

A Conceptual Review on Investment Behavior of Women

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ABSTRACT: Today's women are financially independent and ready to pool their savings in a profitable avenue to maximize their wealth. Women investors are participating frequent in investing activity and do not make sound investment decisions. Investment is important for the wellbeing of individuals and for the economic development of a nation. Investing money is a very complex task because of number of investment companies and products offered by them, terms and conditions of investment and complex rules and regulations. As the investments in some avenues are subject to high risk, the investors have to analyze the various alternative investments in terms of risk and returns associated with them. There are number of investment options are available. There are various investment avenues such as Savings account, fixed deposits, Government Securities, Corporate Bonds, Insurance policies, Real estates, Commodities, Shares and Mutual funds, Chit Funds and Gold and Silver. The investors invest their savings in the above mentioned avenues depending on their risk taking attitude. While taking investment decision, the behavioral aspects, awareness level of investors, risk attitude, investment habits, and common understanding of market play an important role in making a sound investment decision. The present study intends to present the detailed overview of previous studies on investment behavior and pattern of women.

Keywords: Investment behavior, avenues, share market, women investors.

Introduction

The people usually invest their savings where they can get maximum returns and safety of their money. Investment activity is essential for the growth and development of a nation. The individual investor plays an important role in the stock market because of the big share of their savings are invested in the country. The decision of making investment is always based on the relationship between risk and return. The term investment means employment of funds in any assets and securities with the aim of earning return or capital appreciation. Investment is the allocation of funds to the profit generating asset in future. Investment is an economic activity which generates capital needed for various sectors of economy. The selection of investment is a difficult task which requires considerable skills and knowledge for analysis of available options. Moreover, a sound investment decision in stock market may lead to the higher return and maximum satisfaction. But it seems difficult for people to analyze the various options to find out suitable investment avenues because of lack of awareness whereas people don't know even where to invest and how much to invest. Therefore, analysis of behavior of investors is essential to find out various positive and negative aspects of investment in stock market.

Women are financially independent nowadays. Women are actively participating in investing their savings by analyzing the various factors such as degree of risk associated with investment, influence of family members and friends and the capability of investing in modern and innovative investment avenues.

The main objective of this study is to present concept of investment behavior and patterns of women and explore the detailed review of previous empirical studies on investment behavior of women.

Research Methodology

This is a theoretical research based on previous researches undertaken by researchers on investment behavior of women. Other secondary sources including books, magazines, newspapers, working and discussion papers and government websites were also used. The descriptive approach has been used.

Analytical review

The review of previous studies has been summarized as

Lusardi et al (2009) explored the reasons for not investing in the stock market. The study was conducted on 7,138 respondents in US. The findings depicted that ignorance of investors towards the various factors was the basic reason of poor investment decision. There are various reasons such as lack of awareness, lack of participation and poor borrowing behavior of the investors. **Kathirvel and Mekala (2010)** made an attempt to examine the investment behavior of investors. The study was carried out on 150 women respondents of Coimbatore district in Tamilnadu. The results found that lack of knowledge about the stock market and different investment options prevents women for investing in share market. The authors concluded that insecurity and high volatility in stock market are the concerned issues for women investors. **Hanmugasundaram (2011)** evaluated the factors influencing the decision of investors for investing in the stock market. The behavioral dimensions have been analyzed for the investors in Tamilnadu. The study depicted that small investors are still dependent on the advice of others such as companies and financial advisors. This reflects the low confidence of investors for taking the decision. The results found that investors behave differently during the changing market conditions. **Kukreja (2012)** measured the perception of the investors for investment in capital market. The present study has been conducted on 120 investors of NCR region. The finding suggested that age of the respondents significantly affects the



Temperature dependent negative differential resistance behavior in multiferroic metal organic framework $(\text{CH}_3)_2\text{NH}_2 \text{Mn} (\text{HCOO})_3$ crystals

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ABSTRACT

We present the temperature dependent negative differential resistance behavior of $(\text{CH}_3)_2\text{NH}_2\text{Mn} (\text{HCOO})_3$ crystals prepared by solvothermal synthesis. The paramagnetic to antiferromagnetic transition temperature, T_N and paraelectric to ferroelectric transition temperature, T_c were at 8 K and 184 K respectively. Above 100 K, negative differential resistance peaks in the low bias voltage region (between -4 V and $+4$ V) of the current-voltage characteristic were observed till 224 K. Fowler Nordheim tunneling mechanism was the dominant current conduction mode in the temperature independent high bias region (± 5 V to ± 10 V). The highest peak to valley ratio of 10 was recorded at 176 K with a peak current, I_{peak} of 2.7×10^{-11} A. The peak V_{peak} and valley V_{valley} were recorded at 1.5 V and 2.7 V respectively. The dielectric transition was found to be accompanied by an electronic transition of the metal to insulator type around 204 K.

1. Introduction

Negative differential resistance (NDR) occurs when the nonlinear nature in the current (I)-voltage (V) characteristic shows a negative slope (differential resistance, dI/dV) in some regions. NDR has tremendous potential as oscillators, low-power memory and logic devices [1,2]. Commonly used materials such as organic crystal [3] and biological molecules [4], semiconductor quantum wells [5], polymer-nanoparticle composites [6], metal-oxide hetero-structures [7], however, suffer from irreproducible and unstable NDR effect [8]. These reliability issues may be caused by the uncertain and complex mechanism at play, such as charge trapping and detrapping [9], filament formation and rupture [10], and redox reaction [11,12]. One of the possible way out, as demonstrated by Fan and Gao et al. [8] is using ferroelectrics materials, which offer a unique mechanism because of their polarization switching-induced charge injection and subsequent charge trapping at the metal/ferroelectric interface. Another reliable mechanism for NDR maybe the electronic transition of the insulator to metal type as has been observed in single crystals of nTTF-TCNQ and their origin has been explained on the basis of some current induced excitation mechanism from an insulating ground state to a higher-conductivity excited state [1]. NDR in organic materials, as compared to conventional inorganic materials, has gained augmented attention over the last few years due to their optical transparency and mechanical flexibility [3,13,14].

It is well known that materials in which magnetic and electric orders

coexist, known as multiferroics, have tremendous potential in applications such as AC/DC magnetic field sensors, multiferroic magnetic recording read heads, multiferroic random access memories with multi-state memories, to name a few [15]. The prospects of controlling the ferroelectric property by magnetic field and vice versa had ensured uninterrupted research for more than a decade [16–18]. An appearance of NDR in such devices could potentially impact the applications mentioned above. Discovered in 1959 by Dzyaloshinskii [16], multiferroic materials were initially all inorganic in nature. However, in 2009, P. Jain et al. [19] first showed the presence of ferroelectric and magnetic property in a special class of material now known as metal organic frameworks (MOFs). These materials with organic and inorganic units form crystalline solid that exhibit ABX_3 type perovskite structure. The A here is an organic cation, B a divalent transition metal ion and X is the organic linker anion; all arranged in a 3D-array of corner sharing BX_6 octahedra with larger A cation occupying the octahedral cavity of the 3D network [19–21]. Thus an individual unit cell of the MOF crystal under study, $(\text{CH}_3)_2\text{NH}_2 \text{Mn} (\text{HCOO})_3$, is made up of one Mn ion, HCOO^- ion and $(\text{CH}_3)_2\text{NH}_2^+$ (to be referred as DMA) ion. In such a unit cell, the metal ion sits inside a MnO_6 octahedron and is linked to six closest metal ions through HCOO^- bridges. This octahedron with six HCOO^- bridges forms a 3D framework. The DMA ions sits in the cavity of the 3D structure and is connected to the HCOO^- bridge through hydrogen bonds. The nitrogen atom in DMA ion, at room temperature, has three equivalent positions. Upon cooling below the Curie temperature (T_c), the nitrogen atom gets ordered into one of

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Thermodynamic and acoustic properties of binary mixtures of diisopropyl ether, benzene and alkanes at 298.15, 308.15 and 318.15 K: Prigogine-Flory-Patterson theory and graph theory



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ABSTRACT

Densities and speed of sound for the binary mixtures of diisopropyl ether (1) + *n* hexane, *n* heptane, benzene (2) and benzene (1) + *n* hexane, *n* heptane, *n* octane (2) and *n* hexane (1) + *n* heptane (2) were measured from 298.15 K to 318.15 K. The measured data were used to calculate excess molar volume V_m^E , deviation in ultrasonic speed Δu , isentropic compressibility K_s^E , excess intermolecular free length l_f^E and excess available volume V_a^E . All the derived properties were fitted to Redlich-Kister equation. For theoretical interpretation of V_m^E values, Prigogine-Flory-Patterson theory and Graph theory were used at 298.15 K. Various empirical correlations like Nomoto, Van-Dael and impedance dependence relation were applied to predict the experimental ultrasonic speed data. Schaaff's collision factor theory was used for prediction of experimental ultrasonic speed data at 298.15 K. The excess intermolecular length (l_f^E) was calculated from Jacobson free length theory at 298.15 K. The effect of temperature for K_s^E and V_m^E was also discussed in terms of intermolecular interactions.

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1. Introduction

The Global warming and fossil fuel depletion is a great issue now a day. So the researchers have much interest in the alternative bio-fuels [1–3] which include biodiesel, bioalcohol, vegetable oil, propane and other biomass sources. Bio-fuels are used as oxygenated compounds in motor fuel [4]. These oxygenates are the oxygen containing compounds such as ethers, alkanol and ester which are used as fuel additives [5,6]. The oxygen present in these oxygenates help in complete combustion of fuel. These are also good anti knocking agent with high octane number [7,8].

The dependency of volume, acoustic or optical properties of multi-component mixtures on concentration or temperature is a useful indicator for reality of significant effects resulting due to intermolecular interactions. Thus these mixing properties are of great significance in process engineering design, formulating motor fuel [9] and also to chemists to understand the nature of intermolecular interactions in these binary mixtures [10,11]. In continuation of previous work on excess properties of oxygenates with hydrocarbons [10–25], in this study a secondary ether diisopropyl ether (DIPE) was selected due to

its application as a solvent in various chemical processes as well as extractant and as oxygenate in motor fuel. The density (ρ) and ultrasonic speed (u) data for binary mixtures of (DIPE) (1) + *n* hexane, *n* heptane, benzene (2) and benzene (1) + *n* hexane, *n* heptane, *n* octane (2) and *n* hexane (1) + *n* heptane (2) were reported at 298.15 K to 318.15 K [26]. The measured ρ and u data were used to calculate excess molar volume V_m^E , deviation in ultrasonic speed Δu , isentropic compressibility K_s^E , excess intermolecular free length l_f^E and excess available volume V_a^E .

The ultrasonic speed data were predicted at 298.15 K using various empirical correlations [27–31] like Nomoto, Van Dael, impedance dependence relation and also by Schaaff's collision factor theory (CFT). Jacobson free length theory (FLT) was used to calculate l_f^E at 298.15 K. The effect of temperature on K_s^E and V_m^E was also discussed. These results were discussed in terms of intermolecular interactions between unlike molecules, packing effect, cohesion forces and change in orientational order. The calculated V_m^E values were also analyzed with Prigogine-Flory-Patterson (PFP) theory and Graph theory at 298.15 K.

2. Experimental section

DIPE was purified by standard procedure [32] and other chemicals *n* octane, *n* heptane, *n* hexane and benzene (Merck purity > 99%) were

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Intermolecular Interactions and Refractive Indices: Experimental Data and Prediction of Oxygenated Fuel Additives with Hydrocarbons

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Oxygen containing compounds specifically alkanol and ether are being used as oxygenate fuel additives. The refractive indices (n_D) of oxygenated fuel additive, aliphatic and aromatic hydrocarbon and their mixtures were measured at 298.15 K to 318.15 K. The mixtures selected were diisopropyl ether (DIPE) + benzene, toluene, *n*-alkane (C₆-C₈) or benzene, toluene (1) + alkane (2) and all possible combinations of alkanes at 298.15 K to 318.15 K. Various mixing rules like Gladstone-Dale, Arago-Biot, Heller, Weiner, Newton and Eyring-John were applied for the theoretical estimation of refractive index and compared with experimental refractive indices of binary mixtures. Polynomial equation was applied to the measured data to calculate standard deviation. The Δn were further interpreted in terms of intermolecular interactions between the oxygenated fuel additive, aliphatic and aromatic hydrocarbons.

Keywords: Oxygenate, Refractive index, Diisopropyl ether, Hydrocarbons, Intermolecular interactions.

INTRODUCTION

Increase in global warming and extinction of fossil fuels is a great issue now a day. So the researchers have much interest in the alternative bio-fuels [1-3], which include biodiesel, bioalcohol, vegetable oil, propane and other biomass sources. Bio-fuels are used as oxygenated compounds in motor fuel [4]. The oxygenates are the oxygen containing compounds such as ethers, alkanol and ester used as fuel additives. The oxygen present in these oxygenates help in complete combustion of fuel. These are also good antiknocking agent with high octane number [5,6]. Now days due to carcinogenic nature of benzene it needs to be replaced [7,8] and toluene is a good candidate as it has similar property as benzene but much less carcinogenic [9]. In this sense, it is an interesting research object to study the thermophysical of the oxygenate with hydrocarbons.

The dependency of volume, acoustic or optical properties of multi-component mixtures on concentration or temperature is a useful indicator for reality of significant effects resulting due to intermolecular interactions. Thus, these mixing properties have significance in design and simulation process. In

previous work [10-28], the thermophysical properties like excess volume, excess enthalpy, deviation in viscosity and ultrasonic speed of the binary systems of oxygenate with hydrocarbons have been studied. In this paper, the refractive indices (n_D) of diisopropyl ether (DIPE) + benzene, toluene, *n*-alkane (C₆-C₈) or benzene, toluene (1) + alkane (2) and all possible combinations of alkanes at 298.15 to 318.15 K are reported. Redlich-Kister equation have been used to correlate experimental values of refractive indices of binary mixtures. These deviations in n_D have been used to understand the nature of interaction between unlike molecules. Various mixing rules were applied for the theoretical estimation of n_D and these estimated values have been compared quantitatively with experimental n_D of binary mixtures.

EXPERIMENTAL

Diisopropyl ether was purified by standard procedure [29] and other chemicals e.g., *n*-octane, *n*-heptane, *n*-hexane, toluene and benzene (Merck, > 99 %) were doubly distilled and kept in amber coloured bottles over molecular sieves (4A). For the measurement of density of the purified samples, Anton Paar DSA-5000 was used with an uncertainty of $\pm 10^{-4}$ kg m⁻³.



Volumetric and acoustic properties of fuel additive oxygenate with hydrocarbons

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ABSTRACT

Densities and speed of sound for the binary mixture of diisopropyl ether (DIPE) (1) + toluene, n-octane (2) and toluene (1) + n-hexane, n-heptane, n-octane (2) and n-hexane, n-heptane (1) + n-octane (2) were measured from 298.15 K to 318.15 K. The measured data were used to calculate excess molar volume V_m^E , deviation in ultrasonic speed Δu , excess isentropic compressibility K_s^E , excess intermolecular free length L_f^E and excess available volume V_a^E . For theoretical interpretation of V_m^E values, Prigogine-Flory-Patterson theory and Graph theory were applied at 298.15 K. Ultrasonic speed data were predicted at 298.15 K using various empirical correlations like Nomoto, Van Dael, Impedance dependence and also by Schaaff's collision factor theory. The temperature effect on K_s^E and V_a^E was also discussed. The results were analyzed in the light of unlike interactions, packing effect, cohesion forces and change in orientation order.

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1. Introduction

The impact of fuel combustion in vehicles on the environment have led to the use of oxygenate as fuel additive to control the pollution as presence of oxygen in oxygenate increase the fuel efficiency [1–4]. Thus excess properties of oxygenate with aromatic and aliphatic hydrocarbon are of great significance in design and simulation process as well as fuel formulation [5–9]. Diisopropyl ether (DIPE) is an oxygenate being added in motor fuel. It would be interesting to study its interactions with other fuel components. In extension of earlier work on oxygenates with hydrocarbons [10–28], density (ρ) and speed of sound (u) for binary mixtures of DIPE, toluene and n-alkane (C₆–C₈) are measured at 298.15 K to 318.15 K. The excess molar volume V_m^E , deviation in ultrasonic speed Δu , excess isentropic compressibility K_s^E , excess intermolecular free length L_f^E and excess available volume V_a^E were derived from ρ and u data. The ultrasonic speed data were predicted at 298.15 K using various empirical correlations like Nomoto, Van-Dael and impedance dependence and also predicted theoretically with Schaaff's collision factor theory (CFT) [26–30]. The results were analyzed in the light of unlike interactions, packing effect, cohesion

forces and change in orientation order. The V_m^E values were also predicted with Prigogine-Flory-Patterson (PFP) theory and Graph theory.

2. Experimental section

DIPE, toluene and alkane (Merck purity greater >99%) were purified by standard procedure [29] and kept over molecular sieves (4A). For the measurement of u , ρ , vibrating tube densimeter (Anton Paar DSA-5000M) and n_D refractometer (Abemat-200) were used. The uncertainty in u , ρ , n_D and mole fraction were $\pm 0.1 \text{ m s}^{-1}$, $\pm 10^{-3} \text{ kg m}^{-3}$, $\pm 1 \times 10^{-4}$ and $\pm 1 \times 10^{-4}$, respectively.

The accuracy of measured data was checked by comparing V_m^E values of the benzene – cyclohexane mixtures at 298.15 K which agreed with their corresponding literature values [30].

The purities of the compounds were checked by measuring their ρ , u and n_D as given in Table 1 while for binary mixtures ρ and u values are reported in Table 2 at 298.15, 308.15 and 318.15 K respectively.

3. Results

3.1. Excess volume

The V_m^E recorded in Table 2 were calculated using following relation:

$$V_m^E = \frac{(x_1M_1 + x_2M_2)}{\rho} - \frac{x_1M_1}{\rho_1} - \frac{x_2M_2}{\rho_2} \quad (1)$$

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**The Supernatural Element In S.T. Coleridge's Poetry :
A Study of His Three Poems**

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Abstract

Coleridge was well acquainted with the Gothic novels of horror where the supernatural was simply external machinery, part of the medieval setting. It was thrilling but not artistic. Coleridge himself has not been able to avoid it completely in his first characteristic poem, *The Ancient Mariner*, where we have such sensational touches as the hundred companions of the ancient mariner falling down suddenly like lifeless lumps, each with a fixed stare on the sinner, who saw this curse seven days and nights but could not die: or the picture of the spectre with Death and Death-in-life, gambling intently for the possession of the Mariner. But in *Christabel*, the element of the sinister is infused in the atmosphere and the nature of the daemonic force is unfolded gradually through a number of suggestive details which build up the suspense till the full force of its potency is reached in the transformation of the poor victim into the likeness of the Evil one. Similar is the method in 'Kubla Khan'

Key-Words : Supernatural.

Samuel Taylor Coleridge (1774-1834) is a great romantic poet and critic. He, along with William Wordsworth, proclaimed the rebirth of Romanticism with the publication of *Lyrical Ballads* in 1798. Both these Romantic poets stood in sharp contrast with each other. In his poetry Wordsworth made the natural look super natural. Coleridge, on the other hand, made the supernatural look natural. In a masterly way he brings the supernatural down to human level and his poems become a great psychological study. All the three great supernatural poems written by him i.e. *The Rime of the ancient Mariner*, *Christabel* and 'Kubla Khan' are abiding examples of his astuteness as a psychological artist.

Coleridge's *The Rime of the Ancient Mariner* is a great psychological poem. The poem combines the natural with the supernatural in a way that it becomes an artistic document of human spiritual development. The poem unfolds itself through a series of horrors that befall in the voyage of an ancient mariner. The Mariner gives a vivid account of his traumatic experience in his tale that he narrates to one of the wedding guests. The mariner tells how he and his shipmates were cursed on account of killing an albatross during their voyage and how his ship went towards the South Pole. As a consequence of this unnatural act, the fair breeze stopped blowing and all the shipmates of the mariner died on the ship. The mariner is "alone, alone, all alone, alone on a wide sea" and has "not a drop to drink" despite surrounded by "water, water, everywhere". He is tormented by such horrors as woman – spectre and Death-in-life.

Ionic Assembly, Anion- π , Magnetic, and Electronic Attributes of Ambient Stable Naphthalenediimide Radical Ions

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Delivered to Professor Rasmajala Chatterjee on his suggestion from Jyoti

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Abstract

Organic spin-based molecular materials are considered to be attractive for the generation of functional materials with emergent optoelectronic, magnetic, or magneto-conductive properties. However, the major limitations to the utilization of organic spin-based systems are their high reactivity, instability, and propensity for dimerization.

Herein, we report the synthesis, characterization, and magnetic and electronic studies of three ambient stable radical ions (**1a**^{•-}, **1b**^{•-}, and **1c**^{•-}). The radical ions **1b**^{•-} and **1c**^{•-}

Practical Usage of Data Mining In Environmental Applications

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Abstract

Information mining, the focal movement during the time spent learning revelation in databases (KDD), is worried about discovering designs in information. This paper presents and represents the most widely recognized sorts of examples considered by information mining methodologies and gives unpleasant frameworks of the information mining calculations that are most as often as possible used to search for such examples. In this paper, we likewise to give an outline of KDD applications in ecological sciences, supplemented with an example of contextual analyses. The last are portrayed in marginally more detail and used to represent KDD-related issues that emerge in natural applications. The application areas tended to generally concern natural displaying.

Keywords: *Data Mining, Decision Trees, Environmental Applications, Ecological Modeling, Population Dynamics.*

Introduction

Learning disclosure in databases (KDD) was at first characterized as the "non-paltry extraction of understood, beforehand obscure, and conceivably valuable data from information" (14). An updated form of this definition expresses that "KDD is the non-minor procedure of distinguishing legitimate, novel, conceivably valuable, and eventually justifiable examples in information" (11). As indicated by this definition, information mining (DM) is a stage in the KDD procedure worried about applying computational strategies (i.e., information mining calculations executed as PC programs) to really discover designs in the information. One might say, information mining is the focal advance in the KDD procedure. Different strides in the KDD procedure are worried about planning information for information mining, just as assessing the found examples (the aftereffects of information mining). The above definitions contain exceptionally loose ideas, for example, information and example. To make these (marginally) progressively exact, a few clarifications are fundamental concerning information, examples and learning. just as legitimacy, curiosity, handiness,

and understandability. For instance, the found examples ought to be substantial on new information with some level of assurance (ordinarily recommended by the client). The examples ought to possibly prompt a few activities that are helpful (as per client characterized utility criteria). Examples can be treated as information: as indicated by Frawley et al. (14), "a example that is intriguing (as indicated by a client forced intrigue measure) and sufficiently certain (again as per the client's criteria) is called learning." This paper will concentrate on information mining and won't manage different parts of the KDD procedure. (for example, information planning). Since information mining is worried about discovering designs in information, the ideas of most direct pertinence here are the thoughts of information and examples. Another key thought is that of an information mining calculation, which is connected to information to discover designs legitimate in the information. Distinctive information mining calculations address diverse information mining assignments, i.e., have distinctive planned use for the found examples. Information is a lot of certainties, e.g., cases in a database (as indicated by Fayyad et al. (11)). Most regularly, the contribution to an information mining calculation is a solitary level table involving various properties (segments) and records (lines). At the point when information from more than one table in a database should be considered, it is left to the client to control the pertinent tables. Typically, this outcomes in a solitary table, which is then utilized as contribution to an information mining calculation. The yield of an information mining calculation is normally an example or a lot of examples that are legitimate in the given information. An example is characterized as an announcement (articulation) in a given language, that depicts (connections among) the actualities in a subset of the given information and is (in some sense) easier than the specification of all certainties in the subset (14; 11). Diverse classes of example dialects are considered in information mining: they rely upon the information mining job

Challenges, Opportunities and Issues of Start-Up India



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Abstract: Government of India takes an initiative for start up India on 15 august, 2015. The campaign was first announced by prime minister of India, Narendra Modi. The aim of start up India is to promote bank financing for start up ventures to increase entrepreneurship and encourage starts up with job creation. competition is increasing day by day that's why consciousness of self employment is increasing among students rapidly. Population of Indian country is too large so it is need to develop entrepreneurial skills among people so government launch startup india. The scheme was launched to motivate and encourage new generation towards business and grow their career as well as economy of Indian country. Through this paper we discuss about some issues and challenges that an Indian startup has to face and also discuss about the opportunities available in Indian country.

Keywords: Entrepreneurship, Start-up and Employment.

Introduction:

Start-up companies are those newly founded companies or entrepreneurial ventures that are initial stage of development. Start up India brings excitement and many possibilities for future. Start up are seen as national builders as they create positive contribution to the economy of a country and create jobs. They are most commonly related with development and production, high tech projects, distribution of new projects or services. Nation like India which is second most crowded nation with more than 1.2 billion people and it is notable that expansive populace prompts to substantial work weight in Indian culture so it is need of hour to create entrepreneurial aptitude among individuals so they can't depend on employment and they can begin their own business and government of India has dispatched start up India to bolster moving business visionaries. The ministry of commerce and industry released a notification on April 1, 2015 to define a start up. According to it, an entity will be defined as a start up.

- From the date of incorporation upto 5 years.
- If the turnover does not exceed 25 crore in last five financial years.
- When an entity is working for innovation, development and commercialization of new product or services driven by technology or intellectual property.

Database and methodology: The study is based on secondary data. The data required for studies were collected from various publications net and books related to this topic.

Challenges of startup India: For the success of successful startup some factors are required like best leadership skills with clear understanding of market, good communication skills and ability to take calculated risk are required on the part of entrepreneur. But there are some issues and challenges which are faced by entrepreneur. Some are discussed below.

- **Financial resources:** Availability of finance are required for start up a business. Various number of options are available like family members, friends, relatives, bank loans and grants. Need of a business is increasing when scale of business is increasing. A recent report shows a gloomy picture with 85% of new entrepreneurs are underfunded showing potential failure.
- **Competition:** Most businessman sees competition as a challenge. Competition is that engine which stimulates innovation and production of good quality products. If there is no competition there will be no innovation and without innovation, the world will be stagnant.
- **Availability of good employees:** To find out a hardworking and trustworthy employee is a difficult task. Good employees are backbone of an organization. Finding a good employee is a small task compared to the business challenge of forging the employees into a teamwork.
- **Government policy:** In our country there is lack of clear long term start up roadmap as economic liberalisation is quite to India. According to the size and priority of the country, the government seems to keep the road map on the back burn.
- **Ineffective research and development:** To face competition it is necessary there should be a team of research and development in the organization. But some new start ups not establish this department in their organization. Due to lack of attention to research some new start ups not survive.

Empowerment of Rural Women through Education



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Abstract: An educated person can think about all the eventualities and their importance in their life. There is a need to raise the value of education in their mind. Women education in India has also been a major preoccupation of both the government and civil society as educated women can play a very important role in the development of the country. Education is instrumental in making the remarkable contribution to economic growth of the Developing World as a whole. If we see the current status of women in India especially in rural areas we come to know that their situation is not only good but worst. Education also brings a reduction in inequalities and functions as a means of improving their status within the family. So we can't neglect the importance of women empowerment in India. Educated women not only tend to promote education of their girl children, but also can provide better guidance to all their children. Moreover educated women can also help in the reduction of infant mortality rate and growth of the population. Now-a-days technological worlds consider education-especially for women is much more important to slower population growth. Educating women means to help in the progress of the nation. Hence, progress in literacy is being considered as a component of progress in development. The main aim of this research paper is to analyze the position and role of education in improving the quality of life of women in rural areas through women empowerment and to assess the problems and challenges faced by women in rural areas in getting education and how their position can be improved.

Key Words: Women empowerment, rural women, standard of living, education, challenges

"If you educate a man you educate an individual, however, if you educate a woman you educate a whole family. Women empowered means mother India empowered."

Pt. Jawaharlal Nehru

Introduction: India holds the second position in the world of having highest population. Women constitute almost half of the population in the world and strengthen the national economy. Education is considered as a milestone for women empowerment because it enables them to respond to the challenges, to confront their traditional role and change their lives. Education is one of the greatest key factors in the success of any human being as well as for the economy of a country. But mostly population lives in the villages and many of them related to some isolated areas. Due to these areas, thousand of girls can't achieve education. In rural areas, mostly women depend on orthodox ideas and traditional beliefs. That's why, they deprived from all those facilities which an educated person get.

Education for rural women has a special need, as women from rural areas and those belonging to deprived sectors of the society are far from the light of education. There is a crucial need for education among women of rural areas and the backward sections of the society as they are unable to get benefits of various schemes of the government due to lack of education. There is need for educating rural women so that feeling of self confidence can be generated among them. Women empowerment means to encourage women to participate in all kinds of activities which help in increasing their standard of living and quality of life. Women empowerment in rural areas is a big challenge for the economy because the people in rural areas are not so empowered to do something different from their regular life. The only way to motivate them is education. An educated person can think about all the eventualities and their importance in their life. There is need to raise the value of education in their mind. Women education in India has also been a major preoccupation of both the government and civil society as educated women can play a very important role in the development of the country. India is poised to emerge as one of most developed nations by 2020, more literate, knowledgeable and economically at the forefront. No doubt, women will play a vital role in contributing to the country's development. Women power is crucial to the economic growth of any country. The constitution of India have provided for reservation of seats in the local bodies of panchayats and municipalities for women, laying a strong foundation for their participation in decision making at the local level.

Education can bring phenomenal change in rural women's life resulting in social transformation in the long run by inculcating following attributes among them:

- Bring awareness about their rights
- Raises their status in the society
- Build their confidence level
- Enhancing their career mobility
- Opening various career opportunities

Brain Tumor Classification with Optimized Features using Firefly Algorithm

Impact Factor
0.26
C.I = 1

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Abstract

In present scenario tumor is a dangerous disease in the human life. In this study, the number of steps of medical image processing are used to process a Magnetic Resonance Image (MRI) to detect the brain tumor and also to define its type. Out of many steps, feature extraction and feature reduction is core of medical image processing. Different types of features like intensity, shapes and texture based features, are extracted from the segmented MRI images. Then, a machine learning model is developed by using the optimally selected features. Feature reduction approach is used to select the small subset of features which minimize redundancy and maximize relevance to the target. A bio-inspired Evolutionary computation (EC) based Firefly Algorithm (FA) has been used to reduce the size of feature set so that only key features will be used to classify tumor type using Support Vector Machine (SVM). At the end, classification accuracy has been compared results obtained with and without optimization.

Keywords: Brain tumor; Feature extraction and reduction; Firefly Algorithm; MRI; SVM

Introduction

Brain tumor is a very dangerous disease. When a tissue increases in unnatural manner it is called a tumor and when tumor occurs in the brain it is called a brain tumor¹. Till now no conclusive report has been given by doctors, which can describe the main cause of brain tumor, but today's life style of human being is surely one of the reasons for increasing the number of cases of brain tumor in urban areas. Various activities of the human body like thought, action and feelings are affected by the electrochemical impulses produced by the neurons after having a tumor in the brain. This type of harmful disease should be detected at the earliest stage accurately to save the life of patients by the physicians because most of the patients, which have brain tumor die within 1 year of having disease due to not proper diagnosis. A radiologist takes the help of MRI images to detect the brain tumor. By the high resolution of MRI images brain abnormal activities and changes are easily detected². Brain tumors can be classified into primary and secondary, or in malignant or benign type. In a primary brain tumor, the tumor occurs in the brain and remains in the brain while in secondary tumor which is also known as metastatic, tumor may occurs in any body parts and then spread to

brain³. Not all the tumor is cancerous some tumor is non cancerous which do not reoccur once they are removed. A benign tumor is one of them which have regular in shape and size while malignant tumor is cancerous in nature which may reoccur⁴. Although there are many types of brain tumor can be seen in patients all over the world, yet Meningioma tumor, Glioma tumor and Pituitary tumor are found commonly⁵. So we have associated the class with Type-1, Type-2 and Type-3 respectively, for each of the above discussed tumor types. All the discussed types are shown in Figure 1. Computer Aided Diagnosis system (CAD) can be designed which can take the MRI Image as input and diagnose the brain tumor area as output along with more accuracy in less time. Medical image processing field has great advancement in recent era which can be applied in designing this CAD system.

..... In this paper, we have designed a framework for a CAD system to classify 3 types of tumor with the implementation of bio-inspired EC algorithm known as the Firefly Algorithm (FA) along with SVM classifier. FA algorithm has been used for feature reduction. The rest of the paper has been organized as follows: section 2 contains the description of existing research, Section 3 describes the proposed method for the tumor

A Hybrid Framework for Brain Tumor Classification using Grey Wolf Optimization and Multi-Class Support Vector Machine

Index = 20
CI = 02

Arun Kumar, M.A.Ansari, Alaknanda Ashok

Abstract: Medical image processing has a vital role in the detection of diseases in human beings. The accuracy for disease detection using any medical image is highly dependent on the image processing methods. Features extraction and reduction are the two key steps during the medical image processing for disease classification. To develop an effective and efficient mechanism with high accuracy for classification of malignant brain tumor from Magnetic Resonance Imaging (MRI) is the objective of the present research. To achieve this, a nature inspired algorithm; namely, Grey Wolf Optimization (GWO) along with a classification method, multiclass Support Vector Machine (MSVM) is used. Further, Results for the classification accuracy obtained from GWO are compared with other two well-known optimization algorithms such as Particle Swarm Optimization (PSO) and Firefly Algorithm (FA).

Keywords : Brain tumor, Feature extraction and reduction, Grey Wolf Optimization, SVM, MRI images.

I. INTRODUCTION

Brain tumor is a disease which occurs due to the undesirable and uncontrollable growth of tissue in the brain[1,2]. The number of cases of brain tumor has been increasing day by day due to many reasons like stress due to our lifestyle, some environmental changes like increase of pollution and many more like that. Although brain tumor is a life threatening disease, yet its impact can be minimized, with timely and proper diagnosis. Brain tumors can be broadly classified into two types such as a benign tumor with is non-cancerous and malignant tumor, which is cancerous[3]. Some MRI images of brain 'without tumor and with tumor' are shown in figure 1. The various activities of the human body like thought, muscles, action and feelings are affected by the electrochemical impulses produced by the neurons that may provide some indication for something unusual happening in the brain. Now a days, Physicians use MRI images that provide more precise and relevant information related to the brain by using Computer Aided Diagnosis (CAD) system because MRI images are the high-resolution images with low radiation as compare to the

X-rays images that seems enough helpful for the easy detection of the brain tumor [4-5] But in many cases, accurate tumor detection with its type is still a very tedious task for the physicians because the every tumor type has a different impact on the patients, hence required different treatment. Medical image processing has provided many techniques that deal to computerize this task as almost equivalent to physician work, with less time and with extra accuracy. Features extraction and selection are the key steps in medical image processing [6]. Out of these two, feature selection is even more important than feature extraction because optimal features are highly desirable to improve the performance of image classifier, and to decrease the computation time [7].

The present research aims on the malignant brain tumor classification using a GWO algorithm for feature reduction along with an SVM classification method that is well established and used by many authors in the past for classification purpose. The rest of the study is organized as follows: section 2 contains the description of existing research; Section 3 describes the proposed method for the tumor classification followed by an experimental set-up in section 4. The results, which prove the study, are discussed in section 5 whereas conclusion and future scope is provided in section 6.

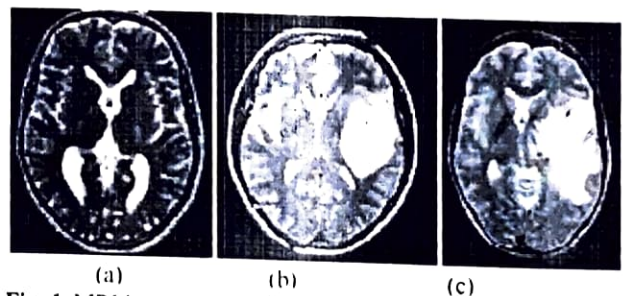


Fig. 1. MRI images: (a) without tumor (b) with benign tumor (c) with malignant tumor[7]

II. LITERATURE REVIEW

This section of the present research highlights the various existing researches carried out by many authors in the field of brain tumor detection and classification-using nature inspired algorithms. Unfortunately, the traditional methods of feature reduction such as Principal Component Analysis (PCA), Independent Component Analysis (ICA) etc. are not much enough in the case of hyper spectral images [8,9]. Later, in 1990's, the concept of

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Electoral Strategy of the Bahujan Samaj Party in the 2019 Lok Sabha Elections

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Abstract

This paper is an attempt to explore the BSP's electoral strategy in the forthcoming general elections 2019. As it is well established that in the parliamentary democracy the first past the post system i.e. relative votes secured are the marker of electoral victory, hence to address contemporary political realities the political parties change their strategies time to time. Major shift in the electoral strategies of the BSP are witnessed like pre-poll alliances, organizational changes, use of social media, etc. Since it had suffered major and unprecedented set back in the past elections in 2014 and 2017; it has now fundamentally changed its very strategy of fighting elections on its own strength along with various other strategies. The multilateral electoral strategy of the BSP is - projecting Mayawati as 'PM candidate' for 2019 elections and making her as a candidate in parliamentary election; social engineering of alliances particularly SC-ST, SC-OBC, and SC-OBC-minority or 'Dalit-Bahujan' alliance in different states viz. Chhattisgarh, Haryana, Punjab; and most importantly in Uttar Pradesh and Madhya Pradesh; isolation of the Congress in Uttar Pradesh; anti-BJP, anti-Congress strategy to gain from disillusionment of the electorate with the BJP and the Congress and to form an anti-BJP and anti-congress front or third front to present third alternative before Indian people; exposing the anti-dalit and anti-reservation stand of the BJP; entry in the social media domain (Mayawati's twitter account); increasingly giving more responsibility to youth in the organization, etc. Political scientists regarded this pre-poll alliance shift as a radical shift post volatile years of 1990's. The strategic isolation of the Congress from 'Mahagathbandhan' in politically critical Uttar Pradesh is a deliberate and well thought-out 'tactical' strategy for the 2019 Lok Sabha polls, despite its

good show and government formation in Madhya Pradesh, Rajasthan and Chhattisgarh assembly elections and in spite of entry of Priyanka Gandhi in the party, to disturb or weaken the 'swarna' or 'upper caste vote bank' of the BJP. The article argues that consolidation of dalit-Bahujan votes and avoiding fragmentation of anti-BJP votes is the core electoral strategy of the Bahujan Samaj Party. The paper also examines why the BSP is compelled to adopt such strategy and its challenges and implications in the electoral politics of the state and in the national politics. It concludes that the strategy of the BSP is carefully thought out however not sure shot for success as a number of variables determines electoral victory in highly competitive Indian politics.

Key words: Electoral politics, Mahagathbandhan, Strategic isolation, Social engineering, Dalit-Bahujan, Bahujan front politics

1. Introduction

Election being the hallmark of democracy is a mechanism by which people choose their representatives at regular intervals and change them if they wish to do so. Hence, change and retention of incumbent government is visible post-elections. Regular elections are seen as democracy at work, however in broader aspects proper functioning of the constitutional and statutory institutions, pro-people bureaucratic machinery, effective media, enlightened citizenry, etc. are included in it (democracy). When one talk of election and electoral politics one thing that automatically comes in mind the meaning and relevance of it. Electoral politics deals with the ideas and actions behind the process of choosing by vote (elections) among candidates to govern the state. Electoral politics is a vital part of the democratic functioning of the state. Being important components

FEATURES OF DALIT MOVEMENTS IN INDIA: THROUGH DALIT PERSPECTIVE

Virender*

Ravinder Kumar*

INTRODUCTION

The mainstream literature, culture, media, politics, and religion, in general, ignore the dalit people and their socio-cultural movement. Not only that even the subaltern studies had also ignored and are not paying heed to the dalit and their historiography. This paper is an attempt to mature and propagate common threads of dalit movement through dalit perspective which is quite new in the field of knowledge and literature. The Dalit-Bahujans are historically involved in the production and producing economy. The paper explores the features of the dalit movement like liberty, equality, fraternity, secularism, democracy, egalitarianism, dignity of labor, social justice, Dalit historiography, Dalit agitation. It also finds out how the dalit movement is based on the ideas of Buddha, Kabir, Ravidas, Phule, Pariyar, Narayan Guru, Ambedkar, etc. This paper also reveals that how the Dalit movement have been raising the voice for silent, suppressed and exploited people; how the Dalit movement are working for annihilation of caste; how dalit movement are striving hard for social, economic, and land reforms; how the dalit movement are writing the historiography of sub-ordinate people; and will analyse how the dalit movement are following Ambedkar's idea of 'Educate, Unite and Agitate'.

KEY WORDS: Dalit Movement, Dalit Politics, Dalit Perspective, Social Movement, Dalit-Bahujan, Brahminism.

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ROLE OF MEDIA IN ELECTIONS

Ravinder Kumar*

Virender**

Abstract: This paper is an attempt that how media is immensely crucial for a vibrant democracy of which election is the hallmark for democracy's success. It is well known that media is the fourth pillar of democracy, and being the friend, philosopher and guide of electorate and democratic institutions it assumes utmost importance to have free, fair and transparent elections. In a representative democracy, elections, being the practical aspect of democracy, are the means to realize and achieve political power and that itself became means to fulfill national interest since political party/parties in power guide a country in a specific direction. In that sense, relationship of elections and national interests is of huge importance, simply because free, fair and transparent elections determine the nature, content and future of any democratic nation. Media is a medium to disseminate information to all stakeholders; to inform and enlighten citizens about their rights and duties; to provide a platform for discussion and debate on local, national and international issues; to enhance knowledge; to build perception among electorate towards a particular candidate or party/parties; to highlight the vital role voting in elections, etc. All such information and activities have vital imprints on voting behavior of people and elections. This paper will examine the what, why and how of media and fair elections through its critical and contemporary approach and is also dismantle the issues, challenges and reforms need to brought in both in media and election system. For example, corporatization of media, paid and fake news, partisanship of editors and TV anchors, model code of conduct in media, biased news, etc. are plaguing Indian media which are adversely impacting elections in India and hence

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Analysis of Investment profile of women investors with reference to demographic factors

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ABSTRACT - With a changing scenario, women have started actively participating in investing their surplus money, though it all depends upon the various parameters such as degree of their risk-taking capability, influence of family members and friends and the dare to get exposed to modern and innovative investment avenues. The involvement of women in business and finance has increased rapidly in the past few decades. The present woman is equally employed and has knowledge about various aspects of business and finance. The basic factors that form the rational behavior of women investors are investor's personal characteristics such as age, occupation, investments experience and income level of investors.

The present study aims to identify the investment profile of women with regard to demographic factors. An investment profile covers the various aspects of the investments made by women such as frequency of investment, investment experience, factors considered while investing money, percentage of income spent on investment, time period for

Factors Influencing the Investment Behavior of Women Investors: An Empirical Investigation

Sanjeet Kumar* and Prashant Kumar**

Women are now financially independent and actively participate in investing their savings by analyzing the various factors such as degree of risk associated with investment, influence of family members and friends, and the capability of investing in modern and innovative investment avenues. Thus, it is imperative to study the factors that force women investors to select various investment avenues. It plays a crucial role in determining the behavior of women investors and their disposition effect. Women usually avoid investing their money in stock market due to high volatility in the financial market, lack of adequate knowledge, improper guidance and many other factors. Therefore, it is desirable to analyze the investment behavior of women to check their risk-bearing capacity and factors that affect their behavior because investment behavior of women is an issue of concern across the world. In this study, a survey is conducted to mainly identify the factors that influence the choice of women investors. This study is exploratory in nature and uses primary data collected through a modified questionnaire from 400 women investors based in Haryana region. Using factor analysis, the present study identifies seven factors that influence the investment decisions of women investors. The results reveal that the total variance explained through factor analysis is 86.16% and seven factors are extracted based on eigenvalues. The study labels these factors as sociocultural factors, personal factors, market-related factors, economic factors, investment-specific factors, firm-related factors and accounting information. This would help many researchers and stakeholders to understand how women investors behave while making investment decisions and would especially aid financial institutions to design such products and financial options that can address the needs of women investors.

Introduction

Today's women are financially independent and ready to pool their savings in a profitable avenue to maximize their wealth. Women are actively participating in investing their savings by analyzing the various factors such as degree of risk associated with investment, influence of family members and friends and the capability of investing in modern and innovative investment avenues. Investment is the allocation of funds to the profit-generating asset in future. The selection of investment is a difficult task which requires considerable skills and knowledge for analysis of available options. Moreover, a sound investment decision in stock market may lead to higher return and maximum satisfaction. But it seems difficult for people to analyze the various options to find out suitable investment avenues because of lack of awareness as people do not even know where to invest and how much to invest.

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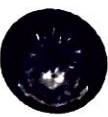
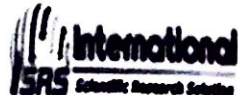
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Thermodynamic properties of ternary oxygenated fuel mixtures

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ABSTRACT

The density (ρ), speed of sound (u) and refractive index (n_D) data for diisopropyl ether (DIPE) + benzene + *n*-octane mixtures have been measured at 0.1 MPa and at $T = (298.15\text{--}318.15)$ K. The data were further employed to derive excess molar volume (V_m^E), deviation in u (Δu) and n_D (Δn). The V_m^E values for mixtures were correlated and predicted from the constituent binary data using various fitting equations by Singh and Cibulka, geometrical solution models by Kohler, Radojkovic and Prigogine-Flory-Patterson theory. The u data were analyzed by Schaaff's Collision Factor theory and Nomoto correlation at 298.15 K. Using the Jacobson free length theory L_f^E and V_a^E were also calculated. The n_D data for these mixtures were also successfully predicted by seven mixing rules from the pure components data.

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1. Introduction

The study of thermophysical properties is of considerable concern to test the existing theories, in chemical designing and to understand the intermolecular interactions [1–6]. The physicochemical properties of compounds in multicomponent fluid mixtures are important for designing of distillation columns in refineries [7–11]. The measurements of these properties for multicomponent mixtures beyond binaries is time consuming, costly and also difficult owing to plethora of compounds resulting in infinite number of mixtures [12] [13–19]. Thus, there is a need to develop new correlations as well as modify the existing correlations in order to predict the thermophysical properties from the pure component data or from the minimum data of the binary mixtures [20–23]. The excess properties reflect the deviation from ideal behaviour and are function of size, shape and polarity of the mixing components. Excess properties were studied for the binary mixtures containing *n*-octane, diisopropyl ether (DIPE) and benzene [24–26]. But through literature survey, we confirmed that there is no experimental study for [DIPE + benzene + *n*-octane] mixtures. This paper is a part of project on the excess properties of oxygenated fuel mixtures consist of DIPE, alkanol, aliphatic and aromatic hydrocarbon [24,27–31]. Benzene is selected owing to its use as an additive in gasoline due to its

high octane number, DIPE as fuel oxygenate and *n*-octane represents hydrocarbons in the gasoline [2,32,33]. In this paper, we report the density (ρ), excess molar volume (V_m^E), speed of sound (u) and refractive index (n_D) of ternary [DIPE + benzene + *n*-octane] mixtures at temperature $T = (298.15\text{--}318.15)$ K and $p = 0.1$ MPa.

2. Experimental section

The chemicals were purchased from Merck with a purity of DIPE (99%), benzene (98%), *n*-octane (98%) and stored over 4A molecular sieves (Merck) without any further purification. The purity levels of these chemicals were again confirmed with gas chromatograph (Hewlett-Packard, 5890 Series II) and the final purity was 0.997 mass fraction (DIPE), 0.998 mass fraction (benzene), and 0.995 mass fraction (*n*-octane).

The mixtures were prepared by weight with an analytical balance (OHAUS, AR224CN) of precision ± 0.1 mg. The ρ and u data of ternary mixtures and their constituents were measured with a precision of $0.05 \text{ kg}\cdot\text{m}^{-3}$ and $0.01 \text{ m}\cdot\text{s}^{-1}$ by densimeter and sound analyzer (frequency ~ 3 MHz) (DSA 5000 M Anton Paar) at $T = (298.15\text{--}318.15)$ K and $p = 0.1$ MPa. The n_D data were measured at identical conditions with refractometer (Abbemat 200 Anton Paar) with a precision of ± 0.0001 for n_D and ± 0.01 K for temperature. A built in Peltier device was used in these instruments to set the temperature with the precision

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Volumetric, acoustic and optical studies of ternary mixture of diisopropyl ether, n-heptane and n-octane



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ABSTRACT

Density, ultrasonic speed and refractive indices of the ternary liquid mixture of diisopropyl ether (DIPE), n-heptane and n-octane were experimentally determined at 298.15 K to 318.15 K. Excess molar volume (V_m^E), deviation in speed of sound (Δu), excess isentropic compressibility (K_s^E), excess intermolecular free length (l_f^E) and deviation in refractive index (Δn) of ternary mixtures were derived from experimental data. The V_m^E values were fitted to the Singh, Cibulka and Nagata equations and the same have also been interpreted using Prigogine-Flory-Patterson theory. Various geometrical solution models like Tsao-Smith model, Jacob-Fitzner model, Kohler model, Rastogi model and Radojkovic model were used to predict V_m^E for the ternary mixtures using their binary excess volume data. Various correlations like Nomato, van Dael, impedance dependence relations and CFT theory were used to correlate speed of sound data at 298.15 K. l_f^E and V_m^E were also calculated from Jacobson free length theory at 298.15 K. The Δu , K_s^E , l_f^E , V_m^E and Δn values were also fitted to the Singh equation. Various mixing rules Arago-Biot, Gladstone-Dale, Weiner, Heller, Newton, Eyring and John were used for theoretical prediction of refractive indices of the ternary mixture. Temperature effects on various properties were also studied.

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1. Introduction

This paper is an extension of our past studies associated with various thermodynamic properties of binary mixtures of diisopropyl ether, n-heptane and n-octane [1–3]. In the recent years, the study of physical properties of liquid-liquid systems has attracted considerable interest in view of its importance to interpret and predict the intermolecular interactions present among mixing components [4–6]. The main problem is the non-availability of data to comprehend the nature of interactions among the constituents. The physicochemical properties involving excess thermodynamic functions are found to be relevant to carry out engineering applications in the process industry and designing of separation processes in chemical industries. Also the information about the excess thermodynamic functions can be utilized to develop new empirical correlations and to improve the existing theoretical knowledge [7–13]. Therefore, in continuation of our earlier work, it was considered to undertake the study of ternary liquid mixtures containing non-polar liquids in association with industrially important solvent DIPE at various temperatures over the whole range of compositions [1,14–25]. After literature survey it has been observed that molecular interactions among the ternary systems containing

DIPE have not explored much. A systematic study of thermodynamic properties such as density (ρ), excess molar volume (V_m^E), ultrasonic speed (u) and refractive index (n_D) of ternary system at 298.15 K, 308.15 K and 318.15 K was done. The V_m^E data were interpreted quantitatively in terms of Prigogine-Flory-Patterson (PFP) theory as well as solution models while other u and n_D properties were also correlated with many correlations.

2. Experimental section

DIPE, n-heptane and n-octane (all Merck) were purified [26] and preserved in dark coloured bottles with 4A molecular sieves (Merck). The densities and ultrasonic speed were measured with a precision of $\pm 10^{-3} \text{ kg m}^{-3}$ and $\pm 0.01 \text{ ms}^{-1}$ by vibrating tube densimeter and sound analyser (DSA 5000 M Anton Paar). Refractive indexes were measured with refractometer (Anton Paar Abbemat 200) with temperature controlled within $\pm 0.01 \text{ K}$ having accuracy up to $\pm 1 \times 10^{-4} \text{ K}$. The measured ρ , u and n_D values of the pure compounds were shown in Table 1 along with purities and found to be in good agreement with their respective literature values (Table 1). The ternary mixtures were prepared using a weighing balance (OHAUS, AR224CN) having accuracy $\pm 0.1 \text{ mg}$ with uncertainty $\pm 5 \times 10^{-4}$. The measured ρ , u and n_D values of the ternary mixtures were recorded (Table 2).

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Measurement and correlation of thermodynamic properties of ternary mixtures of oxygenated fuel

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Abstract—Oxygenated fuels are of great interest as these are more energy efficient and environment friendly. Therefore, thermodynamic properties like density, ultrasonic speed and refractive indices of diisopropyl ether+benzene+n-hexane mixtures were measured experimentally at 298.15 K, 308.15 K and 318.15 K. Excess properties like volume (V_m^E), isentropic compressibility (K_s^E), intermolecular free length (L_f^E) as well as deviation in ultrasonic speed (Δu) and refractive index (Δn) of these mixtures were derived from experimental data. The V_m^E values were also fitted to the Singh, Cibulka and Nagata equations, and the same were also predicted using Prigogine-Flory-Patterson theory and four geometrical models from constituent binary V_m^E data. The u data were correlated by Nomato, van Dael, impedance dependence correlations and CFT theory at 298.15 K. L_f^E and V_m^E were also calculated using Jacobson free length theory at 298.15 K. The n data were also predicted by Arago-Biot, Gladstone-Dale, Weiner, Heller, Newton, Eyring and John mixing rules.

Keywords: Fuel Oxygenate, Excess Molar Volume, Ultrasonic Speed, Refractive Index, Hydrocarbon, Diisopropyl Ether, PFP Theory

INTRODUCTION

The study of physical properties of liquid-liquid systems has attracted considerable interest in view of its importance to interpret and predict the intermolecular interactions present among mixing components [1-3]. The main problem is the non-availability of data to comprehend the nature of interactions amongst the constituents. The physicochemical properties involving excess thermodynamic functions are found to be relevant to carry out engineering applications in the process industry and designing of separation processes in chemical industries [4-7]. Also the information about the excess thermodynamic functions can be utilized to develop new empirical correlations and to improve the existing theoretical knowl-

edge. Oxygenated motor fuel is a mixture of oxygenate, aromatics and alkanes. In our earlier work, we reported the excess the excess volume [8-17], excess enthalpy [18-29], and vapor-liquid equilibrium data [30-35] of isomers of butanol or propanol with aromatics (benzene, toluene, xylenes and cyclohexane) and interpreted the data in terms of Mecke-Kempter type of association model. This paper is an extension of our past studies associated with various thermodynamic properties of binary mixtures of diisopropyl ether, benzene and n-hexane [17,36,37]. The alcohols and ethers are considered as fuel oxygenate. Excess enthalpy and excess volume of binary mixtures of diisopropyl ether, ethanol, alkane and aromatics were also studied at different temperature over a wide range of temperature [9,19,26,27,38,39]. Transport properties of these binary

Table 1. Purities (wt%), measured densities, ρ (g cm^{-3}), refractive indices n_D , and ultrasonic speed u (m s^{-1}) of the pure liquids at 298.15 K

Compound	GC results		$\rho/\text{g cm}^{-3}$		n_D		u	
	wt%	This work	Literature [46]	This work	Literature [46]	This work	Literature [46]	
DIPE	99.8	0.718522	0.71820	1.3654	1.3655	997.81	998.23	
Benzene	99.6	0.873612	0.87355	1.4972	1.4977	1,298.83	1,298	
n-Hexane	99.7	0.655296	0.6548	1.3733	1.3736[47]	1,080.10	1,077.7	

^{††} standard uncertainties (u) are u(T)=0.05 K, u(p)=0.001 MPa; u(ρ)=0.5 kg m⁻³; u(n_D)=0.0005; u(u)=0.05 m s⁻¹

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Thermodynamic Excess Properties for the Ternary Benzene + *n*-Heptane + *n*-Octane System at Temperatures of 298.15–318.15 K: Measurement and Correlation

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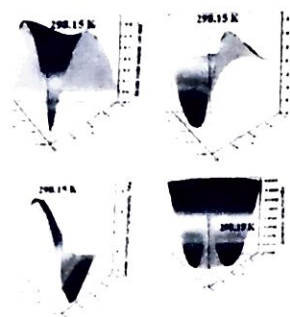


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Supporting Information

ABSTRACT: The density (ρ), speed of sound (u), and refractive indices (n_D) data at atmospheric pressure for benzene + *n*-heptane + *n*-octane mixtures from 298.15 to 318.15 K have been measured. The data were further used to derive excess molar volume (V_m^E) and deviation in u (Δu) and n_D (Δn). The V_m^E values for the ternary mixtures were positive and predicted from the constituent binary data using various fitting equations, geometrical solution models, and the Prigogine–Flory–Patterson theory. The u data at 298.15 K were analyzed by Schaaff's collision factor theory and Nomoto correlations. Using the Jacobson free length theory, L_1^* and L_2^* were also calculated. The n_D data for these mixtures were also predicted from the pure component data.



1. INTRODUCTION

The study of thermophysical properties is of considerable importance to test the existing models, theories, and correlations and to understand intermolecular interactions in chemical designing.^{1–3} The physicochemical properties of compounds in multicomponent fluid mixtures are important for designing distillation columns for separation process refineries. The measurement of these properties for multicomponent mixtures beyond binaries is time-consuming, costly, and difficult also due to the plethora of compounds. Thus, there is a need to derive new correlations as well as to modify the existing correlations to predict the thermophysical properties from the pure component data or from the minimum data of the binary mixtures. The excess properties reflect the nonideal behavior and are functions of size, shape, and polarity of the mixing components. Excess properties were studied for the binary mixtures of benzene + *n*-heptane and benzene + *n*-octane.^{4–12} But through a literature survey, we confirmed that there is no experimental study for the ternary benzene + *n*-heptane + *n*-octane system. This paper is a part of study on the thermophysical properties of oxygenated fuel mixtures consisting of diisopropylether, ethanol, benzene, and alkane (C₇–C₁₁).^{13–15} Benzene is an important constituent of gasoline due to its high octane number, and *n*-heptane and *n*-octane are also the hydrocarbons present in gasoline. Therefore, this paper reports the density (ρ), excess molar volume (V_m^E), speed of sound (u), and refractive index (n_D) of ternary mixtures containing benzene, *n*-heptane, and *n*-octane at temperatures of 298.15, 308.15, and 318.15 K and a pressure of 0.1 MPa. The V_m^E data were modeled with the Prigogine–Flory–

Patterson (PFP) theory and geometrical solution models, while the u and n_D data were correlated with many correlations.

2. EXPERIMENTAL SECTION

2.1. Chemicals. All of the chemicals including benzene, *n*-heptane, *n*-octane, and cyclohexane were purchased from Merck with purities of 98, 99, 98, and 99%, respectively, and stored over 4A molecular sieves (Merck) without any further purification. The purity levels of all pure chemicals were again confirmed by a gas chromatograph (Hewlett-Packard, 5890 Series II) with a thermal conductivity detector (TCD) (140 °C), Porapak Q column (30 °C), and helium as a carrier gas (75 mL·min⁻¹). The final purities were 0.998 mass fraction (benzene), 0.995 mass fraction (*n*-heptane), 0.995 mass fraction (*n*-octane), and 0.997 mass fraction (cyclohexane) (Table 1).

2.2. Apparatus and Procedure. The mixtures were prepared by weight in airtight glass bottles using a weighing balance (OHAUS, AR224CN) having accuracy ± 0.1 mg, and the uncertainty in mole fraction was 0.0002.

The ρ and u data of ternary mixtures and their constituents were measured with precisions of 0.05 kg·m⁻³ and 0.01 m·s⁻¹, respectively, by a densimeter and a sound analyzer (frequency

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Novel scheme of k-SVM analysis using PCA and NN for detection of MRI brain images

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Perception of Women towards Indian Stock Market with Reference to Demographic Factors

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ABSTRACT

The participation of women in the economy is important in order to enhance and contribute towards raising the economic potential of a country. Women invest in stock market because of high return, high liquidity, income stability and variety of benefits associated with stock market. As investment decision of women depends upon number of behavioral aspects like their understanding, perception, attitude and preferences which form their behavior. On the basis of these behavioral elements, women arrive at a conclusive decision such as whether to invest or not in a particular investment avenue. The basic factors that form the rational behavior of investors are investor's personal characteristics such as age, occupation, investments experience and income level of investors. The present study aims to identify the perception of women investors towards investment in Indian stock market with regard to demographic factors. A random sample of 400 women investors were selected from Haryana, India. To analyze the data, ANOVA were applied to investigate the difference between demographic factors and perception of women. The present research will assist not only the women investors but also the different financial institutions, investment consultants, stock broking houses and other participants of stock market in exploring the factors that influence the perception of women about stock market

Keywords: Demographics, Indian stock market, Investment, Perception, women investors

INTRODUCTION:

With a changing scenario, women have started actively participating in investing their surplus money, though it all depends upon the various parameters such as degree of their risk-taking capability, influence of family members and friends and the dare to get exposed to modern and innovative investment avenues. The involvement of women in business and finance has increased rapidly in the past few decades. The present woman is equally employed and has knowledge about various aspects of business and finance. Women take the active part in every affair of home.

The women are the almost half of total population and women are independent, educated and getting handsome amount of salary. Nowadays, women not only take the home oriented decision but also take financial decision independently. Due to higher qualification women own, they are enjoying higher post whether it is in corporate or other services. Today's women are financially independent and ready to pool their savings in a profitable avenue to maximize their wealth.

Women invest in stock market because of high return, high liquidity, income stability and variety of benefits associated with stock market. As investment decision of women depends upon number of behavioral

Financial Risk Tolerance Based on Demographic Factors of Women Investors: Indian Perspective

Sanjeet Kumar*, Prashant Kumar**

Abstract

The paper aims to examine the phenomenon of risk-taking ability in response to the demographic factors of women investors in Indian stock market and analyzes the impact of demographics of women on their risk-tolerance level. Women's risk-taking ability is very vital aspect to recognize their most favorable investment portfolio. A well-structured questionnaire was administered personally to 400 Indian women investors. The results stated that women investors in Haryana, India, have low-risk appetite. They cannot afford to take high risk. So, women prefer risk-free investment and avoid losing their money. Women's demographic distinctiveness plays a crucial role in identifying their risk-tolerance levels. In this regard, age, marital status, education, income, experience and occupation were found to have a major impact in determining the risk appetite of women. It is hoped that the findings will assist financial advisors, investment managers and financial consultant to understand and discover the solution to those demographic factors, which cause variations in risk-tolerance level. This study corroborates the importance of financial literacy to make women more aware and technically sound with dimensions of investment. Further, it will help in making ideal investment portfolio by accommodating the need of investors effectively. This study will contribute to the understanding investment behavior of investors. This empirical research represents how demographic variables influence risk-taking ability of women and provides precious understanding that how women investors of Haryana make their financial decision.

Keywords: Investment Behavior, Demographics, Risk Tolerance, Women Investors

Introduction

Taking financial risks makes most people nervous. Certain types of people enjoy taking risks, while others prefer stability and are averse to any type of risk. Risk tolerance is an important component in investing, which

means the degree of variability in investment returns that an investor is willing to withstand. Risk appetite is the risk-taking capacity of investors, which signifies how much risk an investor can afford to take and how much risk he can stand to take. However, the risk appetite of women investors mainly depends on their behavior as behavior determines the way to reach at a particular decision. However, behavior of women is influenced by numerous factors such as personal factors, psychological factors, social and cultural factors, economic factors, family factors, company-specific factors and market factors. In this way, an investor's ability to take risk predominantly depends on various factors such as age, gender, income, experience, occupation, family background, education and financial status. These factors strongly influence the behavior of women and determine their risk-taking capacity as to why they opt for moderate-risk, low-risk and high-risk investment options.

When it comes to taking risk for earning returns, different people have different attitudes. Some are risk lovers, some risk averse and some are neutral toward risk. Generally, investments giving lower returns come with lower risks as well (Bhattacharjee & Singh, 2017). On the other hand, investments giving higher returns involve higher risks. A risk-averse person would prefer investing in fixed deposits, bonds, etc., as they involve lesser risk, whereas a risk lover would prefer investing his money in stocks as they have the potential to give higher returns than fixed deposits. Women with a low-risk tolerance would most likely invest in conservative options where there is little to no fluctuations in the initial investment and earnings. Moreover, lack of knowledge and awareness, insecurity and high volatility in stock market are the concerned issues for women investors that prevent them from taking high risk (Vohra & Kaur, 2016).

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Investigating Awareness Level of Women of Investment Avenues

Prashant Kumar*, Sanjeet Kumar**

Abstract

Financial awareness is vital to both investors and the growth of economy due to an increasing need for investment in the financial market, complex environment, growing frauds, malpractices, and insider trading. In view of this, efforts should be made to protect the interest of the investors. The investors should also be given first-hand market information. To predict the behavior of the investors, their awareness level is the most important component, which can bring a profound change in their investment habits. The present study aims to identify the awareness level of women investors of various investment avenues, with regard to demographic factors. A random sample of 400 women investors were selected from Haryana, India. To analyze the data, ANOVA was applied to investigate the difference between demographic factors and awareness level. The present research will assist not only the women investors but also the different financial institutions, investment consultants, stock brokerage houses, and other participants in the stock market, in exploring the factors that influence the perception of women about the stock market.

Keywords: Awareness Level, Demographics, Investment Avenues, Women Investors

capability, influence of family members and friends, and the courage to get exposed to modern and innovative investment avenues. The involvement of women in business and finance has increased rapidly in the past few decades. Women today are equally employed and have knowledge of the various aspects of business and finance. Women take an active part in every issue at home.

Women make up almost half the total population. They are becoming more independent, educated, and are earning a fairly decent salary. Nowadays, women not only take decisions about their family, but also take financial decisions independently. With higher qualifications, women are climbing up the corporate ladder. Being financially independent, women are ready to pool their savings into a profitable avenue to maximize their wealth.

Gaining financial knowledge and a sense of awareness is required to increase the participation of women in economic spheres. In this way, financial literacy initiatives directed at women can be fruitful in bringing a revolution in behavior of investors, as awareness is the key to making a wise and ideal investment decision (Sanjeet & Prashant, 2020).

Women invest in the stock market because of the high returns, high liquidity, income stability, and a variety of benefits associated with the stock market. The investment decision of women depends on a number of behavioral aspects, such as their understanding, perception, attitude, and preferences, which are part of their personality. On the basis of these behavioral elements, women arrive at a decision regarding their investment in a particular avenue. The basic factor that forms the rational behavior of investors is the investor's personal characteristics, such as

Introduction

With the changing scenario in the present day world, women have started to actively participate in investing their surplus money. However, it depends on various parameters, such as the degree of their risk-taking

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Thermodynamics of ternary mixtures with gasoline additive: Volumetric, acoustic and optical properties

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ABSTRACT

Excess molar volume (V_m^E), deviation in ultrasonic speed (Δu) and deviation in refractive index (Δn) of ternary mixtures with gasoline additives diisopropyl ether (DIPE) + benzene + n-heptane were derived from the measured density, ultrasonic speed and refractive index with Anton Paar vibrating tube densimeter, sound analyzer and Abbemat 200 refractometer, respectively at different temperature of 298.15 K, 308.15 K and 318.15 K and atmospheric pressure. The V_m^E values for the ternary mixtures were predicted using pragmatic equations and geometrical solution models employing constituent binary data. The V_m^E have also been interpreted using Prigogine-Flory-Patterson theory. The ultrasonic speed data was analyzed using like Nomato, van Dael, impedance dependence correlations and CFT theory at 298.15 K. Jacobson free length theory was employed to compute L_f^E and V_f^E at 298.15 K. The refractive indices of the ternary mixtures were also predicted using various mixing rules. The $V_m^E, \Delta u, K_f^E$ and Δn derived values were also fitted to the Singh equation.

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1. Introduction

Ethers are the most important oxygenated gasoline additive due to its antiknocking effect and eco-friendly chemical [1,2]. It is easy to synthesize at low cost and in industries it is obtained as byproduct during the production of isopropanol. Benzene is also a natural constituent of crude oil and elementary petrochemical with a high octane number. But due to carcinogenic properties of benzene it has been limited to gasoline. The third added compound, n-heptane, is also the hydrocarbon in the gasoline. The physicochemical properties of compounds are important for engineering applications and designing of separation processes in chemical industries. The study of physical properties of liquid-liquid systems has attracted considerable attention in view of its importance to interpret and predict the intermolecular interactions present among mixing components [3–5]. Also the information about the excess thermodynamic functions can be utilized to develop new empirical correlations and to improve the existing theoretical knowledge. Molecular interactions of binary mixtures of ether, aromatic hydrocarbon and

alkane have been studied by many researchers [3–17] using volumetric, ultrasonic speed and viscosity studies. Therefore, it was considered to undertake the study of ternary liquid mixtures containing non-polar liquids in association with industrially important solvent DIPE at various temperatures over the whole range of compositions. Using our earlier work on thermodynamics of binary mixtures of diisopropyl ether, benzene and n-heptane [3–5] a systematic study of thermodynamic properties such as density (ρ), excess molar volume (V_m^E), speed of sound (u) and refractive index (n_D) of ternary system at temperature of 298.15 K, 308.15 K and 318.15 K and pressure of 0.1 MPa were reported here. The V_m^E data were interpreted quantitatively in terms of Prigogine-Flory-Patterson (PPF) theory as well as solution models while u and n_D properties were also analyzed with many correlations.

2. Experimental section

2.1. Chemicals

During this study all the used chemicals were procured from Merck having a purity level of DIPE (98%), benzene (98%) and n-heptane (99%). Without any further purification all the chemicals were sealed over 4A molecular sieves (Merck) for 48 h. After keeping on molecular sieves we again confirmed the purity levels of all pure chemicals with gas chromatographic analysis which was found better than stated

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Application of different Market Promotional Tools In Business



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Abstract: In the emerging business scenario various techniques are used by the marketer for influencing the purchase decision of their customers. The growing market-size, intense competition, and changing life style and aspirations of people are the challenges faced by manufacturers and marketers in sustaining competition. Different marketing mix programs are used by marketers. Promotion is one of the important elements of marketing mix. So, to attract customers and avoid competition many promotional tools are used by marketers from time to time. These tools helps in the achievement of basics objectives of marketing like to present information to consumers as well as to others, to increase demand and to differentiate a product from the products of other brands. Now a day it is important for all the organizations to communicate effectively with present and potential customers to win more customers for their products and services. Marketing promotional tools can provide a clear, consistent, credible and competitive message about organization and its product & services to consumers. There is no best alternative to get new and more customers than promotion. Because consumers always confuses to purchase the service because of highperceived risk inherent in the many products. So, different promotional tools can eliminate this situation and helps organization to get more customers for their products and services. The main aim of this research paper is to know about the various benefits received from the use of different promotional tools. Promotional tools help the businesses in achieving their target that is sales growth and profit maximization through maximum consumer satisfaction. So that they can create long time customers and make them loyal towards their business and long term success of their business.

Key Words: Advertising, Sales Promotion, Personal Selling and Publicity.

Introduction: Although there is much controversy in the marketing literature about how promotional tools affects the market competition, very few are about the effect of these tools on product innovation. This research examines the relationship between promotional tools and the sales growth and also to find how much sales of different products increases by these promotional tools. First of all it is important to know that according to the changing situations and demand of customers marketers have to choose a best combination of strategies which yields them maximum profits and more consumer satisfaction. Many businesses fail to realize that they cannot stay in business without any marketing strategies. This is because they were operating in a market that was monopolistic in nature. This means that there was no intense competition from other organization. But these days due to dynamic nature of the market, and consumer taste changes every day it has become imperative on the part of the business to look into their strategies. A good promotional strategy encompasses advertising, sales promotion, public relations, and personal selling in order to communicate with their present and potential consumers (Kotler, 1994). Once you will have identified your target market, you'll have a good idea of the best way to reach them. The producer may have the best products, proper package, fair price but his efforts are incomplete without effective communication strategy with the prospective customers.

Review of Literature: Can promotional strategy is satisfactory to achieve the aim of sales growth for firms? The answer of the question lies among the views of some persons who conducted the research in relation to this aspect. The management should use the promotional techniques in such a way that the customers do not doubt the reality of the strategy used by the firms. According to him the firms should adopt that strategy which enhances the consumer buying pattern (Sufianjaleel, 2012). Winning companies will be those who can meet customer needs economically and conveniently and with effective communication. Promotion mix is a factor that the marketing manager can take to solve a marketing problem (Bckowitz (et 91), 1997). (Fishce 1996), find out that the elements of promotion mix like advertising, sales promotion, and public relation are the strategy through which mass selling is done because they are used with group of prospective buyers while personal selling is a strategy of face to face or telephone services. In developing the advertising program, a firm identifies the target audience, that is, group of prospective buyers toward which advertising program is directed. The objectives should be designed for a well defined target audience, be measurable and cover a specified time period (Magid and Loorsh, 1990). Kotler, (2000) defined that personal selling is a two way flow of communication between buyer and seller that is designed to influence a person's decision, with advances in technology, personal selling also takes place over the telephone, through video

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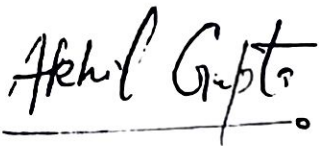
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सगुण कवि तुलसीदास के काव्य - सिद्धान्त

मधु आराड़ा

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पृथिका

संस्कृत - कव्य और अणुकाव्य को तब-तब परिधानों में युगानुकूल परिवर्तित करणती हुई जो संस्कृति, सभ्यता में मुखरित हुई है, उसी के संगीत की एक कदम संपन्नता के चरणवत् - पवित्र - सार्वभौम में भी उपलब्ध होगी है। वैदिक काल से चौदहवीं शताब्दी तक इसकी अन्तःप्रवर्तना आध्यात्मिकता में अज्ञ-ज्ञान को है। लौकिक और धार्मिक मुक्तकों में लेकर रातो प्रकार के महाकाव्यों तक, कहीं भी इस आध्यात्मिकता का गंग-कोका नहीं बिसाईं रेंता। लौकिक - कृपा इसी ज्ञान में मधुष्ट पाते के कारण अलौकिक बन गया और अलौकिक निर्गुण ब्रह्म की प्रेम और प्रेम के समय मिश्रण पर घूर्ण हो गया। अज्ञान-रम इस तीर्थ में काव्य- रम बन गया और काव्य-रम अपनी आनन्द भाषना और तन्मय बनने के क्षण के कारण अज्ञान- रमोदर बन गया। विद्वान्त्वय न इस ही स्पष्ट कर्म हुए कहा है कि भारतीय मन्त्रव्य की एक निजी विशेषता यह है कि वह विरुद्ध कला - कृषि तथा शास्त्रीय साधन में कोई विचारक म्का नहीं खोज करता।

तुलसी में शान - पर्वता मधी भला कवियों में अधिक है, पर उनके राग्य की क्लिष्टता इन्हीं सौन्दर्यक अलौकिक है कि प्रत्येक वक्त अपने आप का प्रेम न विगलन कर टका चालता है।

अर्चत प्र पवित्र मुनि कर्ष,

प्रभु रंछे तू अंत तुकड़!

काव्य हेतु

तुलसी के पूर्व सभी काव्य - सिद्धान्तों का निरूपण और काव्यों में उनका प्रयोग हो चुका था। तुलसी के सामने संस्कृत - कव्य और अणुकाव्य की विभक्त और अष्टक काव्य - परबद्ध भी विद्यमान थी। तुलसी केवल शरद-जन संयन ही नहीं थे, वे काव्य - योग्य और कालोत्तम अनुभवता में मूकले इन्दिग्य तक इन्दिग्य सम्पन्न काव्य को ही काव्य मानने की धारणा में भी परिचित थे। वे स्वयं कहते हैं -

धनिनि निनित्र मुकवि कुन जड।

इव-तम विनु म्क न म्कड।

तुलसी का विचार है कि शक्ति - काव्य के लिए सम्पन्न करते ही सम्पत्ती को पीछे आन चढ़ता है। निम्न का स्वयं अनुचित अणुकाव्य और उच्च अर्थ में ही सम्पन्न सौन्दर्य का एकता है। तुलसी की दृष्टि में इवय समुद्र और मनि मीन; सम्पत्ती सौन्दर्य के अन्त, उच्च विचार ही शक्ति की दूर है। इसी में काव्य-मुक्ता जगी का उद्भव होता है।

इवय म्क मनि मीन म्कता सौन्दर्य कहहि मुक्ताक।

ज बरवे पर मरि विचारक, शक्ति कवि मुक्ता कवि चक्र।

इस निम्न शक्ति का तुलसी काव्य का प्रमुख हेतु जानने है। उमक उद्भव में इव - कृपा के मध्य मुक-कृपा के मध्य मुक-कृपा का भी इव है। इसी की मध्य सौन्दर्य में निम्न-दृष्टि दर्शावित होती है। विभक्त कलावत को उपलब्ध में ही सम्पत्ती का धान होता है। उमके गुण और अष्टक शक्तियों को उपलब्ध करन में एक कृपा ही महत्वपूर्ण है।

श्री मुक क्व नय सौन्दर्य जती सुमित निम्न दृष्टि द्विप इती।

उपलब्धि विभक्त विचक्षण ही को म्कति दान मुक क्व रवती क।

मुक्ती मय मरि मरि मरि। गुण अष्ट कर्ष को मरि मरि।

Performance evaluation of de-noised medical images after removing speckled noise by wavelet transform

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Abstract: In the healthcare community, the quality of the medical image is of prime concern to make accurate observations for diagnosis. Different types of noise such as Gaussian noise, impulse noise and speckle noise, etc., have been observed as a main cause for the quality degradation of the medical image. This degradation may further lead to the inconsistent information for the diagnosis, which will directly affect the patient's life. The removal of the noise from the medical image to maintain its quality has become a very tough task for the researchers and practitioners in the field of medical image processing. This paper aims on the comparative performance evaluation of various orthogonal and biorthogonal wavelet filters that are commonly used for the de-noising purpose based on some statistical parameters such as mean square error (MSE), peak signal to noise ratio (PSNR), structural similarity index (SSIM) and correlation coefficient. The result of the present study depicts that biorthogonal 3.9 wavelet filters provide more precise image after the removal of noise as compare to other wavelet filters used.

Keywords: wavelet filters; feature extraction; speckle noise; soft threshold; performance evaluation.

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A Review Based study on Green HRM Practices

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Abstract:

Green HRM means implementation of various policies of human resource management to encourage the use of resources in sustainable manner within the organisation and increase the sustainability of environment for present and future generation. In present scenario, the concept of green HRM is a good strategy for the success of any business, where department of Human resource play a significant role in going green at the office. Data was collected from different databases, websites and other available sources. Focus of this paper upon on the various practices of green HRM pursued by various organisations and also explain the meaning of green HRM.

Introduction:

Reasons like global warming and development of various environmental standards at national and international level, are forcing the organisations to implement environmental strategy and programmes (daily & Huang, 2001). Earlier, organisations were not showing any interest in voluntary actions for protection of environment, but followed only those green management initiatives which were compulsory in nature (Langat, 2016). However various environmental reasons such as refusal by customers, changing in preferences of customers, and developing new trends in customer demands forcing the organisation to change their strategy from control to prevention for enhancing the environmental performance of the firm (Brockhoff et al., 1999).

So, now organisations are paying attention on the concept of green for improving environmental performance and sustainability development. For the protection of environment various green concepts has been developed such as green marketing (Peattie & Charter, 2003; Ginsberg and Bloom, 2004), green accounting (Bebbington, 2000; Halberg et al., 2005), green organizational behaviour (Andersson, 2013; Bissing-Olson et al., 2013), and green management (Alfred and Adam, 2009; Siegel, 2009; Lee, 2009; Molina-Azorin et al., 2009). Another emerging strategy for the protection of environment from various negative



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Human resource outsourcing: Issues and challenges

Namita

Abstract

Business Process Outsourcing has become new mantra in the corporate business world. Modern as well as traditional organizations are now trimming down their employees from their payroll, and thus Human Resource Outsourcing (HRO) is slowly becoming the new buzzword. In order to utilize the true worth of the employees to its fullest, one must outsource the non-core activities of the organization. The awareness of this has already been realized by the organizations. Outsourcing has no longer the privilege of only huge multinational organizations. Even the public sector and government undertakings as well medium size or start-up companies are also in the race of outsourcing their many HR related activities. This paper examines the motives that are encouraging organizations to go for outsourcing HR, drawing the essence from extensive exploratory study of secondary literature. This paper presents an architectural framework to understand issues and challenges of HR HRO and to suggest what organizations should do to taste success from HRO.

Keywords: Human resources, outsourcing

Introduction

The productive capacity of all business depends on three factors: the capital resource, the physical resource and the human resource" - (Peter.F. Ducker)

This statement holds a lot of significance because of the fact that of all the three resources, only the human resources possess the productive capacity for which the upper limits are not defined. So in order to utilize the true worth of the employees to its fullest, one need to outsource the non-core activities of the organization.

Outsourcing can be defined as the situation where an external vendor or service provider provides, on a recurring basis, services that would normally be performed in-house by the organization. In other words it can said that, outsourcing is a process where in organizations concentrate on those aspects of their business processes, which gives them a competitive advantage (called as core business) and contract out or shell out the noncore aspects of their business processes. With the increasing global competition, organizations are looking outsourcing as a means of gaining a comparative advantage over other competitors. Outsourcing is thought to benefit a business by allowing an organization to focus on its "core competencies" or "core processes." In this way, an organization can divert its energy away from peripheral or non-core activities of the business which lies outside of its "true" area of expertise, and instead of that concentrating more energy and focus on what it can does well in order to differentiate itself from other competitors. By outsourcing their noncore activities, organizations would be able to reduce their operating costs too. This is possible by reaping or other advantages associated with specialization available with the outsourcing service provider. One very fine example of this is the BP-Exult deal where Exult handled the administrative elements of compensation, benefits, payroll, organizational development, performance management, employee development, training, recruitment and relocation with its web based software and left British Petroleum responsible for HR policy, strategy, professional resources and labor relations. It was observed through literature survey that around 85 per cent of companies have realized that outsourcing critical support services can enhance their competitive edge, without the need to invest in infrastructure.

Some of the companies are outsourcing entire activities where as some of them are outsourcing partially. If we look at the history of HR outsourcing (HRO) industry, it can be traced back to more than five decades, when ADP (Automatic Data Processing) set up its

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THERMODYNAMIC STUDIES OF BINARY MIXTURE CONTAINING PALM OIL + N-HEXANE AT 298.15K.

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Abstract

The relative density of the pure components (n-hexane), Palm oil & mixtures containing two components (binary mixtures) of Palm oil with n-hexane were measured at temperatures 298.15, mole fractions from 0.1 to 0.9. Relative Densities were determined using Specific gravity bottle. By using experimental densities excess molar volumes of binary mixtures were determined. The calculated values of excess molar volumes were interlinked with Redlich-Kister polynomial expansions. The values of the molar excess volumes suggest that interactions between the two liquids get stronger up to certain mole fraction & then get weaker afterward.

Keywords: Relative Density; Excess molar volumes; Palm Oil; n-hexane.

Introduction:

In the last 10-20 years biofuel¹⁻² has attained much attention to be used as a substituent fuel due to hazardous environmental issues & the continuous consumption of the non-renewable energy resources. The biofuels are consisting of mixture of alkyl ester of long chain carboxylic acids. "It can also be synthesized by homogeneous catalysis with a transesterification reaction³". However the mixtures of diesel with biodiesel are circulated for commercial purpose in the diesel marketplace, even then there are challenges due to inter-molecular interactions between different molecules of diesel & biodiesel & their effect on thermodynamic properties⁴. So, our research group is going to provide a group of new experimental data on transport, density & acquired properties on biofuel-diesel & biofuel-biodiesel mixtures. The experimental value for the density & excess thermodynamic properties are very important in many industrial, chemical & biological processes, particularly for mixed systems. For example: optimization of combustion process & serving as input for simulation¹. Further the excess thermodynamic properties are very useful in understanding of intermolecular interactions². So, this research work is focused at calculating the density of binary of Palm oil + n-hexane at the temperature of 298.15 & at the atmospheric pressure, which is a function of composition. Excess molar volumes, V^E , of binary mixture were calculated by using density data. Major data have been interlinked using Redlich-Kister type functions in terms of the mole fraction. As n-hexane, used in cooking oil hence it is used as a representative of fuel⁶⁻⁷. It must be noted that, as biodiesel have a complex composition hence it is presumed that the mixtures containing biodiesel are pseudo-binary mixtures⁸.



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Advisory Editor, **The Journal of Oriental Research Madras**

Floristic Diversity As Trees, Shrubs And Herbs Of District Sonipat, Haryana, India

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ABSTRACT

Urbanization is considered as a leading cause of species extinction and is often associated with negative impact on plant diversity, but it is also true that high levels of biodiversity may occur within cities. Over the past 30 years rapid changes have taken place in Sonipat too. In the present study, to enumerate the plant diversity of Sonipat district different places such as green space and parks, built-up areas, agricultural land-use, banks of pond, schools etc. were chosen. Regular field visits were done during the period of November, 2020-March, 2021. In this study, a total 161 species belonging to 133 genera and 54 families have been documented from the given area. Out of 54 families, 51 are from Angiosperms and 3 are from Gymnosperms. Of the recorded families, 128 species belong to 103 genera of dicotyledons, 27 species belong to 24 genera of monocotyledons, 6 species of 6 genera recorded are gymnosperms. The most dominant family was Fabaceae (16 species; 17%) followed by Poaceae (12 species; 13%) and Asteraceae (11 species; 12%). The present study provides current status data of plant species in Sonipat district and in future conservation strategies can be planned to protect the plant diversity of this area.

Key words: Plant diversity, Field visits, Sonipat district, Fabaceae

INTRODUCTION

The climate system, as well as natural and anthropogenic-influenced ecosystems, have been modified and altered by global change, which includes changes in atmospheric composition, climate, and land use. These changes will eventually have an impact on the world's ecosystems, particularly altering plant distribution and growth. Diversity of plants generally refers to the diversity and variability of plants in the given area. India ranks sixth among the 12 mega diversity nation of the world [1]. To know about the diversity of plants in various forms is an important goal of ecological research [2]. Now, more attention is paid to biodiversity because on the one hand there is growing awareness about its importance and on the other hand there is a depletion [3]. The knowledge of diversity of plants in a particular area play an important role for basic research as the data generated through these studies is highly helpful in ecological, biogeographic, taxonomic and evolutionary studies. Knowledge of floristic composition is important to know about the overall structure and function of the ecosystem and the diversity of plants of an area helps in assessing wealth and potentiality of that area [4]. Due to urbanization, industrialization



Routing Protocols in Scale-Free Networks: A Survey

Pearl Antil¹, Amita Malik²

Submitted: 10/09/2022 Accepted: 20/12/2022

Abstract : Scale-Free Network is a connected network of inhomogeneous nodes with a power-law degree distribution. The ubiquitous presence of scale-free networks has initiated the interest of many profound researchers to study the behaviour and dynamics of these networks. This article discusses different routing challenges encountered in the design of scale-free routing protocols. The scale-free routing algorithms have been grouped into three categories based on topology information used in the network, network dynamics and routing strategy for better comprehension. The paper analyses these routing algorithms highlighting their relative merits and demerits. It also suggests various application domains pertaining to the existing routing algorithms. The article also highlights some open research issues to point to future research directions which can help to design efficient scale-free routing algorithms.

Keywords: Betweenness centrality, power law, preferential attachment, Scale-Free Networks, Scale-Free routing

1. Introduction

Scale-free network is a network where the number of connections between the nodes obeys power law [1]. There are a few nodes with a very high degree that forms the hubs in the network. The phenomenon which govern the evolution of scale-free networks are, namely, growth and preferential attachment [1] [12]. Every time a new node enters the network, it preferentially attaches itself to an existing privileged node where privilege can be measured in terms of various factors such as node degree, node betweenness, residual energy, queue length, node popularity, euclidean distance and many more depending on the type of topology construction model used.

Larger the number of nodes in a scale-free network, larger is the size of hubs. The degree of hubs grows polynomially with size of a scale-free network [4]. These networks observe *scale-free property* which states that the ratio of central nodes or hubs to the rest of the nodes in the network remains same irrespective of the network size. These networks are characterised by short average path length and high clustering coefficient.

The concept of scale-free networks first emerged in 1999 when Barabasi and Albert studied the degree distribution of nodes¹ in real networks such as the Internet [3]. Contrary to the expected randomness in the degree distribution, very noticeable differences were found where few nodes had very huge degrees while rest of nodes¹ had low degree. After this remarkable discovery, the research in the field of scale-free networks intensified. As a result in the last two decades, the scale-free property has been detected

in the degree distribution of many real-world evolving networks such as the Internet, Communication networks [4][15], Social Networks [31][33], Citation networks [39], Wireless Sensor Networks [20] [46], Sexual networks [27] and Trade networks [16]. The in-depth study of the properties and behavior of scale-free networks can be extremely beneficial in boosting our understanding of the evolution of these diverse yet similar real-world networks. The technological and information revolution has enormously increased the size of real-world networks. Owing to the limited physical capabilities of routers to relay information, routing has become a very daunting task in scale-free networks. An ideal scale-free routing strategy should aim for high traffic capacity and short average path length.

The simplest scale-free routing strategy is the shortest path routing [51] where the packet is sent to a node that has the shortest path to the destination. But if data is frequently routed through central nodes/hubs, they get overloaded and soon become traffic hotspots and the whole network gets affected. Several variations of the basic shortest path scale-free routing strategy proposed so far are discussed in the subsequent sections of this paper.

The present survey paper aims to summarize the work done so far in the field of scale-free routing algorithms and discuss new intriguing areas of research. Section 2 discusses the various routing challenges encountered in scale-free networks. Section 3 provides a novel taxonomy of scale-free routing algorithms and discusses some of the algorithms pertaining to the taxonomy. The summary and outlook for future research is presented in section 4.

2. Routing challenges in scale-free networks

Routing is the most crucial task performed in any network. A good scale-free routing function should be able to identify and send packets on the most efficient path from source to destination. In scale-free networks, the routing strategy should aim for high traffic capacity and short average path length and also preserve the scale-

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Performance evaluation of de-noised medical images after removing speckled noise by wavelet transform

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Abstract: In the healthcare community, the quality of the medical image is of prime concern to make accurate observations for diagnosis. Different types of noise such as Gaussian noise, impulse noise and speckle noise, etc., have been observed as a main cause for the quality degradation of the medical image. This degradation may further lead to the inconsistent information for the diagnosis, which will directly affect the patient's life. The removal of the noise from the medical image to maintain its quality has become a very tough task for the researchers and practitioners in the field of medical image processing. This paper aims on the comparative performance evaluation of various orthogonal and biorthogonal wavelet filters that are commonly used for the de-noising purpose based on some statistical parameters such as mean square error (MSE), peak signal to noise ratio (PSNR), structural similarity index (SSIM) and correlation coefficient. The result of the present study depicts that biorthogonal 3.9 wavelet filters provide more precise image after the removal of noise as compare to other wavelet filters used.

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Fe³⁺/Fe²⁺ - ZnO nanostructures: Synergetic effect of annealing temperature on Structural, Optical and Dielectric properties

Anil Kaushik*, Sunil Kumar Chaudhary†, Ajay Kumar Mann‡

Abstract

The impact of Fe³⁺ dopant on structural, morphological and electric properties of ZnO nano materials prepared via co-precipitation methodology is explored in this work. The XRD measurements affirmed the wurtzite hexagonal arrangement with the P63mc space group. Crystalline size, inter-planar spacing, and cell volume of the Fe³⁺/ZnO-400 were determined to be 38.6 nm, 2.6903 nm and 57.44 Å³, individually. SEM (Scanning Electron Microscope) was utilized for morphological investigations of the surface of samples. The photoluminescence (PL) studies were estimated at 325 nm excitation wavelength via utilizing a photoluminescence spectrometer to observe the emission spectrum of samples. FTIR (Fourier Transform Infrared) spectrometer was used to measure IR spectra to identify the presence of bonds in the samples with peaks around 536-634 cm⁻¹. Complex impedance measurements of the Fe³⁺/ZnO-RT and Fe³⁺/ZnO-400 samples were estimated at 310 K using a galvanostat in the range of frequency from 50 Hz to 5 MHz.

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Exploring the acceptance for e-learning among higher education students in India: combining technology acceptance model with external variables

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Abstract

The concept of e-learning has now become fundamental in student learning process. This concept becomes even more relevant in situations of global crisis such as that arising from COVID-19. Since this pandemic there have been tectonic shifts in the education sector. Effective implementation of e-learning in higher education depends on students' adoption of this technology. So, this study aimed to identify the factors influencing the behavioral intentions and actual usage of students in adopting e-learning. Additionally, it also examined the mediation effects among different latent constructs. Based on technology acceptance model (TAM), an explanatory structural model of technology acceptance was tested along with introduction of three external variables. To do this, a quantitative investigation was conducted using an online survey of higher education students in India, obtaining 570 responses. The structural model was examined through the partial least square structural equation modeling. Results obtained make it possible to validate the proposed model as findings explains the 56.2% variance of actual usage. In addition, it shows the direct and indirect effect of all three selected external variables of personal innovativeness, social factors and self-efficacy on the main constructs of TAM. The findings of this study are relevant for the higher education management, administration, e-learning system developers, marketers and researchers for improving the effective usage of e-learning by developing more focused and customized learning solutions.

Keywords E-learning · Technology acceptance model (TAM) · Partial least square structural equation modeling (PLS-SEM)

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Full Length Research Paper

Excess refractive indices and validation of mixing rules using binary mixture of methyl laurate + Pentan-2-ol at various temperatures (298.15, 303.15, 308.15, 313.15, and 318.15K)

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Refractive index is a characteristic parameter of fluids with numerous industrial uses. The values of refractive indices of many pure liquids are known or can be found in the literature. However, when experimental values of the liquid mixtures are not available then refractive indices of binary mixtures and multi-component liquids are frequently assessed from the pure constituents using mixing rules. The refractive indices (n_D) of binary mixture and pure liquids methyl laurate (M.L) and pentan -2-ol (P) over the entire mole fraction range at five temperatures (298.15, 303.15, 308.15, 313.15, and 318.15K) were measured using an Anton-Paar Abbemat 3200 refractometer and were tested with the traditional equations, viz Gladstone-Dale (G.D), Lorentz-Lorentz (L.L), Weiner-relation (W.R) and Heller-relation (H.R). The excess refractive indices (n_D^E) were calculated using measured experimental refractive indices (n_D) and (n_D^{id}) Ideal refractive indices. The values of excess refractive indices were found to be negative at low mole fractions and positive over the high mole fractions. The experimental data for binary mixture involving methyl laurate + Pentan-2-ol authenticate the mixing rules.

Key words: Excess refractive index, binary mixture, mixing rules, methyl laurate.

INTRODUCTION

In conventional compression ignition engines, the performance and rejection of exhaust gases like CO, SO₂, etc and particulate matter are of great concern. It leads to pollution and even degrades the performance of engine. So to counter the pollution problems and to improve the performance of conventional ignition engines the researcher is looking for an alternate fuel. Biofuels

can be the best alternative of conventional fuels because it can be used directly in the compression of conventional ignition engines. But, the thermo-physical properties of biofuels and conventional fuels are different due to differences in their molecular structures. It may affect the combustion, exhaust emission and injection timing (Tat and Van Gerpen, 2003; Caresana, 2011; Boehman et al.,

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Impact of Factors Influencing Investment Behavior on Risk Appetite of Women : Evidence from Survey

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 PRASHANT KUMAR**

Abstract

While taking financial decision, women are highly influenced by the society in which they live, their attitude and personality, their financial motive, the investment tool, the reputation of company in which they are ready to pool their savings. Besides this, market aspects like general market conditions and recent price movements guide women while making investment in a particular stock. Moreover, these factors also significantly impact the risk-taking capacity of women. These factors determine the level at which women would take risk with their money which reflects that whether women investors select investment tool with great-risk, with reasonable risk, with little risk or they prefer risk free investment. The present study intends to investigate the impact of factors influencing investment behavior of women on their risk appetite and used primary data collected through a modified questionnaire from 400 working women belongs to Haryana region.

JEL Code : D25, E22, G11, G4, D81, G32

Keywords : Investment, Risk Behaviour, Women, Financial Decision, Stocks, Investor, Haryana, India

I. Introduction

AS WE KNOW “investments are related with the market risks”, so, the investors have to analyse the pattern and different alternatives for returns and risks associated with them. The decision of making investment is always based on the relationship between risk and return. It is well said that high risks mean high profits. Investors cannot ignore the level of risks but they can minimize the risk level by choosing a sound decision means combination of investment where risk is minimized and return is maximized so that investors can get reasonable amount of profit. During investment, awareness level of the investor, investment habits, behavioral

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IDENTIFICATION OF MIRROR REPEATS WITHIN THE *MALELESS (MLE)* GENE OF *DROSOPHILA MELANOGASTER* MEIGEN

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ABSTRACT

DNA repeats present in prokaryotes and eukaryotes genomes that include simple tandem repeats, satellite DNA, or palindromic sequences are classified as inverted, direct, and mirror repeats (MRs). Out of these, MRs are not well studied in *Drosophila melanogaster*. In this study, manual bioinformatics approach was used to find MRs in *D. melanogaster* maleless (*mle*) gene. In this analysis, 123 MRs were found within the complete *mle* gene, while 78 MRs were found in the exonic region of the *mle* gene. MegaBLAST was performed to elucidate the presence of identified MRs across the genomes of *D. melanogaster*, *D. nasuta* and *D. bipunctate*. These demonstrated the conserved characteristics of specific MRs in *Drosophila* genome and the evolutionary and functional significance of MRs in diverse genomes. This study establishes a link between the presence of MRs in *mle* gene of *D. melanogaster* and MRs in human genome.

Key words: DNA repeats, palindromic/ gene sequence, inverted/ direct repeat, mega BLAST, repetitive DNA, perfect/ imperfect mirror repeats, parallel complement, sex determination gene, exons

The DNA molecule serves as a central repository for genetic data. Genetic data held within the DNA regulates a wide range of biological functions. In addition to its normal B-DNA form, DNA can acquire a variety of shapes as a result of mutations, strand breakage, and inadequate crossing over. This can result in the formation of repetitive sequences within the genome (Gurusaran et al., 2013; Jain et al., 2008; Zattera et al., 2020). Any organism possesses homologous DNA segments in multiple copies, which are referred to as repetitive DNA sequences, which can be essential for regulating the cell cycle, gene expression, chromosome structure, and karyotypic evolution (de Koning et al., 2011; Jurka et al., 2007; Mehrotra and Goyal, 2014; Zattera et al., 2020). These repeats impact important biological processes such as translation, transcription, recombination, and chromatin structure formation. Moreover, the formation of H and Z DNA by short repetitive sequences can be intrinsically mutagenic in bacteria, yeast, mouse and mammalian cells (Pandya et al., 2021; Wang and Vasquez, 2017). The small repetitive sequences on the basis of the alignment of nucleotide sequences can be classified as direct, inverted, and mirror repeats (Gurusaran et al., 2013; Jiang et al., 2018; Mirkin, 2001). When a repeating DNA fragment is inverted on the same strand, it is called an "inverted repeat" (Mirkin, 2001). They play an important role in the regulation of transcription and translation (Varshney et al., 2020). Even in bacteria, inverted repeats and their

associated hairpin structure are frequently found as a part of the independent transcription terminal (Brazda et al., 2020; Lillo and Spanò, 2007). Direct repeats are the sequences that are repeated multiple times on the same strand of DNA in the same orientation (Mirkin, 2001). Both direct and inverted repeats can stimulate the genetic rearrangements that cause deletion and duplication of genetic material (Lovett, 2004; Marie and Symington, 2022).

On the other hand, repetitive DNA sequences are divided into two groups based on their distribution within the genome: tandem repeats and interspersed repeats (Jurka et al., 2007; Pathak and Ali, 2012; Zattera et al., 2020). Long interspersed elements (LINES) and short interspersed elements (SINES) are two forms of interspersed repeats based on the length of DNA sequences, while microsatellite, minisatellite, and satellite DNA are types of tandem repeats (Mehrotra and Goyal, 2014; Pathak and Ali, 2012; Zattera et al., 2020). Mirror DNA repeats are small repeat sequences with bilateral or central symmetry in the same strand (Mirkin, 2001). It means that one section of the sequence fragment is an exact replica of another. In the case of mirror repeats (MR), parallel complement and anti-parallel complement are the same, while in normal DNA, parallel complement and anti-parallel complement are not identical.

The model organism *D. melanogaster* is employed



MIRROR REPEATS IN THE *INTERSEX* GENE OF *DROSOPHILA MELANOGASTER* MEIGEN

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ABSTRACT

Genomes of many organisms, including both prokaryotes and eukaryotes, contain numerous repeat elements. Among these DNA repeats, mirror repeats have been studied rarely. Hence, this study on the mirror repeats within the *intersex* gene of *Drosophila melanogaster*, which reveal 11 mirror repeats. Out of these mirror repeats, ten mirror repeats are perfect, and six are within a single exon. The presence of mirror repeats within the *intersex* gene raises further questions concerning their origin, evolution, and biological function.

Key words: *Drosophila melanogaster*, *intersex* gene, mirror repeats, DNA repeats, parallel complement, *Drosophila* spp., origin, evolution, function

Drosophila melanogaster, also known as the fruit fly, is a model organism with widespread use in classical and modern genetics and biomedical research (Wangler et al., 2015; Mirzoyan et al., 2019; Pandey and Nichols, 2011; Tolwinski, 2017). Its quick generation time and cheap maintenance cost make it appropriate for studying extensive pathways (Mirzoyan et al., 2019). Its genome has been annotated with 17,726 genes, 13,907 of which are protein-coding genes that encode 21,953 distinct polypeptides (Kaufman 2017). Over 75% of disease-related genes have the same function in humans and flies, enabling researchers to conduct studies on flies and adapt their results to human biology (Reiter et al., 2001; Aquilina and Cauchi, 2018; Evangelakou et al., 2019). The nucleotide base sequences in the genome of any organism are methodically organized, information-rich patterns composed mainly of repeated DNA sequences; and wide variance in genome size is the consequence of repeated DNA sequences and these sequences aid in explaining genome function and structure (Hartl et al., 1994; Kapitonov and Jurka, 2003; Gurusaran et al., 2013). Repeated DNA sequences are genomic segments that repeat themselves throughout the genome and can range from a few to several thousand nucleotide sequences that are incorporated into the genomes of higher animals (Britten and Kohne, 1968; Jurka et al., 2007; Biscotti et al., 2015).

Since publishing whole-genome data from many organisms, the measurement and categorization of repeat elements have been an area of interest in computational biology research (Volfovsky et al., 2001; Treangen and

Salzberg, 2012). There are several forms of repetitive elements present in the DNA of different organisms, including inverted repeats, direct repeats, tandem repeats, interspersed DNA repeats (LINES and SINES), and mirror repeats (Jurka et al., 2007; Treangen and Salzberg, 2012). To the best of our knowledge, mirror repeats have never been investigated within the genome of *D. melanogaster*. An essential objective in the study of eukaryotic developmental genetics is to understand the processes that determine sexuality. The somatic sexual differences in *D. melanogaster* are controlled by a hierarchical network of regulatory genes (Burtis and Baker, 1989; Baker, 1989; Christiansen et al., 2002; Peng et al. 2021). For the female sex differentiation, the *intersex* gene operates in conjunction with the *doublesex* gene, which is located at the very bottom of the hierarchy of sex determination (Acharyya and Chatterjee 2002; Garrett-Engle et al. 2002a; Garrett-Engle et al. 2002b; Cavaliere et al. 2009; Arunkumar and Nagaraju 2011). Consequently, the current study uses a manual computational approach to locate mirror repeats within the *intersex* gene that play a role in sex determination in *D. melanogaster*.

MATERIALS AND METHODS

The whole gene sequence for the *intersex* gene (Gene ID 45881) was retrieved from the NCBI and saved in the FASTA format. Further, the sequence was split, generating two distinct sequences consisting of 500 and 227 base pairs, respectively (the total number of base pairs in the *intersex* gene is 727). A parallel complement sequence of each component

Effect of Computer and Internet Self-Efficacy on Students' Acceptance of E-Learning: Analysis of TAM Model Using PLS SEM Approach

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Abstract— E-learning has become increasingly popular in higher education as a result of recent technical breakthroughs. This paper aimed to study the impact of computer and internet self-efficacy in adoption of e-learning among higher education students. This study is crucial as the importance of the internet and computers in education system has expanded during this global pandemic. This paper used the Technology Acceptance Model (TAM) and incorporated the external variable of self-efficacy to see the impact of latter one. Study collected the 576 responses from the higher education students in India through online survey. To validate the proposed research model, PLS SEM 3.3.9 was used and findings show substantial impact of all exogenous variables on the endogenous construct. Furthermore, the external variable related to computer and internet related self-efficacy significantly influenced the perceived usefulness, perceived ease of use, and attitude of students regarding use of e-learning. It has great impact on perceived ease of use among all these three constructs. These findings might be utilized as a basis for future research in response to changes in learning techniques, successful computer technology utilization, and educational advances.

Keywords—E-learning; Computer and Internet Self-efficacy; Technology Acceptance Model (TAM); Structural Equation Modelling (SEM)

I. INTRODUCTION

One of the most prevalent ways of learning in the higher education environment is e-learning through which both stakeholders i.e. students and faculty as well can experience the plethora of e-learning options. E-learning has made great progress in raising educational standards throughout the world[1].E-learning makes sensible use of digital technology, and it may be accessed via different gadgets and devices. The fast spread of digital technology is reshaping our economy as well as our whole governmental and educational systems.[2].Information communication technology (ICT) enables learners study more efficiently by utilizing technology.[3]. The use of computer and internet technologies to education has resulted in new learning breakthroughs known as E-Learning media[4]. Self-efficacy among students

may also have an impact on whether they accept e-learning. Self-efficacy is the conviction that one can plan and carry out the steps necessary to accomplish a goal [5]. Self-efficacy research is vital because it may make it easier for students to understand and successfully employ e-learning as a teaching and learning tool. Students with high level of computer and internet knowledge consider e-learning as an effective tool for their learning process. But in case of students having lower computer and internet related self-efficacy, are found to be less willing to adopt the e-learning. Noting that a student's self-efficacy affects their choice to adopt e-learning is equally essential. Self-efficacious people are frequently more capable, reliable , and safe while doing a certain behavior [6]. Individuals with low self-efficacy may struggle to acquire computer skills in general[7].Student involvement is influenced by computer self-efficacy, and further it impacts group satisfaction[8].Several variables impact people's willingness to adopt new technologies, including their acquaintance with technology acceptance frameworks like the technology acceptance model (TAM)[9]. E-learning has become increasingly popular during this pandemic and calls on students to be familiar with computer and internet technology. Therefore, research on the self-efficacy of computers and the internet in the acceptance of e-learning is desperately needed, particularly in developing nations like India where e-learning was not commonly employed at the college level before the pandemic. By doing so, this research work intends to discover the factors influencing real e-learning usage as well as the impact of self-efficacy related to computer and internet in e-learning acceptability among college students.

After the introduction in the current study, section II discusses the underlying theories and provides a literature review of the development of research model hypotheses. The following section provided an explanation of the research methodology. Section IV explains the results of the measurement model and the structural model, and Section V explains the discussion and conclusion. The work's limitations and potential future research directions are highlighted in the last section.



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Fe³⁺/Fe²⁺ - ZnO nanostructures: Synergetic effect of annealing temperature on Structural, Optical and Dielectric properties

Anil Kaushik*, Sunil Kumar Chaudhary†, Ajay Kumar Mann‡

Abstract

The impact of Fe³⁺ dopant on structural, morphological and electric properties of ZnO nano materials prepared via co-precipitation methodology is explored in this work. The XRD measurements affirmed the wurtzite hexagonal arrangement with the P63mc space group. Crystalline size, inter-planar spacing, and cell volume of the Fe³⁺/ZnO-400 were determined to be 38.6 nm, 2.6903 nm and 57.44 Å³, individually. SEM (Scanning Electron Microscope) was utilized for morphological investigations of the surface of samples. The photoluminescence (PL) studies were estimated at 325 nm excitation wavelength via utilizing a photoluminescence spectrometer to observe the emission spectrum of samples. FTIR (Fourier Transform Infrared) spectrometer was used to measure IR spectra to identify the presence of bonds in the samples with peaks around 536-634 cm⁻¹. Complex impedance measurements of the Fe³⁺/ZnO-RT and Fe³⁺/ZnO-400 samples were estimated at 310 K using a galvanostat in the range of frequency from 50 Hz to 5 MHz.

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Performance evaluation of optimised SVM for classification of brain tumour

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Abstract: In today's scenario, machine learning tools are most widely used for the classification of images in the field of medical science. Support vector machine (SVM) is one of the most popular and highly used for such classifications. Further, such classifications are highly related to the number of features selected from any medical image. The computation time and the memory required for the successful implementation of any classification tool is directly dependent on the number of features. So, in order to get the more accurate classification results, the features of the medical image must be optimised. The present study mainly aims on the development of an improved classification technique by combining some optimisation approaches. In this study, SVM is implemented for the classification of the brain tumour by optimising the features of the magnetic resonance imaging (MRI) using three different optimisation approaches namely, particle swarm optimisation, grey wolf optimisation and firefly algorithm. The results obtained from this study depict that SVM along with the grey wolf optimisation provides more accurate classification of the brain tumour with an accuracy of $96.8\% \pm 2$ in comparison to particle swarm optimisation and firefly optimisation with an accuracy of $93\% \pm 2$ and $85\% \pm 5$ respectively.

Keywords: brain tumour; magnetic resonance image; MRI; classification; feature optimisation; SVM.

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India's digital marketing impact

Namita

Abstract

The phrase "digital marketing" refers to any form of marketing that uses digital technology, primarily the Internet but also mobile devices, display ads, and other digital media. The way organizations use technology and digital marketing for their marketing has changed over time. The way the field of digital marketing has evolved from the 1990s and 2000s. Digital marketing has been incorporated into marketing strategies and as more individuals use digital technology, more physical stores, online marketing efforts are becoming more common. Some examples of online marketing are banner ads, video advertisements, etc. are all examples of online marketing. Like other marketing strategies, online marketing has advantages and disadvantages. The two main benefits of online marketing are the capacity to precisely target consumers and evaluate the success of marketing initiatives. Unlike conventional media like newspaper billboards, the degree of consumer exposure varies dramatically on the internet. The main requirement for Internet marketing is visibility; traffic cannot grow if customers are unaware of the business and its offerings.

Keywords: Internet marketing, traditional media, television, target audiences, social media marketing, and marketing plans

1. Introduction

1.1 Network Marketing

The phrase "digital marketing" refers to any form of marketing that utilize digital technology, primarily the Internet but also encompassing mobile devices, display advertising, and other digital media. If marketing generates and satisfies demand, then digital marketing uses the power of the Internet to drive demand generation and fulfils it in novel and creative ways. An interactive media is the Internet. In addition to allowing the exchange of money, it also permits the trade of value. A business on the Internet may benefit from the customer's time, attention, and advocacy. The user can receive value in the form of amusement, knowledge, and usefulness; content marketing is one effective approach to do this. A business on the Internet may benefit from the customer's time, attention, and advocacy. Content marketing is one way to offer value for the user by entertaining, educating, and providing utility.

The user can receive value in the form of amusement, knowledge, and usefulness; content marketing is one effective approach to do this. What matters, in this case is the transaction's reciprocity or the fact that both sides profit at the same time from the trade. The way we sell has changed as a result of the Internet. Instead of being a new marketing channel, it establishes a new paradigm for how customers interact with companies and one another. On the Internet, the full spectrum of marketing is used to position, advertise, buy, distribute, and service products and services. Consumers have more options, influence, and power thanks to the internet.

New markets, new goods and services, and new sales channels are all available to brands. The functions that marketing companies do are also changing. While agencies that began as digital shops are beginning to compete in the traditional advertising industry, so-called "traditional" agencies are becoming stronger at digital marketing. Integrated strategies that relate to a company's total brand identity are more important than ever for attaining its objectives. Consumers are becoming more adept at switching between channels and using several channels at once. They anticipate the same behaviour from the companies they interact with. Anyone who continues to think in the outdated terms of "traditional versus digital" is woefully out of date.

However, using the Internet for marketing does not entail dispensing with conventional business and marketing practices.

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Phytosociological Analysis of Herbaceous Plants of District Sonipat

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Abstract

In the present study, community analysis of herb species in terms of diversity, density, frequency and abundance in District Sonipat, Haryana has been done by quadrat method. At every study site, 50 quadrats of 1m x 1m (1sq m) size were laid. In the findings, 28 families of herbs (25 dicots and 3 monocots) have been documented, belonging to 62 genera and 68 species (58 dicots and 10 monocots). Asteraceae has been found to be the dominating family followed by Poaceae and Amaranthaceae. In comparative analysis of average density, frequency and abundance of herb vegetation, the Maximum value has been documented of *Oxalis corniculata* (density 5.2, abundance 5.9, frequency 87%) followed by *Cynodon dactylon* (density 5.1, abundance 5.5, frequency 90 %) and *Chenopodium album* (density 4.7, abundance 5.2). Minimum value has been recorded of *Boerhaavia diffusa* (density 0.4 , abundance 2.1, frequency 20%) followed by *Ipomoea carnea*(density 0.3, abundance 2.2 , frequency 20%) and *Ranunculus sceleratus* (density 0.4, abundance 1.9, frequency 20%). In distribution pattern analysis, in 58 documented species contagious and in the rest ten species random pattern has been recognized. The match of class distribution of herb vegetation of district Sonipat with Raunkiaer frequency law diagram document the homogenous nature of herb community.

Keywords: Herbs, Sonipat, density, frequency, abundance, A/F ratio

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Introduction

The growth and development of plants occur in the form of communities in the existing environment. Species diversity, structure and growth forms are characteristic of every community. To know the structure and composition of plant community, analytical and synthetic characters are studied. Analytical characters in terms of qualitative (floristic composition and physiognomy etc.) and quantitative (density, frequency and abundance) are crucial in identifying the community structure and are studied in open field. Density, frequency, abundance can be recorded by laying down quadrats and numerical data calculation is done [1]. Density gives an idea about degree of association and competition in a given community, whereas Frequency helps us to find the degree of dispersion of species in any area. Synthetic characters (presence, constancy, dominance) are studied with the help of data obtained from analytical characters. Based on

relative density, relative frequency, relative dominance and IVI value we can identify richly and poorly established plant species [2].

The study of quantitative characters (density, frequency, diversity and richness) of plants is helpful to us in understanding the vegetation structure, composition and distribution pattern. In the current study, an attempt has been made on phytosociological analysis of herbaceous plants of District Sonipat according to their current status.

Material and methods

Geographical location and climatic condition of study area: The District Sonipat is positioned in the south-east of state Haryana and is bounded by the districts Rohtak, Jind and Panipat. It is located at the latitude and longitude of 28° 55' 42.8664" N and 77° 5' 29.3712" E respectively. The district shares its inter-state boundary with district Meerut of Uttar Pradesh. The river Yamuna flows along the



Hybrid Optimal Routing Strategy (HORS) for Scale-Free Networks

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Summary

Scale-Free Networks have surfaced as a significant field in Network Science. The pervasiveness of scale-free networks has prompted many researchers to do an in-depth analysis of behavior and structure of these networks. Routing in these superlarge networks is a very exigent process due to huge traffic flow and dynamic network conditions. The paper presents a Hybrid Optimal Routing Strategy (HORS) which uses Betweenness Centrality and Queue length of nodes to determine the best possible path in a Scale-Free Network. The algorithm is adaptive i.e., all packets from source to destination do not follow the same path. The static and dynamic properties of all nodes are explored while computing the routing table in the network. Proposed algorithm achieves high network capacity, short average path length and low packet traveling time compared with Global Dynamic and Improved Optimal routing strategy.

Keywords:

Betweenness Centrality, Adaptive Routing, Preferential attachment, Scale-Free Network

1. Introduction

In recent decades, the size of networks such as the WWW, Transportation, Epidemic, and Trade networks has increased enormously. Many of these diverse real-world networks share network architecture similar to scale-free networks. A scale-free network is a subset of complex networks where the probability of connections between the nodes obeys the power law property. Growth and Preferential attachment guide the expansion of these networks [1-2]. When a new node enters the network, it is linearly biased to attach itself to the node with the highest degree centrality. As a result, the fraction of hubs to the other nodes in the network remains the same irrespective of network size [2]. An illustration of a scale-free network with 100 nodes and its corresponding degree distribution is given in Figure 1.

Scale-free networks are composed of thousands of nodes that need to communicate with each other. The overwhelming growth in the data traffic and changing network dynamics place a huge load on the network resources like routers and gateways. Several paths between a chosen set of nodes in a large complex network make routing a very daunting process. The traditional shortest path routing strategy [4] performs unsatisfactorily in these superlarge networks. Frequent transmission of packets through nodes with high degree or high betweenness

increases congestion and degrades network performance [6]. There is a need for designing good routing strategies that optimize network capacity with minimum latency.

In this paper, a Hybrid Optimal Routing Strategy (HORS) for scale-free networks based on Betweenness Centrality and queue length is proposed. The strategy utilizes the statistical parameters of a node to effectively route a packet through the best path available in the network. Dynamic traffic conditions are taken into account to avoid network congestion by relocating load from nodes with high betweenness.

Section II of this paper discusses some of the existing scale-free routing algorithms. Section III contains the details of the proposed routing strategy. Section IV presents different simulation scenarios and performance of the proposed strategy. In the last section, the summary of the contributions of this paper and some future research directions are discussed.

2. Related Works

The most important task performed in any network is routing. A good routing strategy should be able to maximize traffic capacity with little end-to-end delay. Shortest path routing [4] is one of the simplest routing applied in Scale-free Networks. But due to its non-adaptive nature, it does not consider the node state while delivering packets. The path may be the shortest one yet congested causing unnecessary delay. Several optimizations of Shortest path routing have been proposed. In efficient routing strategy [3], traffic load from prime nodes is distributed to other nodes by choosing the path with a minimum sum of node degrees. Ling et. al [8] presented Global Dynamic routing strategy where path with a minimum sum of node queue length is selected for delivering packets. The network congestion is reduced but at the same time the time to deliver packets increases. Pheromone routing strategy utilizes the pheromone function based on queue length which is updated periodically to deliver packets. Several improvements over basic pheromone routing are given by Lin et al [9] to deal with node duplication issue. In restrictive queue length optimization, a threshold on the queue length of the adjacent node is applied to avoid sending packet if queue length value exceeds threshold. Hop by Hop forwarding of packet on the basis of status of