta^s$-continuous, contra $g^*\beta^s$-irresolute.

2020 Mathematics Subject Classification: 54A40, 54C05, 54C10, 54C08.

1. Introduction

Initially the concept of generalized closed sets were introduced by Levine [3] in topological spaces in 1970. Molodtsov [4] pioneered the study of soft set theory as a new mathematical tool and confronted the fundamental results of the soft sets in 1996. Soft topological spaces(STS) are defined over an initial universe with a fixed set of parameters and was introduced by Munazza Naz & Muhammad Shabir [5]. The authors [6, 7] introduced the concept of generalized star β-closed sets in TS and soft $g^*\beta$-closed sets in STS. In this paper we introduced the new concept of contra $g^*\beta^s$-continuous function and contra $g^*\beta^s$-irresolute functions and we have discussed some properties. Also we present almost contra $g^*\beta^s$-continuous functions

A New Set of Soft Generalized*β −Locally Closed Sets in Soft Topological Spaces

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Abstract : We present a new set of soft generalized* β −locally closed set ($here\ after\ mentioned\ as, g^*\beta^s - lc$), $soft\ g^*\beta - lc^*$set ($here\ after\ mentioned\ as, g^*\beta^s - lc^*$), $soft\ g^*\beta - lc^{**}$ ($here\ after\ mentioned\ as, g^*\beta^s - lc^{**}$) sets in STS. Further to the above, the relation between the other notions connected with the forms of $soft - lc$ sets and some properties are studied.

Keyword:$g^*\beta^s$ −closed set, $g^*\beta^s - lc$ set, $g^*\beta^s - lc^*$set,$g^*\beta^s - lc^{**}$set.

AMS Subject Classification (2010): 54A40,54C05,54C08

1. Introduction

Initially the concept of generalized closed sets were introduced by Levine [3] in topological spaces in 1970. Molodtsov [4] pioneered the study of soft set theory as a new mathematical tool and confronted the fundamental results of the soft sets in 1996. Soft set theory has become an important application and it has become a significant tool for dealing with uncertainties integral with the problems in many scientific fields. Soft topological spaces(STS) are defined over an initial universe with a fixed set of parameters and was introduced by MunazzaNaz& Muhammad Shabir [5]. Also in 2015 Kannan [2] introduced soft generalized-locally closed sets in STS. The authors [6,7] introduced the concept of generalized star β-closed sets in TS and soft $g^*\beta$-closed sets in STS.We define $g^*\beta^s - lc$ set, $g^*\beta^s - lc^*$set, $g^*\beta^s - lc^{**}$sets in STS. Also we have introduced the new concept of $g^*\beta^s lc - continuous\ and\ g^*\beta^s lc - irresolute$ functions and we have discussed some properties. The straightforward proof of the theorems is omitted. For the concepts of STS we refer [1,2,6,7,9].

2. Soft $g^*\beta$ −Locally Closed sets

Definition: 2.1 A soft subset $(\mathcal{F}, E)$ of a STS $(\mathcal{U}, \tau, E)$is said to be a soft-$g^*\beta$ −locally closed set (here after called as,$g^*\beta^s - lc$ set) if $(\mathcal{F}, E) = (Q, E) \cap (S, E)$ where (Q, E) is $g^*\beta^s$ −open (briefly,$g^*\beta^s O$) and (S, E) is $g^*\beta^s$ −closed set (briefly,$g^*\beta^s C$).
It is denoted by $g^*\beta^s - lc(\mathcal{U}, \tau, E)$.

Definition: 2.2 A soft subset $(\mathcal{F}, E)$ of a STS $(\mathcal{U}, \tau, E)$is said to be a $g^*\beta^s - lc^*$set if there exists a $g^*\beta^s O$ set (Q, E) and soft closed (briefly,C^s) set(S, E) of $\mathcal{U}$ such that $(\mathcal{F}, E) = (Q, E) \cap (S, E)$.
It is denoted by $g^*\beta^s - lc^*(\mathcal{U}, \tau, E)$.

Symmetric bi-interior ideals of Symmetric Semigroups

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Abstract: In this paper, as a further generalization of ideals, we introduce the notion of symmetric bi- interior ideal as a generalization of symmetric quasi ideal, symmetric bi-ideal and symmetric interior ideal of symmetric semigroup and study the properties of symmetric bi-interior ideals of symmetric semigroup and simple symmetric semigroup.

Keywords: symmetric quasi ideal(SQ-ideal), symmetric bi-ideal(Sbi-ideal), symmetric interior ideal(Si-ideal), symmetric bi-interior ideal(Sbii-ideal), symmetric bi-quasi ideal(SbiQ-ideal), bi-interior symmetric semigroup.

1.Introduction

In [3],[6] introduced the concepts of bi-ideals in semigroups. The notion of Quasi-ideals was introduced by [14]for rings and semigroups.

2.Preliminaries

Definition 2.1

Let S be a SSG of (S_3, o).A non empty subset A of S is said to be symmetric left ideal of S if $S \times^{\circ} A \supseteq A$ and A is said to be symmetric right ideal of S if $A \times^{\circ} S \supseteq A$. Similarly S in $(S_3, +^o)$, symmetric left ideal of S if $S \times^{+o} A \supseteq A$ and A is said to be symmetric right ideal of S if $A \times^{+o} S \supseteq A$. If A is both left and right ideal then it is called an symmetric two sided ideal of S.

Definition 2.2 Simple Symmetric Semigroup:

A symmetric semigroup S is said to be simple symmetric semigroup if S has no proper ideals.

Definition 2.3 symmetric bi-ideal (Sbi-ideal)

A subsemigroup S_1 of a SSG S in (S_3, o) is called a symmetric bi-ideal of S if $S_1 \cap (S \times^{\circ} S_1) = S_1$ Similarly S in $(S_3, +^o)$, if $S_1 \cap (S \times^{+o} S_1) = S_1$.

Definition 2.4 Symmetric Quasi –ideals (SQ-ideals)

Let S be a SSG of (S_3, o).A non empty subset Q of S is said to be Symmetric Quasi –ideals of S if $(S \times^{\circ} Q) \cap (Q \times^{\circ} S) = S$. Similarly S in $(S_3, +^o)$, $(S \times^{+o} Q) \cap (Q \times^{+o} S) \subseteq S$.

3.Main Results:

Definition 3.1 symmetric interior-ideal (Si-ideal)

A subsemigroup S_1 of a SSG S in (S_3, o) is called a symmetric interior-ideal of S if $(S_1 \times^{\circ} S) \cap S = S$. Similarly S in $(S_3, +^o)$, if $(S_1 \times^{+o} S) \cap S \subseteq S$.

Example 3.2

Let the elements of $S_3 = \{e, p_1, p_2, p_3, p_4, p_5\}$. The elements of SSG, $S = \{e, p_1, p_2, p_3\}$ The elements of SSSG ,$S_1 = \{e, p_1, p_2\}$. $S_1 \times^{+o} S = \{e, p_1, p_2\} \times^{+o} \{e, p_1, p_2, p_3\} = \{e, p_1, p_2, p_3\}$, $(S_1 \times^{+o} S) \cap S = \{e, p_1, p_2, p_3\} \cap \{e, p_1, p_2, p_3\} = S$

Symmetric Prime and Symmetric Semiprime Ideals in Symmetric Semirgroups

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Abstract: In this note we introduce the notion of Symmetric Prime and Symmetric Semiprime ideals in Symmetric Semiroups and we define completely symmetric prime and completely symmetric semiprime ideals also we derive some results based on the above concepts.
Keywords: Symmetric semigroup (SSG)-Ideals, SPr- Ideals, SSPr- Ideals, Product Compo of SSG, CSPr –Ideals, CSSPr-Ideals, C-System, PCC-System, Symmetric Complement Group.

1. Introduction

Prime Ideals play very important role in semigroups and are rooted from prime numbers of the integers.Especially ,it is cornerstone on commutative rings and topological semigroups.In [7],[8],[9] introduced the concept of Symmetric Semirings and Symmetric Semigroups, and symmetric semigroup ideals.Here, we introduce the notion of Symmetric Prime and Symmetric Semiprime ideals in Symmetric Semiroups and we define completely symmetric prime and completely symmetric semiprime ideals also we derive some results based on the above concepts.

2.Preliminaries

We define a new operation in composition mapping on S_3, that is called as plus circle compo, its satisfying the conditions in [8].

Definition 2.1 *(S_3,o)* Symmetric Semigroup

A non empty set S in S_3 together with a binary operation 'o' is called (S_3,o) symmetric Semigroup if 'o' is associative in (S_3,o) that is $eo(p_1op_2) = (eop_1)op_2$ *for some* $e,p_1,p_2 \in (S_3,o)$.
Similarly$(S_3, +^o)$ Symmetric semigroup also satisfies $e+^0(p_1+^0p_2) = (e+^0p_1)+^0p_2$ *for some* $e,p_1,p_2 \in (S_3,+^0)$.

3.Main Results

Definition 3.1 *(S_3,o)& $(S_3, +^o)$ –Commutative SSG*
If $p_1 o p_2 = p_2 op_1$,& if $p_1 +^o p_2 = p_2 +^o p_1$,we say that p_1 and $p_2$commute with each other ; if $p_1 o p_2 = p_2 op_1$ & if $p_1 +^o p_2 = p_2 +^o p_1$ for all elements $p_1, p_2 \in S$,we call S is commutative SSG.

Example 3.2

(i) Let S be a SSG of $(S_3, +^o)$. The elements of $S = \{e, p_1, p_2\}$. Then we have

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RESEARCH ARTICLE

Equitable Detour Global Domination Number of a Graph

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ABSTRACT

In this paper, we introduce a new domination parameter, called equitable detour global domination number of a graph. A subset D of V(G) is a detour global dominating set if for every vertex of G is contained in a longest path between any pair of vertices in D and global dominating set. The minimum number of vertices taken over all detour global dominating sets of G is called the detour global domination number of G and is denoted by $\gamma_{dng}(G)$. A detour global dominating set of cardinality $\gamma_{dng}(G)$ is called a γ_{dng}- set of G.A detour global dominating set D of $V(G)$ is called an equitable detour global dominating set if for every vertex $a \in V$ not in D, there exists a vertex $b \in D$ such that ab is an edge of Gand $|deg(a) - deg(b)| \leq 1$. The minimum number of vertices taken over all equitable detour global dominating sets of G is called the equitable detour global domination number of G and is denoted by $\gamma^e_{dng}(G)$. We determine γ^e_{dng} for some standard class of graphs and characterize the detour global domination and equitable detour global domination parameters are equal.

Keywords: Detour set, detour global dominating set. equitable detour global dominating set Mathematical subject classification 05C12, 05C70.

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RESEARCH ARTICLE

A New Approaches About Contra $g^*\beta$ –Continuous Functions in Topological Spaces

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ABSTRACT

Initially the concept of $g^*\beta$-closed sets were introduced by Punitha Tharani. A and Sujitha.H [8] in topological spaces in 2020. Now, we introduce a new sets Contra generalized star beta continuous function (briefly,$Contrag^*\beta - continuous\ function$) in topological spaces. Also we present almost contra $g^*\beta$-continuous functions and some of its characteristics and several properties are investigated. **Mathematics Subject Classification (2010):** 54A04, 54C08, 54C10.

Keywords: $contra\ g^*\beta - continuous, almost\ contra\ g^*\beta - continuous, contra\ g^*\beta - irresolute.$

INTRODUCTION

The notion of contra and almost contra was introduced by Dontchev [5] in 1996. Along with him Noiri [6] introduced a new weaker form of functions called contra semi continuous function. Contra pre-continuous functions was introduced by Noiri [7]. In 2004 almost contra pre-continuous function was introduced by Ekici.E [4]. Following this, numerous author presented numerous kinds of new generalizations of contra-continuity, contra semi-continuity,

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RESEARCH ARTICLE

Equitable Detour Global Domination Number of Some Special Graphs

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ABSTRACT

A subset D of V(G) is a detour global dominating set if for each vertex of G is contained in a longest path between any pair of vertices in D and global dominating set. A detour global dominating set D of V(G) is called an equitable detour global dominating set if for each vertex $a \in V$ not in D, there exists a vertex $b \in D$ such that ab is an edge of G and $|deg(a) - deg(b)| \leq 1$.In this paper, we discuss the detour global domination number and equitable detour global domination number of graphs such as lollipop $L_{n,m}$,Windmill $Wd(n,m)$, Friendship F_n, Jellyfish $J(n,m)$ and subdivision of Jellyfish $S(J(n,m))$.

Mathematical subject classification: 05C12, 05C70

Keywords: Detour global domination number, equitable detour global domination number

INTRODUCTION

By a graph G = (V, E), we consider a finite undirected connected graph without loops or multiple edges. The order and size of G are denoted by n, m respectively. The concept of Detour Global Dominating graphs was introduced in [3]. For underlying definition and results, see references.

Preliminaries

Definitions and Notations 2.1

- A lollipop graph $L_{n,m}$ is the graph obtained by joining K_n to P_m with a bridge.

KEYWORDS: *Symmetric groups,Symmetric subgroups , Composition ,Plus circle compo.*

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I. INTRODUCTION

In mathematics, the symmetric group on a set is the group consisting of all bijections of the set (all one-to-one and onto functions) from the set to itself with function composition as the group operation. The symmetric group is important to diverse areas of mathematics such as Galois theory, invariant theory, the representation theory of Lie groups, and combinatorics. Cayley's theorem states that every group G is isomorphic to a subgroup of the symmetric group on G.

II. PRELIMINARIES

Definition 2.1:

Let A be a finite set containing n elements. The set of all permutations of A is clearly a group under the composition of functions. This group is called the symmetric group of degree n and is denoted by S_n.

Definition 2.2:

Let G be a group, a subset H of G is called a subgroup of G if H itself is a group under the operation induced by G.

Definition 2.3: (Reverse Composition - O_R)

Let us consider a symmetric group S_2. The elements of S_2 are $\{\binom{1\,2}{1\,2},\binom{1\,2}{2\,1}\} = \{e, p_1\}$

The Reverse Composition is defined as in S_2 $e\, O_R\, p_1 - \binom{1\,2}{1\,2}\ O_R \binom{1\,2}{2\,1}$

The composition mapping is $1 \Rightarrow 1 \Rightarrow 2$ here we define the reverse composition mapping as

$1 \to 1 \to 2$ (i e) $2 \to 1$

similarly, $2 \to 2 \to 1$ (i e) $1 \to 2$

$$e\ O_R\ p_1 - \binom{1\,2}{2\,1} = p_1$$

and also $p_1\, O_R\, e = \binom{1\,2}{1\,2}\ O_R\ \binom{1\,2}{2\,1}$

(i e) $1 \to 1 \to 2 \Rightarrow 2 \to 1$

$2 \to 2 \to 1 \Rightarrow 1 \to 2.$

$$p_1\, O_R\, e = \binom{1\,2}{1\,2} = p_1$$

It's clearly O_R is also a binary operation.

Definition 2.4:

We define a new operation in composition mapping on S_3, that is called as plus circle compo,

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V_4-Vertex Magic Labeling for Hypercubes

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Abstract

This article deals with the investigation of V_4-vertex magic labeling on Hypercube, Double edge connected path union of hypercubes, Double edge connected open star of hypercubes and Double edge connected open star of path union of hypercubes.

Keyword: $DEC\ P_mQ_n, DECS(m,Q_n), DEC\ S(m,P_n,Q_n), Q_n$.

AMS subject classification (2010): 05C78

1. Introduction

For a non-trivial abelian group V_4-under multiplication a graph G is said to be V_4- magic graph if there exists a labeling g of the edges of G with non-zero elements of V_4-such that the vertex labeling g^* defined as $g^*(v) = \prod_u g(uv)$ taken over all edges uv incident at v is a constant.

Let V_4={i,-i,1,-1}

This article deals with the investigation of V_4- vertex magic label on Hypercube, Path union of hypercube, Union of Overlapping open star of Hypercube, Overlapping open star of path union of Hypercube.

2. Preliminaries

Definition 2.1: A graph obtained by replacing each vertex of $K_{1,n}$ except the apex vertex by the graph $G_1, G_2, \ldots, G_n$ is known as an Open star of graphs which is denoted by $S(G_1, G_2, \ldots, G_n)$. If we replace each vertex of $K_{1,n}$ except the apex vertex by a graph G.

(i.e) $G_1 = G_2 = \cdots = G_n$

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V_4-Vertex Magic Labeling for Hypercubes

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Abstract

This article deals with the investigation of V_4-vertex magic labeling on Hypercube, Double edge connected path union of hypercubes, Double edge connected open star of hypercubes and Double edge connected open star of path union of hypercubes.

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Let V_4={i,-i,1,-1}

This article deals with the investigation of V_4- vertex magic label on Hypercube, Path union of hypercube, Union of Overlapping open star of Hypercube, Overlapping open star of path union of Hypercube.

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(i.e) $G_1 = G_2 = \cdots = G_n$

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Research Article

Vertex Magic Labeling On V_4 for Cartesian product of two cycles

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Abstract: Let V_4 be an abelian group under multiplication. Let $g: E(G) \to V_4$. Then the vertex magic labeling on V_4 is induced as $g^*: V(G) \to V_4$ such that $g^*(v) = \prod_u g(uv)$ where the product is taken over all edges uv of G incident at v is constant. A graph is said to be V_4 - magic if it admits a vertex magic labeling on V_4. In this paper, we prove that $C_m \times C_n, m \geq 3, n \geq 3$, Generalized fish graph, Double cone graph and four Leaf Clover graph are all V_4 -magic graphs.

Keyword: Vertex magic labeling on V_4, V_4 -magic graph, Four Leaf Clover Graph.

AMS subject classification (2010): 05C78

1. Introduction

For a non-trivial abelian group V_4 under multiplication a graph G is said to be V_4 -magic graph if there exist a labeling g of the edges of G with non-zero elements of V_4 such that the vertex labeling g^* defined as $g^*(v) = \prod_u g(uv)$ taken over all edges uv incident at v is a constant.

Let $V_4 = \{i, -i, 1, -1\}$ we have proved that the Cartesian product of two graphs,Generalized fish graph, Happy graph,Four Leaf Clover Graph are all
V_4 -magic graphs.

2. Basic Definition

Definition: 2.1Cartesian Product of Two graphs

Cartesian product of two graphs G, H is a new graph GH with the vertex set $V \times V$ and two vertices are adjacent in the new graph if and only if either $u = v$and u' is adjacent to v' in H or $u' = v'$ and u is adjacent to v in G.

Definition: 2.2Generalized Fish Graph

The generalized fish graph is defined as the one point union of any even cycle with C_3. It is denoted by $GF(2n, 3)$. It has $2n + 2$ vertices and $2n + 3$ edges.

Theorem: 2.3 Cartesian product of two cycles $C_m \times C_n$ is a V_4-magic graph with $m, n \geq 3$.

Proof:

Let $V(C_m \times C_n) = \{v_j : 1 \leq j \leq m\} \cup \{v_j' : 1 \leq j \leq m\} \cup \{v_j'' : 1 \leq j \leq m\} \cup \{v_j''' : 1 \leq j \leq m\}$

$E(C_m \times C_n) = \{v_j v_{j+1} : 1 \leq j \leq m\} \cup \{v_j' v_{j+1}' : 1 \leq j \leq m\} \cup \{v_j'' v_{j+1}'' : 1 \leq j \leq m\} \cup \{v_j''' v_{j+1}''' : 1 \leq j \leq m\} \cup \{v_j v_j' : 1 \leq j \leq m\} \cup \{v_j' v_j'' : 1 \leq j \leq m\} \cup \{v_j'' v_j''' : 1 \leq j \leq m\} \cup \{v_j''' v_j : 1 \leq j \leq m\}$

$[v_{m+1} = v_1;\ v_{m+1}' = v_1';\ v_{m+1}'' = v_1'';\ v_{m+1}''' = v_1''';\ v_0 = v_m;\ v_0' = v_m';\ v_0'' = v_m'';\ v_0''' = v_m''']$

Case 1: Let $m, n \geq 3$ and both are even.

Let us define $g: E(C_m \times C_n) \to \{i, -i, -1\}$ as

$g(v_j v_{j+1}) = iwhenjisodd\ ;\ 1 \leq j \leq m$

$g(v_j v_{j+1}) = -iwhenjiseven\ ;\ 1 \leq j \leq m$

$g(v_j' v_{j+1}') = iwhenjisodd\ ;\ 1 \leq j \leq m$

$g(v_j' v_{j+1}') = -iwhenjiseven\ ;\ 1 \leq j \leq m$

$g(v_j'' v_{j+1}'') = iwhenjisodd\ ;\ 1 \leq j \leq m$

$g(v_j'' v_{j+1}'') = -iwhenjiseven\ ;\ 1 \leq j \leq m$

Polycyclic Aromatic Compounds

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Molecular Structural Characterization of Cycloparaphenylene and its Variants

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FUZZY s-DOMINATING ENERGY

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Abstract

The energy of a graph is defined as the sum of the absolute values of eigenvalues of its adjacency matrix. The absolute value of the largest eigenvalue is called the spectral radius of the graph. This article introduces s-dominating energy in simple connected crisp graphs and extends the same to connected fuzzy graphs. Also s-dominating energy of a complete fuzzy graph is determined and bounds on fuzzy s-dominating energy are acquired.

1. Introduction

Eigenvalues and Eigen vectors of matrices have huge real life applications. Steiner domination number in crisp graphs has been studied from [7]. Also domination in fuzzy graphs was studied from [2]. The close relation between eigenvalues of dominating matrix and dominating energy are expounded in [3], [4] and [5]. The different types of energies of fuzzy graphs are explicated in [1] and [8]. These studies lead us to introduce Steiner dominating energy (i.e.) s-dominating energy in crisp graphs and is then extended to fuzzy graphs.

2010 Mathematics Subject Classification: 05C72, 05C69, 51E10.

Keywords: fuzzy s-dominating matrix, fuzzy s-dominating eigen values, fuzzy s-dominating spectrum.

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FUZZY s-DOMINATING ENERGY

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Abstract

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Keywords: fuzzy s-dominating matrix, fuzzy s-dominating eigen values, fuzzy s-dominating spectrum.

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The Upper Connected Square Free Detour Number of a Graph

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Abstract
For any two vertices u and v in a connected graph $G = (V, E)$, the u - v path P is called a u - v square free path if no four vertices of P induce a square. The square free detour distance is the length of a longest u - v square free path in G. A u - v path of length is called a u - $v$square free detour. A subset S of V is called a square freedetour set if every vertex of G lies on a u - v square free detour joining a pair of vertices of S. The square free detour of G is the minimum order of its square free detour sets. A square free detour set S of G is called a minimal square free detour set if no proper subset of S is a square free detour set of G. The upper square free detour numberof G is the maximum cardinality of a minimal square free detour set of G. We introduce the upper connected square free detour number and determine the upper connected square free detour number of certain classes of graphs. Further, we investigate the bounds for it and characterize the graphs which realize these bounds. We show that there is no "Intermediate Value Theorem" for minimal connected square free detour sets.

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Keywords: upper square free detour number; minimal square free detour set; minimal connected square free detour set; upper connected square free detour number.

1 Introduction

By a graph$G = (V, E)$, we mean a finite undirected connected simple graph. For basic definitions and terminologies, we refer to Chartrand et al. [6]. The concept of geodetic number was introduced by Harary et al. [1], [7]. For any vertices u and v in a connected graph G, the distance $d(u, v)$ is the length of the shortest $u - v$ path in G. A $u - v$ path of length $d(u, v)$ is called a $u - v$ geodesic. A set $S \subseteq V$ is called geodetic set of G if every vertex of G lies on a geodesic joining a pair of vertices of S. The geodetic number $g(G)$ of G is the minimum order of its geodetic sets and any geodetic set of order $g(G)$ is called a geodetic basis of G. The concept of detour number was introduced by Chartrand et al. [4], [5]. The detour distance$D(u, v)$is the length of the longest $u - v$ path in G.A $u - v$ path of length $D(u, v)$ is called a u − v detour. A set $S \subseteq V$ is called detour set of G if every

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C_4 Free Detour Center

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ABSTRACT

For every connected graph G, the square free detour distance SFD (u, v) is the length of a longest u- v square free path in G, where u, v are the vertices of G. A u-v square free path of length SFD(u, v) is called the u-v square free detour. It is found that the square free detour distance differs from the distance , monophonic distance and detour distance. The square free detour radius is found for some standard graphs. Their bounds are determined and their sharpness is checked. Certain general properties satisfied by them are studied. Existence of graphs is also found.

1991 Mathematics Subject Classification. 05C12.

Keywords and phrases. Distance, Detour Distance, Square Free Detour Distance.

1. Introduction

Basic definitions are studied from [1], [3] and [5]. when a railway line, pipe line or highway is constructed, the distance between the respective structure and each of the communities to be served is to be minimized. In a social network an edge represents two individuals having a common interest. Thus the centrality have interesting applications in social networks. If we consider a cycle of length 4, the serve can be made only to any two communities or vertices. This motivated us to introduce the square free detour center.

2. C_4 FREE DETOUR CENTER

Definition:2.1

Let G be a connected graph. A vertex's sfd eccentricity in G is defined as sfe(u) = max {SFD(u, v) : v ∈ V (G)}. The formula sfrad(G) = min {sfe(u) : u ∈ V(G)} determines the sfd radius of G. The formula sfdiam(G) = max {sfe(u) : u ∈ V (G)} determines the sfd diameter of G.

Note 1. Every pair of vertices v,w in a tree T are connected by a unique path, therefore $d(v,w) = d_m(v,w) = D_{\Delta f}(v,w) = SFD(u,v) = D(v,w)$. Consequently,

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Research Article

The Upper Total Triangle Free Detour Number of a Graph

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Abstract: For a connected graph G = (V,E) of order at least two, a total triangle free detour set of a graph G is a triangle free detour set S such that the subgraph G[S] induced by S has no isolated vertices. The minimum cardinality of a total triangle free detour set of G is the total triangle free detour number of G. It is denoted by ⟦tdn⟧_Δf (G). A total triangle free detour set of cardinality ⟦tdn⟧_Δf (G) is called ⟦tdn⟧_Δf- set of G. In this article, the concept of upper total triangle free detour number of a graph G is introduced. It is found that the upper total triangle free detour number differs from total triangle free detour number. The upper total triangle free detour number is found for some standard graphs. Their bounds are determined. Certain general properties satisfied by them are studied.

Keywords: total triangle free detour set, total triangle free detour number, upper total triangle free detour set, upper total triangle free detour number.
AMS Subject classification: 05C12
Corresponding Author: S. Lourdu Elqueen

1. Introduction

For a graph $G = (V, E)$, we mean a finite undirected connected simple graph. The order of G is represented by n. We consider graphs with at least two vertices. For basic definitions we refer [3]. For vertices u and v in a connected graph G, the detour distance $D(u, v)$ is the length of the longest $u - v$ path in G. A $u - v$ path of length $D(u, v)$ is called a $u - v$ detour. This concept was studied by Chartrand et.al [1].

A chord of a path P is an edge joining two non-adjacent vertices of P. A path P is called a monophonic path if it is a chordless path. A longest $x - y$ monophonic path is called an $x - y$ detour monophonic path. A set S of vertices of G is a detour monophonic set of G if each vertex v of G lies on an x–y detour monophonic path for some x and y in S. The minimum cardinality of a detour monophonic set of G is the detour monophonic number of G and is denoted by $dm(G)$. The detour monophonic number of a graph was introduced in [8] and further studied in [7].

A total detour monophonic set of a graph G is a detour monophonic set S such that the subgraph $G[S]$ induced by S has no isolated vertices. The minimum cardinality of a total detour monophonic set of G is the total detour monophonic number of G and is denoted by $dm_t(G)$. A total detour monophonic set of cardinality $dm_t(G)$ is called a dm_t-set of G. These concepts were studied by A. P. Santhakumaran et. al[6].

The concept of triangle free detour distance was introduced by Keerthi Asir and Athisayanathan [4]. A path P is called a triangle free path if no three vertices of P induce a triangle. For vertices u and v in a connected graph G, the triangle free detour distance $D_{\Delta f}(u, v)$ is the length of a longest $u - v$ triangle free path in G. A $u - v$ path of length $D_{\Delta f}(u, v)$ is called a $u - v$ triangle free detour. For any two vertices u and v in a connected graph G, $0 \leq d(u, v) \leq dm(u, v) \leq D_{\Delta f}(u, v) \leq D(u, v) \leq n - 1$.

The triangle free detour eccentricity of a vertex v in a connected graph G is defined by $e_{\Delta f}(v) = \max\{D_{\Delta f}(u, v): u, v \in V\}$. The triangle free detour radius of $G$is defined by $rad_{\Delta f}(G) = \min\{e_{\Delta f}(v): v \in V\}$ and The triangle free detour diameter of $G$is defined by $diam_{\Delta f}(G) = \max\{e_{\Delta f}(v): v \in V\}$

A total triangle free detour set of a graph G is a triangle free detour set S such that the subgraph $G[S]$ induced by S has no isolated vertices. The minimum cardinality of a total triangle free detour set of G is the total triangle free detour number of G. It is denoted by $tdn_{\Delta f}(G)$. A total triangle free detour set of cardinality $tdn_{\Delta f}(G)$ is called $tdn_{\Delta f}$ - set of G.

A vertex v of a connected graph G is called a support vertex of G if it is adjacent to an end vertex of G. Two adjacent vertices are referred to as neighbors of each other. The set N(v) of neighbors of a vertex v is called the neighborhood of v. A vertex v of a graph G is called extreme vertex if the subgraph induced by its neighbourhood is complete.The following theorems will be used in the sequel.

Theorem 1.1: Let G be a connected graph of order n, then $2 \leq dn_{\Delta f}(G) \leq tdn_{\Delta f}(G) \leq cdn_{\Delta f}(G) \leq n$.

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A Note on Square Free Detour Distance in Graphs

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Abstract
In this paper, we investigate the results on square free detour number of a simple, connected graph $G = (V, E)$ of order $n \geq 2$. It is proved that for any two vertices u and v in a connected graph G, $0 \leq d(u,v) \leq d_m(u,v) \leq D_{\square f}(u,v) \leq D(u,v) \leq n-1$. The relationship between radious and diameter of various distance concepts is discussed. It is also shown that for each pair a, b of positive integers with $3 \leq a \leq b$, there exists a connected graph G with $rad_{\square f}(G) = a$ and $diam_{\square f}(G) = b$.

Keywords: distance; detour distance; triangle free detour distance; square free detour distance.

1 Introduction

For any vertices u and v in a finite undirected connected simple graph $G = (V, E)$, the distance $d(u,v)$ is the length of the shortest $u-v$ path in G. A $u-v$ path of length $d(u,v)$ is called a $u-v$ geodesic. For a vertex v in a connected graph G, the eccentricity $e(v)$ of v is the distance between v and a vertex farthest from v in G. The minimum eccentricity among the vertices of G is its radius and the maximum eccentricity is its diameter, which are denoted by $rad(G)$ and $diam(G)$ respectively. Two vertices u and v of G are antipodal if $d(u,v) = diam(G)$. This geodesic concept was studied and extended to detour distance by Chartrand et. al. [2-5]. For two vertices u and v in a connected graph G, the detour distance $D(u,v)$ from u to v is defined as the length of a longest $u-v$ path in G. A $u-v$ path of length $D(u,v)$ is called a $u-v$ detour. The detour eccentricity $e_D(v)$ of v is the detour distance between the vertex v and a vertex farthest from v in G. The minimum detour eccentricity among the vertices of G is the detour radius $rad_D(G)$ of G and the maximum detour eccentricity is its detour diameter $diam_D(G)$ of G. This detour concept was further studied by Santhakumaran et. al. [11] For two vertices u and v in a connected graph G, a longest $u-v$ chordless path is called a $u-v$ detour monophonic. This detour monophonic distance was studied by Titus et. al. [10,11]. Further, the triangle free detour distance was introduced and studied by Keerthi Asir, Sethu Ramalingam and Athisayanathan [7-9]. The triangle free detour eccentricity $e_{\Delta f}(u)$ of a vertex u in G is the maximum triangle free detour distance from u to a vertex of G. The square free detour radius, $R_{\Delta f}$ of G is the minimum square free detour eccentricity among the vertices of G, while the triangle free detour diameter, $D_{\Delta f}$ of G is the maximum triangle free detour eccentricity among the vertices of G. In this paper, a similar concept of square free detour distance is introduced and investigated. For basic terminology refer to [1,6].

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α_{Ng}-Irresolute Function in Nano Topological Spaces

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Abstract

The aim of this paper is to initiate the new concept of α_{Ng}-irresolute function, α_{Ng}-open map α_{Ng}-closed map in Nano Topological Spaces. Further, some of their basic properties and condition for a function to be α_{Ng}-open are investigated.

Keywords : α_{Ng}-irresolute, α_{Ng}-open, α_{Ng}-closed

1.Introduction

Levine[2] derived the concept of generalized closed set in topological space. Pious Missier and Anbarasi Rodrigo[7] studied α^*-open set in topological space. The notion of Nano Topology was introduced by Lellis Thivagar[3] defined in terms of approximations and boundary region of a subset of an universe using an equivalence relation on it. He also defined Nano-interior, Nano-closure and Nano-continuity. Bhuvaneswari and Mythili Gnanapriya[1] introduced Nano generalized closed set and Nano generalized continuous functions and studied their properties. Arul Jesti and Suganya[9,10] define α_{Ng}-open set and α_{Ng}-continuous function and discussed some of their properties. In this paper, we introduce a new function called α_{Ng}-irresolute function, α_{Ng}-open map α_{Ng}-closed map in Nano Topological Spaces and its properties are discussed.

2.Preliminaries

Definition 2.1:[7] Let U be a non-empty finite set of objects called the universe and R be an equivalence relation on U named as the indiscernibility relation. Then U is divided into disjoint equivalence classes. Elements belonging to the same equivalence class are said to be discernible with one another. The pair (U, R) is said to be the ***approximation space***.

Let $X \subseteq U$

1. The lower approximation of X with respect to R is the set of all objects which can be certain classified as X with respect to R and it is denoted by $L_R(X)$. That is $L_R(X) = \bigcup_{x \in U}\{R(x)/R(x) \subseteq X\}$ where $R(x)$ denotes the equivalence class determined by X.
2. The upper approximation of X with respect to R is the set of all objects which can be possibly defined as X with respect to R and it is denoted by $U_R(X)$. That is $U_R(X) = \bigcup_{x \in U}\{R(x)/R(x) \cap X \neq \phi\}$
3. The boundary region of X with respect to R is the set of all objects which can be classified neither as X nor as not X with respect to R and is denoted by $B_R(X)$. That is $B_R(X) = U_R(X) - L_R(X)$.

Proposition 2.2:[4] If (U, R) is an approximation space and $X, Y \subseteq U$, then

1. $L_R(X) \subseteq X \subseteq U_R(X)$
2. $L_R(\phi) = U_R(\phi) = \phi$ and $L_R(U) = U_R(U) = U$
3. $U_R(X \cup Y) = U_R(X) \cup U_R(Y)$
4. $U_R(X \cap Y) \subseteq U_R(X) \cap U_R(Y)$
5. $L_R(X \cup Y) \supseteq L_R(X) \cup L_R(Y)$
6. $L_R(X \cap Y) = L_R(X) \cap L_R(Y)$
7. $L_R(X) \subseteq L_R(Y)$ and $U_R(X) \subseteq U_R(Y)$ whenever $X \subseteq Y$

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A New Class of Open Sets In Nano Topological Spaces

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ABSTRACT

The aim of this paper is to introduce a new class of function, namely β_N^* -open sets and β_N^* -closed sets in Nano topological spaces. Further we investigate fundamental properties are discussed. Additionally we relate with some other Nano topological spaces.

Keywords and phrases: Nano topological spaces, β_N^* -open sets, β_N^* -closed sets and β_N^* -continuous.

I INTRODUCTION

In 1983 M.E.Abd El-Monsef, S.N. El-Deeb, R.A. Mahmoud [3] introduced β-Open sets in Topological spaces. P. Anbarasi Rodrigo and K. Rajendra Suba [4] introduced β^*-closed sets in Topological spaces. M. Lellis Thivagar [1] introduced Nano topological space with respect to a subset X of a universe which is defined in terms of lower and upper approximations of X. He has also defined Nano closed sets, Nano-interior and Nano-closure of a set. He also introduced the weak forms of Nano open sets. In 2015 Revathy, A., llango, G. [5] introduced Nano β-open sets in Nano topological spaces. In 2013, M.Lellis Thivagar [

10]introduced A Nano continuous function in Nano topological spaces. In 2014, K.Bhuvaneswari et al., A.Ezhilarasi introduced the concept of Nano semi-generalized and Nano generalized-semi closed sets in Nano topological spaces. K.Bhuvaneswari and K.Mythili Gnanapriya [6] introduced Nano g-closed sets and obtained some of the basic results. In this paper, we define a study on new class of function is called **β_N^* -open sets** in Nano topological space and study the relationships with other Nano sets.

II PRELIMINARIES

Throughout this chapter (U, $\tau_R(X)$) is a Nano topological space with respect to X where X⊆U, R is an equivalence relation on U, U/R denotes the family of equivalence classes of U by R. Here we recall the following known definitions and properties