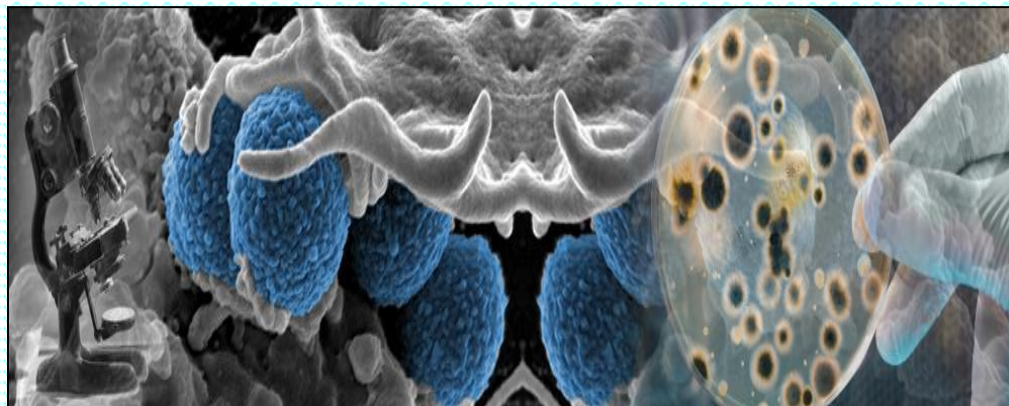




Shrimati Indira Gandhi College
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SIGARIA

RESEARCH JOURNAL

SHRIMATI INDIRA GANDHI COLLEGE

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SHRI.S. KUNJITHAPATHAM, B.Com, B.L

SECRETARY



I am glad to understand that SIGARIA is now in the Fifth year. Faculty members are involved in active research, with number of publications in Peer-Reviewed journals, with a good impact factor, to their credit. A research culture of faculty and students, pursuing witnessed by increasing programmes. I congratulate one and all for their efforts.

SECRETARY



SHRIMATI INDIRA GANDHI COLLEGE

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Chatram Bus Stand, Tiruchirappalli-2, TamilNadu, India.

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PRINCIPAL



FOREWORD

I am very happy to find that faculty have created a niche for themselves in research. Specific research areas and research problems have been identified. This research journal plays an integral part in disseminating details of research activities undertaken by various departments. Faculty and students of all departments are requested to pay more attention on research work carried out by others and contribute from their side towards research. I wish them all success in their endeavours.

PRINCIPAL

Email: vidhyasigc@gmail.com

Department of Bio-chemistry

- **Ms. P. Anitha, N. Manoharan, Ms. P.G. Geegi, M. Anu, and S. Lalithambigai-** “Phyto-chemical and Anti-Microbial Effect of *Psidium Guajava* and *Leucas Aspera* against Dental Caries Pathogen”, International Journal of Advanced Research, (peer reviewed), <http://journalijar.com/>, ISSN: 2320-5407, Impact Factor: 1.659, Vol. 1, Issue 9, Page No. 13-20, 2013.

Abstract:

In the present study, the effect aqueous *psidium guajava* and *Leucas aspera* extract on micro organism causing dental caries infection was investigated. To find out Phyto-chemical constituent. Analyse the functional group using FTIR spectroscopy. Isolation of micro organism from infected person. Analyse the effect of *psidium guajava* and *Leucas aspera* extract on micro organism causing dental caries.

- **Ms. B. Varalakshmi, Ms. T. Karapagam, Ms. S. Gomathi, Ms. G. Gayathri, Ms. V. Rathinakumar, and Ms. B. Supraja** - “Studies on salinity removal capacity of cost effective adsorbents”, International Journals of Pharmaceutical Research and Development, (Peer Reviewed), Impact Factor: 2.01, ISSN: 0974-9446, <http://www.ijprd.com>, Vol. 5(11), Page No. 97-71.

Abstract:

Most areas in the country are pursuing by actuate problems related to salinity in water. The removal of salinity in water is tedious and costly. Salinity is an ecological factor of considerable importance, influencing the types of organisms that live in a body of water. As well, salinity influences the kinds of plants that will grow either in a water body, or on land fed by water. Salt content is an important factor in water use such as pot ability. The aim of this study is to decrease the salinity of water collected from the local well by using suitable nature adsorbent in a cost effective manner. In this study *Phyllanthus emblica* and *cynodan dactylon* leaves were used as adsorbents. The dried and powdered leaves were added to 200ml water at

different dosages at different time intervals. The total dissolved salts were measured using salinity test kit. The results of the experiment showed that salinity removal efficiency by *Phyllanthus emblica* and *Cynodon dactylon* were found to be 55% and 44% respectively for a dosage of 1g and at a time period of 240 minutes. Out of the two adsorbents, powdered *Phyllanthus emblica* and *Cynodon dactylon* were found to be very effective as it able to achieve its maximum salinity removal efficiency within 60 minutes. Whereas powdered *Cynodon dactylon* leaves took almost 240 minutes to achieve the maximum salinity removal.

- **Ms. B. Varalakshmi, Mr. A. Vijayanand, Ms. T. Karpagam, Ms. J. Suguna Bai, and Mr. R. Manikandan-** “Invitro antimicrobial and anticancer activity of cinnamomum zeylanicum Linn. Bark extracts”, *International Journal of Pharmacy and pharmaceutical Sciences*, (Peer reviewed), Universal impact Factor: 1.56, ISSN: 0975-1491, Vol. 6(7), Page No. 12-18, 2014.

Abstract:

One of the most common threats is the spread of multidrug resistant pathogens. Cancer is another major problem leads to death. Hence a search for new, plant based, risk free, superior compounds with novel antimicrobial and anticancer activities is the needs of the day. The aim of this study was to evaluate the anti-microbial and anti cancer effect of bark cinnamomum zeylanicum. The antimicrobial activity of extract of cinnamomum zeylanicum bark against bacterial and fungal clinical isolates like *Bacillus subtilis*, *Staphylococcus aureus*, *Escherichia coli*, *Aspergillus niger* and *Candida albicans* was determined. The anticancer activity was studied by MTT and A0/EB staining on hepato carcinoma cell lines. The result of antimicrobial study showed that methanolic extract had better antibacterial and anti fungal activity. The most susceptible bacterial and fungal strains were *Bacillus subtilis* and *Aspergillus niger*, respectively. The methanolic extract showed MIC value of 2.5 mg/ml for *Bacillus subtilis* and 5 mg/ml for *Aspergillus niger*. The results of invitro anticancer studied by MTT assay on Hep G2 cell line in the presence of methanolic extract of cinnamomum zeylanicum bark showed an IC₅₀ value of 150 mg/ml. The A0 /EB staining showed that the methanolic extract was able to induce apoptotic activity in HepG2 cells after 24 hours of incubation at a concentration 150 mg/ml. This study

proved that bark is reliable and safer herbal drug that can be used in Pharmaceutical preparations for infectious and malignant disease.

- **Ms. B. Varalakshmi, Ms. T. karpagam, Mr. M. Jarayaraj, and Ms. J. Suguna Bai-** “Antidiabetic efficiency of moringa oleifera and solanum nigrum”, International Journal of Pharmacy and Pharmaceutical Sciences, ISSN: 0975-1491, (Peer reviewed), Universal impact Factor: 1.56, Vol. 1(6), Page No. 40-42, 2014.

Abstract:

Diabetes mellitus (Dm) is metabolic disorder throughout the world. This disorder could be treated with herbal plants. Medicinal plants are exploited for many drugs to treat various ailments. The drugs derived from the plants promote health, augmented the resistance of the body against disease. Plants such as moringa oleifera, Solanum nigrum have hypoglycemic properties and other beneficial properties and other beneficial properties. The objective of the study was to analyze and compare anti diabetic and hypolipidemic effect of moringa oleifera, Solanum nigrum on known diabetic and hyperlipidemic patients. The aqueous extract of these plants were assessed for their hypoglycemic and hypolipidemic effects. Presence of primary and secondary metabolites was also screened. Patients in the age group 35-60 years were selected for the study. Only male patients were selected and the study was carried out for 90 days. The level glucose, glycosylated haemoglobin, total cholesterol, triglyceride, LDL-cholesterol was reduced to 23, 12.5, 40, 18% and HDL cholesterol was increased to 20 % on treatment with moringa oleifera and while on treatment with solanum nigrum the level was reduced to 19, 10., 17, 8% and increased to respectively. Among these two extract treatment with moringa oleifera was found to be more effective than solanum nigrum. Presence of primary and secondary metabolites played a significant role in hypoglycemic activity. The preliminary screening results indicated that the plant possessed various constituents like tannins, Phenols, alkaloids, flavonoids and carotenoids.

- **Ms. M. Anu, Ms. M. Bharani, Ms. V. Bharathi, and Ms. T. Karpagam-** , “Studies on Decolourisation of Molasses Waste by Various Micro-organisms”, International Journal of

Pharmaceutical Research and Development (IJPRD) (peer-reviewed) <http://www.ijprd.com/>, vol.5 (5), July 2013, Page No: 001-013.

Abstract:

Although de-colorization of industrial effluents has been achieved by degradation using bacterial and fungal isolates, increasing demands for effective and economical technologies for color removal have led to research into a biosorption-based process that utilizes the sorption capacity of biological material for the removal of pollutants. The biosorption techniques have been used effectively in the effluent treatment processes mainly for the heavy metals and dyes. By keeping these above facts in mind the present work is aimed at to collect the sample from the sugar industry, to isolate and identify the microbes such as bacteria and fungi, to study the degradation efficiency of selected microbes on molasses, to know the physico- chemical characteristics of molasses.

● **Ms. P. Anitha, Ms. PG. Geegi, Ms. Yogeswari, and Mr. A. Anthoni Samy-** “In vitro Anticancer Activity of Ethanolic Extract of *Euphorbia hirta* (L)”, Science, Technology and Arts Research journal, ISSN: 2305-3327, <http://www.starjournal.org/>, Vol. 3(1), Page No. 08-13, Jan-March 2014.

Abstract:

In the present, In vitro anticancer effects of *Euphorbia hirta* were investigated. The objectives of this study are to find the presence of secondary metabolites by preliminary phytochemical investigation and FTIR analysis in the *Euphorbia hirta*. Ethanolic leaf extract of *Euphorbia hirta* was tested for its cytotoxicity against Dalton Lymphoma Ascites(DLA) and Ehrlich Ascites carcinoma (EAC) cell lines using preliminary screening technique . The *Euphorbia hirta* leaf extract was found to be more cytotoxic against Ehrlich ascites carcinoma cell lines where as 59.67% cytotoxicity were noticed against Ehrlich ascites carcinoma cell lines. Extract of *Euphorbia hirta* showed a dose-dependent reduction of proliferation and induction of apoptosis in the carcinoma cell lines cell. Ethanolic leaf extract of *Euphorbia hirta* showed potent cytotoxic activity against DLA and EAC cell lines and its IC₅₀ value was found to be 560.83 mg/ml and 384.7 mg/ml

of extract respectively. The in vitro outcomes of Euphobia hirta extract showed potent anticancer effect against both DLA and EAC lines.

- **Ms. T. Karpagam, MS. J. Suguna Bai, Mr. M. Jayaraj, and Ms. R. Roy Rajakumari-** “ Proximate, Phytochemical In vitro Antioxidants analysis of Phyllanthus Amarus”, World Journal of Pharmaceutical Research, www.WJPR.net, ISSN: 2277-7105, Vol. 3(3), Page No. 4747-4760, 2014.

Abstract:

ROS are chemically reactive molecules containing oxygen have important roles in cell signaling and homeostasis. It also causes damage of DNA, lipid peroxidation Oxidation of amino acids in proteins, oxidatively inactivate specific enzymes by oxidation of co-factors. Oxidative stress reflects an imbalance between the systemic manifestation of reactive oxygen species and a biological system which has the ability to readily detoxify the reactive intermediates or to repair the resulting damage. An antio oxidant is a molecule that inhibita the oxidation of other molecule. Substances that can reduce the damage by free radicals are known as anti oxidants. Types of anti oxidants includes enzymatic antioxidants. Many of these phytochemicals have been beneficial effects on long-term health when consumed by humans, and can be used effectively to treat diseases. Phyllanthus amarus is one such medicinal plant enriched with anti oxidant and macronutrients like iron, calcium, phosphorus, magnesium and copper. Primary metabolites like total carbohydrate, proteins, amino acid, and cellulose and secondary metabolites like phenol were present. Enzymatic antioxidants, like SOD, CAT, NO and non enzymatic like Ascorbic acid, carotenoids were found. Being enriched with macronutrients and primary metabolites along with antioxidants this plant could be used for herbal nutraceuticals.

- **Ms. S. Jannathul Firdous, Ms. V. Bharathi, and Ms. Sridevi Viswanathan** – “Green Synthesis of Silver Nanoparticles by Coccinia Grandis flower extract”, World Journal of Privacy and Pharmaceutical Sciences, www.wjpps.com, ISSN: 2278-7357, Vol. 3(7), Page No. 1777-1782, 2014.

Abstract:

The word “nano” is used to indicate one billionth of a meter or 10^{-9} . Nanoparticles are clusters of atoms and their size from 1-100 nm. In this work deals with the synthesis and characterization of silver nanoparticles using Coccinia Grandis flower. Synthesized nanoparticles were characterized by using UV-Vis absorption spectroscopy, FTIR, and SEM analysis. The reaction mixture turned to brownish gray color after 5 hrs of incubation and exhibits an absorbance peak around 450 nm characteristic of Ag nanoparticle. Scanning electron microscopy (SEM) analysis showed silver nanoparticles were pure and polydispersed and the size were ranging from 10-50 nm. The approach of green synthesis seems to be cost efficient, eco-friendly and easy alternative to conventional methods of silver nanoparticles synthesis.

- **Ms. S. Jannathul Firdous, Ms. V. Bharathi, and Ms. Sridevi Viswanathan** – “Protective of Cynodon Dactylon extract on high fat diet induced hyperlipidemia in experimental animals”, World Journal of Privacy and Pharmaceutical Sciences, www.wjpps.com, ISSN: 2278-7357, Vol. 3(5), Page No. 513-517, 2014.

Abstract:

Hyperlipidemia has been ranked as one of the greatest risk factors contributing to prevalence and severity of coronary heart disease. Coronary heart disease, stroke, atherosclerosis and hyperlipidemia are the primary cause of death. The hyperlipidemic activity of Cynodon dactylon extract was studied on high fat diet induced models of hyperlipidemia in rats. Hyperlipidemia in experimental rats evidenced by an enhancement in the levels of Lipid profile. The Cynodon Dactylon extract showed significant hypolipidemic effect of reduction in the level of serum Cholesterol, TG, LDL, VLDL and increase in HDL level.

- **Ms. V. Bharathi, Ms. S. Gomathi, Ms. A. Shanmuga Priya, and Ms. G. Gayathri** – “Biosynthesis of silver nanoparticles by Datura metal flower extract”, World Journal of Privacy and Pharmaceutical Sciences, www.wjpps.com, ISSN: 2278-7357, Vol. 3(4), Page No. 1926-1930, 2014.

Abstract:

There is an increasing commercial demand for nanoparticles due to their wide applicability in various areas such as electronics, catalysis, chemistry, energy, and medicine. In this work deals with the synthesis and characterization of silver nanoparticles using Datura Metal flower. Synthesized nanoparticles were characterized by using UV-Vis absorption spectroscopy, FTIR, and SEM analysis. The reaction mixture turned to brownish gray color after 5 hrs of incubation and exhibits an absorbance peak around 450 nm characteristic of Ag nanoparticles was pure and Polydispersed and the size were ranging from 10-40 nm. The approach of green synthesis seems to be cost efficient, eco-friendly and easy alternative to conventional methods silver nano-particles synthesis.

- **Ms. S. Jannathul Firdous, and Ms. V. Bharathi-** “ Phytochemical and antibacterial studies of *Oryza sativa*”, World Journal of Privacy and Pharmaceutical Sciences, www.wjpps.com, ISSN: 2278-7357, Vol. 3(7), Page No. 1136-1139, 2014.

Abstract:

The present study deals with phytochemical and antimicrobial evaluation of *oryza sativa*. This evaluation revealed the presence of many phytochemical constituents. The antibacterial activity of aqueous extract of leaf of *oryza sativa* was determined by in vitro by agar diffusion-method against some human pathogenic bacteria. It has been showed that aqueous extract has wider range of activity on these Organisms.

Department of Business Administration

- **Dr. G. Kalaichelvi-** “A Study on foreign Direct Investment”, Sankhya International Journal of Management and Technology, ISSN: 0975-3915, Vol. III, II (A), Page No. 1-4, Feb 2014.

Abstract:

Encouraged by the favorable business environment fostered by the global liberalization, the international private capital flows have been increasing rapidly. Cross-border M & As have been the major driver of the recent surge in the FDI. Foreign capital now contributes a significant share of the domestic investment, employment generation, industrial production and exports in a number of economies, including china. Broadly, there are two types of foreign investment: foreign direct investment FDI where the investor has only a sort of properly interest in investing the capital in buying equities, bonds, or other securities abroad, In the case of profolio investments the investor uses his capital in order to get a return on it, but has no much control over the use of the capital. The major portfolio investment in the Indian capital market is by the foreign institutional investor.

- **Mrs. R. Anitha Santhana Mary-** “New Avenue in HR Training and Development”, Sankhya International Journal of Management and Technology, ISSN: 0975-3915, Vol. III, Issue II (A), Page No. 31-33, Feb 2014.

Abstract:

This article examines the effects of training and development on organization innovation. Training and development play an important role in the effectiveness of organizations and to the experiences of people in work. Training has implications for productivity, health and safety at work and personal development. All organizations employing people need to train and develop their staff. Most organizations are cognizant of this requirement and invest effort and other resources in training and development, such investment can take the form of employing specialist training and development staff and paying salaries to staff undergoing training and development.

Investment in training and development entails obtaining and maintaining space and equipments. It also means that operational personnel, employed in the organization's main business functions, such as production, maintenance, sales, marketing and management support, must also direct their attention and effort from time to time towards supporting training development and delivery. This means they are required to give less attention to activities that are obviously more productive in terms of the organizations main business. However, investment in training and development is generally regarded as good management practice to maintain appropriate expertise now and in the future. It specifically suggests that the training and development investment of an organization affect its innovative performance by promoting various learning practices.

Department of Computer Science

- **Dr. K. Meena, Dr. K. R. Subramanian, and Ms. M. Gomathy-** “Gender classification in speech recognition using fuzzy logic and neural network”, International Arab Journal of Information Technology, Zarqa, Jordan (Peer reviewed) www.iajit.org, ISSN: 2309-4524, Vol.10(5), Page No. 210-215, Sep 2013.

Abstract:

Nowadays classification gender is one of the most important processes in speech processing. Usually gender classification is based on considering pitch as feature. The pitch value of female is higher than male. In most of the recent research work gender classification process is performed using the abovementioned conditions. In some cases the pitch value of male is higher and also pitch of some female is low, in that case this classifications does not produce the exact required result. By considering the aforementioned problem we have here proposed a new method for gender classification method which consider three features. The new method uses fuzzy logic and neural network to identify the gender of t speaker. To train fuzzy logic and neural network, training dataset is generated by using the above three features. Then mean value is calculated for the obtained results from fuzzy logic and neural network. By using this threshold value, the proposed method identifies the speaker belongs to which gender. The implementation result shows the performance of the proposed techniques in gender classification.

- **Ms. M. Gomathy-** “Identification of Speech Disorders using Artificial Neural Networks”, Sub-Saharan Journal of Computer Science, Lusaka, Zambia, ISSN: 2307-9169, <http://sjcs.rstpublishers.com/>, Peer Reviewed, Vol. 1(3), Page No. 1-5, 2013.

Abstract:

This paper focuses on identifying disorder in a human speech using Artificial Neural Network speech disorder data bases collected and uses as template along with proper labeling. The input of the network will be speech disorder template and labels. Using Back propagation algorithm, training of the network will be done. Similarly, testing and implementation is done

using Back propagation algorithm. Speech disorder is due to incoherent activation of glotties, nasal activities and sharing's'. In addition, the pumped air from the lungs are not properly constricted and expanded by glotties. This leads to different types of speech disorder like stammering. If it is tried with huge database over large number of samples involving sophisticated Neural Network concepts, then the trained information can be shared in VLSI chips and provided as medical supplementary tool that can be fixed to the neck portion of the human being. Sensors are to be fixed around the neck properly linked with the chip based on the disorder received to the chip, the chip will decide to activate remaining portion of the muscle of the neck to properly coordinate and produce good speech.

- **Ms. M. Gomathy-** "Network Intrusion Detection and Countermeasure Selection in Virtual Network Systems", Sub-Saharan Journal of Computer Science, Lusaka, Zambia, and ISSN: 2307-9169, <http://sjcs.rstpublishers.com/>, (Peer Reviewed), Vol. 1(3), Page No.06-09, 2013.

Abstract:

Cloud security is one of most important issues that has attracted a lot of research and development effort in past few years. Particularly, attackers can explore vulnerabilities of a cloud system and compromise virtual machines to deploy further large-scale Distributed Denial of Service (DDoS). DDoS attacks usually involve early stage action such a multi-step exploitation, low frequency vulnerability scanning, and compromising identified vulnerable virtual machines as zombies, and finally DDoS attacks through the compromised zombies. Within the cloud system, especially the infrastructure as a service (IaaS) clouds, the detection of zombie exploration attacks is extremely difficult. This is because cloud users may install vulnerable applications on their virtual machines. To prevent vulnerable virtual machines being compromised in the cloud, we propose a multi-phase distributed vulnerability detection, measurement, and countermeasure selection mechanism called NICE, which is built on attack graph based analytical models and reconfigurable virtual network-based countermeasure. The proposed framework leverages network programming APIs to build a monitor and control plane over distributed programmable virtual switches in order to significantly improve attack

consequences. The system and security evaluations demonstrate the efficiency and effectiveness of the proposed solution.

- **Ms. M. Gomathy-** “CRAM: Efficient Dynamic Resource Scheduling In Cloud Computing”, IJERD- International Journal of Engineering Research and Department, New Delhi, India, ISBN: 2278-067X, vol. 10(3), Page No. 59-62, March 2014.

Abstract:

Cloud computing has emerged as the default paradigm for a variety of fields especially considering the resources and infrastructures consumption in case of distributed access. The solution has however placed a lot of emphasis of a cloud server with variety of demands of which quality of service reminds a paramount strategy. There are a lot of strategies is in place for this quality cost which is regulated by service level agreement (SLA). An SLA is an agreement between client and server which when violated impose penalties for the infringement or violation performance evaluation place a key role allowing system managers to evaluate the effects of different resource management strategies on the data center functioning and to predict the corresponding cost / benefits. In order to deal with very large systems composed of hundreds or thousands of resources. The system should allow to easily implementinmg different strategies and should have policies to represent different working conditions. Keeping this is mind a rewards scheme called as SRNS-Stochastic Reward Nets is utilize which is dynamic in nature to the status of the requests made and job allocated. The proposed model is scalable enough to represent system composed of thousands of resources and it makes possible to represent both physical and virtual resources exploiting cloud specific concepts such as the infrastructure elasticity. The resources offered by other public cloud system through a paying and sharing model is also controlled in term of performance metrics like utilization, responsiveness and load burst. This model is analytical in nature unlike the existing approaches which are assumptive and simulation based in nature.

- **Ms. M. Gomathy-** “Virtualized Cloud Infrastructure for Cloud Environment using VMWARE”, IJETR- International Journal of Engineering and Technical Research, India, ISBN: 2321-0869, Vol. 2(3), Page No. 221-230, March 2014.

Abstract:

Cloud computing is a disruptive trending that is changing the way we use computers. The key underlying technology in cloud infrastructure is virtualization- so much so that many consider virtualization to be one of the key features rather than simply an implementation details. Unfortunately, the use of virtualization is the source of significant security concern. Because multiple virtual machines run on the same server and since the virtualization layer plays a considerable role in the operation of a virtual machine, a malicious party has the opportunity to attack the virtualization layer. A successful attack would give the malicious party control over the all-powerful virtualization layer, potentially compromising the confidentiality and integrity of the software and data of any virtual machine. In this paper, we propose removing the virtualization layer, while retaining the key features enabled by virtualization. Our NoHype architecture named to indicate the removal of the hypervisor, addresses each of the key roles of the virtualization layers: arbitrating access to CPU, memory and I/O devices, acting as a network device and managing the starting and stopping of guest virtual machines. Additionally, we show that our NoHype architecture may indeed be “no hype” since nearly all of the needed features to realize the non-hype architecture are currently available as hardware extensions to processors and I/O devices.

- **Dr. K. Meena, Dr. K.R. Subramanian and Ms. M. Gomathy-** “Fuzzy Logic and Neural Network based Gender classification Using Three Features”, Inderscience Publishers- International Journal of Signal and Imaging systems Engineering, Geneve, Switzerland, ISSN: 0952-8091, Vol. 7(2), Page No. 75-82, 2014.

Abstract:

Gender classification is one of the most important processes in speech processing. Generally gender classification is done by considering pitch as feature. Normally, the pitch value of female is higher than the male. By using this condition, gender classification process takes place. By considering abovementioned drawback, here proposed a new method for gender classification in speech processing which considers three features and uses fuzzy logic and neural network to identify the gender of the speaker. This features considered in the proposed

method is energy entropy, short time energy and zero crossing rate. For training fuzzy logic and neural network, training dataset is generated using the above three features. Then mean value is computed from the result obtained from fuzzy logic and neural network. The gender classification is done by using this mean value. The implementation result shows the performance of the proposed techniques is gender classification.

- **Ms. M. Gomathy-** “Current Cloud Computing Review and Cost Optimization by Dersp”, IJECCE- International Journal of Electronics Communication and Computer Engineering, New Delhi, India, ISBN: 2249-071X, Vol. 5(2), Page No. 397-400, 2014.

Abstract:

Cloud computing promises to deliver cost saving through the “pay as you use” paradigm. The focus is on adding computing resource when needed and releasing them when the need is serviced. Since cloud computing relies on providing computing power through multiple interconnected computers, there is a paradigm shift from one large machine to a combination of multiple smaller machine instances. In this paper, we review the current cloud computing scenario and provide a set of recommendation that can be used for designing custom applications suited for cloud deployment. We also present a comparative study on the change in cost incurred while using different combinations of machine instances for running an application on cloud; and derive the case for optimal cost.

- **Ms. M. Gomathy-** “Real- Time Query Scheduling for Wireless Sensor Networks”, JMSR- Journal of Multidisciplinary Scientific Research, Nairobi, Kenya, ISSN: 2307-6976, Vol. 2(2), Page No. 1-3, 2014.

Abstract:

Recent years have seen the emergence of wireless sensor network system that must support high data rate and real time queries are physical environments. This paper proposes Real-Time Query Scheduling (RTQS), a novel approach to conflict-free transmission scheduling for real time queries in wireless sensor networks. First, we show that there is an inherent trade-off between prioritization and throughput in conflict free query scheduling. We then present three new real time scheduling algorithms. The non-preemptive query scheduling algorithm

achieves high throughput while introducing priority inversions. The preemptive query scheduling algorithm eliminates priority inversion at the cost of reduced throughput. The slack stealing query scheduling algorithm combines the benefits of preemptive and in-preemptive scheduling by improving the throughput while meeting query deadlines.

- **Ms. M. Gomathy-** “ An Analysis of Secure and efficient Data Transmission for Cluster- Based wireless Sensor Networks, JMSR- Journal of Multidisciplinary Scientific Research, Nairobi, Kenya, ISSN: 2307-6976, Vol. 5(2), Page No. 10-11, 2014.

Abstract:

Secure data transmission is critical issue for wireless sensor networks (WSNs). Clustering is an effective and practical way to enhance the system performance of WSNs. In this paper, we study a secure data transmission for cluster based WSNs (CWSNs) where the cluster are formed dynamically and periodically. We propose two secure and efficient data transmission protocols for CWSNs called SET-IBS and SET-IBOOS, by using the identify Based Digital Signature (IBS) scheme and the Identify based Online/Offline digital Signature scheme respectively. In SET-IBS, security relies on the hardness of the Diffie-Hellman problem in the pairing domain. SET-IBOOS further reduces computational overhead for protocol security, which is crucial for WSNs while its security relies on the hardness of the discrete logarithm problem. We show the feasibility of the SET-IBS and SET-IBOOS protocol with respect to the security requirements and security analysis against various attacks. The calculations and simulations are provided to illustrate the efficiency of the proposed protocols. The results show that, the proposed protocols have better performance than the existing secure protocols for CWSNs, in terms of security overhead and energy consumption.

Department of Chemistry

- **Ms. Lourdu Mary, Ms. M.Anu, Ms. P.Lakshmi Prabha, Ms.Amala Fathima Rani, Ms. V. Bharathi-** “Synthesis and Characterization of Nano Crystalline Pr_{1-x}CAxCoO₃ Powder as Cathode Material for IT-SOFCs”, An International Journals of Advances in Pharmaceutical Sciences, Print ISSN: 2231-0541, Online ISSN: 0976-1055, ICV: 5.09, <http://www.arjournals.org/>, Vol. 4(4), Page No. 617-626, July-Aug 2013.

Abstract:

Desired cathode materials for IT-SOFC should have high electronics and oxide ionic conductivities, good compatibility with electrolyte and long term stability and behave with high catalytic activity for oxygen reduction. Synthesis of Pr_{1-x}CAxCoO₃ is generally carried out by the traditional solid state reaction method. This method is time consuming and required higher calcining temperature, long time to prepare the precursor which raises the difficulties in preparing homogeneous material with good reproducibility. This work is covered with the preparation and characterization of Pr_{1-x}CAxCoO₃ Cathode material for intermediate solid oxide fuel cell application.

- **Ms. M. Anu- Ms. P.Lakshmi Prabha, Ms. G. Banukarathi, Ms. P. Raxy Kanjana, Ms. K. Rajeswari-** “UV, IR and NMR on Copper (II) Schiff Base Complex”, International Journal of Institutional pharmacy and Life Sciences (peer-reviewed) www.ijjpls.com , ISSN 2249-6807, Vol. 3(6), Nov 2013.

Abstract:

Some copper(II) complexes with isatin or imine ligands derived from isatin were prepared and characterized by analytical and spectroscopic techniques. Schiff base complex of Cu(II) from ligands like 2-aminophenol and para dimethyl amino benzaldehyde have been synthesized. The molar conductance, IR, H NMR, C NMR, UV-Visible spectroscopy have been carried out to suggest tentative structure of the complex.

Department of Management Studies

- **Ms. S.Kanimozhi, Ms. P.Vasanth, and Mr. M. Pitchaimani-** “A study on the effects of Customer Service Strategies on Customer Retention in Telecom Industry: A Case of Aircel Limited, Trichy”, International Journal of Research Instinct (peer-reviewed) www.andavancollegeinri.com , ISSN 2348-2095, Vol. 1(1), Page No.134-139, 2014.

Abstract:

Companies who understand the importance of, and do not underrate customer service and satisfaction have a strong starting point and gaining competitive advantage and have major profits to collect. Customer satisfaction is not an element that business can put only semi-focus on. Instead, these demand an objective of complete focus on satisfying the customers from all employees and in every single step of operation in the business. Telecom companies have realized the strategic importance of customer value and seemed to be continuously seeking innovative ways to enhance customer relationships through its various service strategies. The role in the development of every economy by the telecom sector cannot be overlooked due to the increasing changes over the last decades with a growing attention to customer needs. This study is an attempt to contribute to effective customer satisfaction and retention in the telecom industry in Trichy.

- **Ms. S.Kanimozhi, Ms. P.Vasanth, and Mr. M. Pitchaimani-** “Women Entrepreneurs in India- Present challenges and future prospectus”, International Journal of Research Instinct (peer-reviewed) www.andavancollegeinri.com , ISSN 2348-2095, Vol. 1(1), Page No.140-146, 2014.

Abstract:

Women are transforming by creating a dynamic society and inspiring the future entrepreneurs. A silent revolution is going on the right path with successful track records of innovative entrepreneurial success. It is quite evident that the number of women emerging as entrepreneur started giving job to many people. Though there are many reason for women to leave the workforce, they set new trends of leaving their jobs to be job-making entrepreneurs.

Many women opt to entrepreneurship at an all-time low cost of starting a new business with the support from the government organizations, saying bye to corporate offers. The glass ceiling that once restricted a women's professional path has paved a new route towards owning a business now. The sagacity of women helps to manage their business and balance with their family too. The freedom to put in their ideas and intuition makes women successful in their businesses. Being their own Boss, large earning potential, choosing a convenient and suitable business location and working hours attract the women segment to be an entrepreneur. Nevertheless, they make their business a family asset. This paper brings out the challenges faced by multi-faced women entrepreneurs and possible outcomes for their empowerment.

Department of Computer Applications

- **Dr. K.Meena, and Dr. M. Manimekalai-** “Literature Survey on the Prediction of Secondary Structure of Proteins of Using Radial Basis Function Neural Networks (RBFNN) and Support Vector Machines (SVM)”, International Journal of Information & Computation Technology, (Peer Reviewed) <http://www.irphouse.com>, ISSN: 0974-2239, Vol. 3(1), Page No. 33-43, 2013.

Abstract:

The protein structure prediction has been an active research area for the last 40 years or so. The technical progress in computational Molecular biology during the last decades has contributed significantly to the progress we see today. The major goal of predicting Protein structures underpins the correct assumption that three dimensional structures confer protein function. The linear Amino Acid sequences must transform to non-linear Secondary that are responsible for biological functions. Biological functions may remain similar or change in the related organism through the evolutionary process. By considering the importance of the prediction of secondary structure of protein a detailed literature study of the same using Radial Basis Function Neural Networks (RBFNN) AND Support Vector Machines (SVM) has been reviewed in this paper.

- **Dr. M. Manimekalai and Shri R. Rahuraman-** “Security Issues in Cloud Computing”, International Journal of Computer and Internet Security, ISSN: 0974-2247, <http://www.irphouse.com>, (Peer Reviewed), Vol. 5(3), Page No. 31-41, 2013.

Abstract:

Cloud Computing is an emerging paradigm that offers that concept of time shared remote services with attractive technological and financial advantages. The infrastructure uses new technology and services which have not been fully evaluated with respect to security. A few of the concerns include data security, expectations, trust, regulations and performance issues.

Cloud computing environments are multi-domain in which each domain can use different security, privacy and trust requirements and potentially employ various mechanisms, interfaces and semantics. The domain may represent individually enabled services or other infrastructural or application components. Service Oriented Architecture facilitates such multi domain formation through service composition and orchestration.

As the shape of the cloud computing is emerging and rapidly developing conceptually and in reality, the issues such as contractual, service quality, interoperability, security and privacy issues pose series challenges. In this paper an attempt is made to identify the challenges and suggest technological solutions to mitigate these challenges and facilitates ubiquitous adoption of this technology.

- **Dr. K.Meena and Dr. M.Manimekalai-** “Comparison of Prediction of Structure of Protein of Soy Beans using Radial basis Function Neural Networks with others Methods for RS.126 and PDB Data Sets”, Journal of Computational Intelligence Bio-Informatics (JCIB), ISSN:0973-385X, Vol. 6(1), Page No. 49-53, 2013.

Abstract:

In this paper prediction of structure of protein of soybeans using Radial Basis Function Neural Networks for RS126 Data set and PDB Data set has been made and compared with other traditional methods namely Chou-Fasman, GOR, APSSP, PHD, Prospect and SSPro. The training and testing sets for both have been taken into consideration to train and test the networks respectively. The major parameter for finding the accuracy of the protein secondary structure prediction is the per-residue prediction accuracy, Q3, which gives the percentage of all correctly predicted residues within the three state (H, E, C) classes, and has also been employed for assessment of prediction approaches. The performance of the RBFNN protein secondary structure prediction models [1] is evaluated based on their prediction accuracy [2]. The accuracy of the developed approach is compared with other traditional methods to explore the performance of the proposed approach. It is found that the proposed techniques provide a prediction accuracy of about 81% which is very significant. The accuracy for different width of

sliding windows. It clearly shows that, with the increase in the sliding window width the accuracy also increase.

- **Ms. K. Geetha ad Dr. M. Manimekalai-** “Healthy Diet Recommendation System Using Apriori Algorithm Decision Rules for Breast Cancer Data”, International Journal of Scientific and Engineering Research, (IJSER), ISSN: 2229-5518, <http://www.ijser.org>, 2013.

Abstract:

Medical science has discovered that people set a bigger possibility of countering free radicals and warding off illness by consumption of healthy foods and by increasing their resistant system. We adopt Apriori algorithm to explore the relationship between treatment preference, healthy food and survival of cancer patient based on their medical attributes./ the public-use data 2011 is used in this research. After the preprocessing of the data set, we apply Aproiri algorithm of Association Rules and Decision Rule mining. As a result, we obtain a great deal of Association Rules related and Decision Rule supported. We pick up some easy understandable and comparable rules to discuss and show that data mining technique is efficient method to explore the relation between Cancer treatment preferences, Food and survivability.

- **Dr. K. Meena, Dr. M. Manimekalai, and Mrs. S. Rethinavalli-** “An Unsupervised technique for Statistical Data Analysis using Data Mining”, International Journal of Information Sciences and Applications, ISSN: 0974-2255, <http://www.irphouse.com>, Vol. 5(1), Page No. 11-20, 2013.

Abstract:

Cluster analysis divides data into meaningful or useful groups (Clusters). If meaningful cluster are the goal, then the resulting clusters should capture the “Natural” structure of the data. For example, Cluster analysis [1] can be used to group related documents for browsing, to find genes and proteins that have similar functionality, and to provide grouping spatial locations prone to earthquakes. However, in other cases, cluster analysis is only a useful starting point for other purposes, e.g., data compression or efficiently finding the nearest neighbors of points.

It is a main task of exploratory data mining, and a common technique for statistical data analysis used in many fields, including machine learning, pattern recognition, image analysis, information retrieval, and bioinformatics. Cluster analysis methods are based on measuring similarity of objects by computing distance between each pair. The scope of this paper is modest: to provide an introduction to cluster analysis in the field of data mining, where data mining has been defined. It is also found to be the discovery of useful, but non-obvious, information or patterns in large collections of data. Much of this paper is necessarily consumed with providing a general background for cluster analysis, but also a number of clustering techniques that have been recently developed specifically for data mining has also been discussed. This paper illustrates particular real world applications.

- **Dr. K.Meena and Dr. M. Manimekalai-** "Protein Secondary Structure Prediction of Soybeans using Radial Basis Function Neural Networks with the Methods of state Transition and Conformational Classification", International Journal of Bio-Informatics, Vol. 6(2), Page No. 109-123, Dec 2013.

Abstract:

Artificial Neural Networks play a very important role in the prediction of secondary structure of proteins. ANN is parallel, distributed information processing structures which draw their ultimate inspiration from neurons in the brain. ANN is very much effective in predicting the secondary structure of protein. Another advantage of ANN method is that it includes the effect due to correlation of neighboring residues. It is found that the accuracy is better than other methods. In this paper Protein Secondary Structure Prediction Soya Beans using Radial Basis Function Neural Networks has been well elucidated. The important objective of this paper is to predict the secondary structure of proteins for soybeans. Also an algorithm to predict the secondary structure of Soybeans with significant accuracy has been developed using ANN.

- **Dr. M. Manimekalai, Mrs. M.Anusha, Mrs. G. SriNaganya-** "Protein Secondary Structure Prediction of Soybeans using Radial Basis Function Neural Networks with the Methods of state Transition and Conformational Classification", International Journal of Bio-Informatics, Vol. 6(2), Page No. 109-123, Dec 2013.

Abstract:

The process of grouping a set of physical or abstract objects into classes of similar objects is called clustering. Data types in Cluster analysis [1] are 1.Data Matrix (or object-by-variables structure), 2. Interval Scaled Variables, 3. Binary Variables, 4. A Categorical Variable, 5. A distance ordinal Variables, 6. A Ratio-scaled Variables. Methods used in Clustering: 1. Partitioning Method, 2. Hierarchical Method, 3.Data Density based method, 4. Grid based method and 5. Model Based method. There are two types of hierarchical Method [2] in clustering namely Agglomerative hierarchical clustering and Divisive hierarchical clustering. The scope of this paper is to start out with n cluster for n data points, that is, each cluster consisting of a single data point. One possible approach is to combine a partitioning method like K-means[3] with a agglomerative method. Using a measure of distance, at each step of the method, the method merges two nearest clusters, thus reducing the number of clusters and building successively larger clusters. The process continues until the required numbers of cluster have been obtained or all the data points are in one cluster.

● **Dr. M. Manimekalai, Mr. K. Sudhakar** -“Study of Heart Disease Prediction using Data Mining”, International Journal of Research in Computer Science and Software Engineering, Peer Reviewed, www.ijarcsse.com, Vol. 4(1), Page No. 1157-1160, January 2014.

Abstract:

The Healthcare industry is generally “information rich”, which is not feasible to handle manually. These large amounts of data are very important in the field of Data Mining to extract useful information and generate relationships amongst the attributes. The doctors and experts available are not in proportion with the population. Also, symptoms often to be neglected. Heart disease diagnosis is a complex task which requires much experience and knowledge. Heart disease is a single largest cause of death in developed countries and one of the main contributors to disease burden in developing countries. In that health care industry the data mining is mainly used for predicting the disease from the datasets. The data Mining techniques, namely Decision Trees, Naïve Bayes, Neural Networks, Associative classification, Genetic Algorithm are analyzed on Heart disease database.

Department of Mathematics

- **Dr.K.Meena, Dr.S. Vidhyalakshmi, Ms. S. Arthy Thangam, Ms. E. Premalatha, and Dr.M.A. Gopalan-** “Integer Points on the Hyperbola $x^2 + 6xy + y^2 + 4x = 0$ “, Scholars Journal of Engineering and Technology (SJET), (Peer Reviewed) www.saspublishers.com, ISSN 2321-435x (Online), ISSN 2347 9523, Vol. 2(1), Page No. 14-18, 2014.

Abstract:

The binary quadratic equation $x^2 + 6xy + y^2 + 4x = 0$ representing hyperbola is considered. Different patterns of solutions are obtained. A few interesting recurrence relations satisfied by x and y are exhibited.

- **Dr. K. Meena, Dr. S. Vidhyalakshmi, MS. N. Sujitha, and Dr. M.A. Gopalan-** “Lattice Points on the Homogeneous Cone $59x^2 + y^2 = z^2$ “,Scholars Journal of Engineering and Technology (SJET), (Peer Reviewed) www.saspublishers.com, ISSN 2321-435x (Online), ISSN 2347 9523, Vol. 2(1), Page No. 9-13, 2014.

Abstract:

The ternary quadratic homogeneous equation representing homogeneous cone given by $59x^2 + y^2 = z^2$ by is analyzed for its non-zero distinct integer point on it. Three different patterns of integer points satisfying the cone under consideration are obtained. A few interesting relations between the solutions and special number patterns namely polygonal number, Pyramidal number, Octahedral number, Pronic number, Stella number, Pentatope number and Nasty number are presented. Also knowing an integer solution satisfying the given cone, three triples of integers generated from the given solution are exhibited.

- **Dr. M.A. Goapalan, Dr. S. Vidhyalakshmi, and Ms. T.R. Usharani-** “Integral Solutions of the Surd Equation $\sqrt[3]{x^2 - y^2} + \sqrt[3]{X^2 + Y^2} + 2\sqrt[3]{z^2 + w^2} = 6p^2$ “, Archimedes Journal of Mathematics, Archimedes J-Math (Peer Reviewed), www.domains moons.com, ISSN: 2278-084X, Vol. 3(3), Page No. 237-245, 2013.

Abstract:

The transcendental equation with seven unknowns given by $\sqrt[3]{x^2 - y^2} + \sqrt[3]{X^2 + Y^2} + 2\sqrt[3]{z^2 + w^2} = 6p^2$ is analyzed for its non-zero distinct integral solutions. Five different patterns of integral solutions are illustrated. Various interesting relations between the solutions and special numbers namely Jacobsthal numbers, Figurative numbers are exhibited.

- **Dr. M.A. Gopalan, Dr. S. Vidhyalakshmi, and Ms. T.R. Usharani-** "Observations on the Transcendental Equation $5\sqrt[2]{y^2 + 2x^2} - \sqrt[3]{X^2 + Y^2} = (k^2 + 1)z^2$ ", IOSR Journal of Mathematics (IOSR-JM) e-ISSN: 2278-5728 p-ISSN: 2319-765X <http://iosrjournals.org/>, impact factor=1.312, Vol. 7(5), Page No. 62-67, (July-Aug) 2013.

Abstract:

The transcendental equation with seven unknowns given by $5\sqrt[2]{y^2 + 2x^2} - \sqrt[3]{X^2 + Y^2} = (k^2 + 1)z^2$ is analyzed for its non-zero distinct integral solutions. Various interesting relations between the solutions and special numbers are exhibited.

- **Dr. M.A. Gopalan, Dr. S. Vidhyalakshmi, and Ms. T.R. Usharani-** "On the cubic equation with four unknowns $x^3 + y^3 = (z + w)^2(z - w)$, Scholars Journal of Engineering and Technology (SJET), ISSN:2321-435X, www.saspublishers.com, Vol. 2(2B), Page No. 264-269,2014.

Abstract:

The sequences of integral solutions to the cubic equation with four variables $x^3 + y^3 = (z + w)^2(z - w)$, are obtained. A few properties among the solutions are also presented.

- **Dr. S. Vidhyalakshmi, Ms. K. Lakshmi, and Dr. M.A. Gopalan-** "A Special Transcendental equation with five unknowns $2\sqrt[3]{y^2 + x^2} + \sqrt[2]{2(x^2 + y^2) - 3xy} = 3(k^2 + 3)z^3$ ", Bulletin of Mathematics and Statistics research, (Peer Reviewed) <http://www.bomse.com>, Vol. 1(1).2013.

Abstract:

The transcendental equation with five unknowns represented by the Diophantine equation $2\sqrt[3]{y^2 + x^2} + \sqrt[2]{2(x^2 + y^2) - 3xy} = 3(k^2 + 3)z^3$ is analyzed for its patterns of non-zero distinct integral solutions and different methods of integral solutions are illustrated.

- **Dr. S. Vidhyalakshmi, Ms. K. Lakshmi, and Dr. M.A. Gopalan-** “An interesting transcendental equation $\sqrt{(2x)x^2 + y^2} - xy - \sqrt{x^2 + y^2} = z^2 + w^2$ ”, International journal of engineering research-Online (Peer Reviewed) International Journal Articles available inline <http://www.ijoer.in>, Vol. 1(1), 2013.

Abstract:

The transcendental equation with five unknowns represented by the Diophantine equation $\sqrt{(2x)x^2 + y^2} - xy - \sqrt{x^2 + y^2} = z^2 + w^2$ is analyzed for its patterns of non-zero distinct integral solutions and different methods of integral solutions are illustrated.

- **Dr. S. Vidhyalakshmi, Ms. K. Lakshmi, and Dr. M.A. Gopalan-** “On the Homogeneous Cubic Equation with Six Unknowns $\alpha xy(x + y) - \beta zw(z + w) = (\alpha - \beta)xy(x + y)$ ”, International Journal of Engineering Science Invention, (Peer Reviewed) ISSN (Online):2319 6726, ISSN (Print) 2319-6735, www.ijesi.org, Vol. 2(12), Page No. 01-09, Dec 2013.

Abstract:

The homogenous cubic equation with five unknowns represented by the equation $\alpha xy(x + y) - \beta zw(z + w) = (\alpha - \beta)xy(x + y)$ is analyzed for its patterns of non-zero distinct integral solutions are different methods of integral solutions are illustrated. A few relations between the solutions and the special numbers are presented.

- **Dr. S. Vidhyalakshmi, Ms. K. Lakshmi, and Dr. M.A. Gopalan-** Solution of the Homogeneous Cubic Equation with Six Unknowns $\alpha xy(x + y) - \beta zw(z + w) = (\alpha - \beta)xy(x + y)$ ”, International Journal of Mathematics Science Trends and Technology , www.ijmtjournal.org, ISSN 2231-5373, Vol. 4, Issue 10, Nov 2013.

Abstract:

The homogenous cubic equation with five unknowns represented by the Diophantine equation is $\alpha xy(x + y) - \beta zw(z + w) = (\alpha - \beta)xy(x + y)$ analyzed for its patterns of non-zero distinct integral solutions are different methods of integral solutions are illustrated.

- **Dr. S. Vidhyalakshmi, Ms. K. Lakshmi, and Dr. M.A. Gopalan-** “Observations on the Transcendental equation with Five unknowns $\sqrt[2]{x^2 + 2y^2} + \sqrt[3]{w^2 + p^2} = 5z^2$ ”, Cayley

J.Math (Peer reviewed) ISSN 2278-1749 <http://www.domainsmoon.com/>, Vol.2(2),Page No. 139-150, Sep 2013.

Abstract:

The transcendental equation with five unknowns represented by the Diophantine equation $\sqrt[2]{x^2 + 2y^2} + \sqrt[3]{w^2 + p^2} = 5z^2$ is analyzed for its patterns of non-zero distinct integral solutions and different methods of integral solutions are illustrated.

- **Dr. S. Vidhyalakshmi, Ms. K. Lakshmi, and Dr. M.A. Gopalan-** "Observation on the non-homogeneous equation of the eighth degree with six unknowns $x^6 - y^6 - 2z^3 = (w^2 - p^2)T^6$, The IJST-The International Journal of Science & Technology, ISSN: 2321-919X, www.theijst.com, Vol.2(3), March 2014.

Abstract:

We obtain infinitely many non-zero integer sextuples (x, y, z, w, p, T) satisfying the non-homogenous equation of eighth degree with six unknowns given by $x^6 - y^6 - 2z^3 = (w^2 - p^2)T^6$. Various interesting relation between the solution and special numbers, Pronic numbers, Pyramidal Numbers, star numbers, stella numbers, Octahedral numbers, Polygonal numbers, Jacobsthal numbers, Jacobsthal-Lucas numbers, Keynea number, Centered pyramid number are presented.

- **Dr. S. Vidhyalakshmi, Ms. K. Lakshmi, and Dr. M.A. Gopalan-** "On the system of double equation $4x^2 - y^2 = z^2, x^2 + 2y^2 = w^2$, Scholar Journal of Engineering and Technology, ISSN : 2321-435X , Vol. 1 (2), Page No 1-4, March 2014.

Abstract:

The system of double equations given by $4x^2 - y^2 = z^2, x^2 + 2y^2 = w^2$ has only a finite number of integer solutions.

- **Dr. S. Vidhyalakshmi, Ms. K. Lakshmi, and Dr. M.A. Gopalan-** "The Integral Solution of Non-homogeneous heptic equation with five unknowns $x^4 + y^4 - (x - y)z^3 = 2(k^2 + 6s^2)w^2T^5$, Scholar Journal of Engineering and Technology, ISSN : 2321-435X, Vol. 2(2), Page No , Feb-March 2014.

Abstract:

We obtain infinitely many non-zero integer quintuples (x, y, z, w, T) satisfying the non-homogenous equation of degree seven with five unknowns given by $x^4 + y^4 - (x - y)z^3 = 2(k^2 + 6s^2)w^2T^5$. various interesting properties between the solutions and special numbers are presented.

- **Dr. S. Vidhyalakshmi, Ms. K. Lakshmi, and Dr. M.A. Gopalan**-Lattice Points on the Non-Homogeneous Cubic Equation $x^3 + y^3 + z^3 - (x + y + z) = 0$ “, Impact Journal of Science and Technology, Vol. 7(1), Page No. 51-55, 2013.

Abstract:

We obtain infinitely many non-zero integer triples (x, y, z) satisfying the homogenous cubic equation with three unknowns $x^3 + y^3 + z^3 - (x + y + z) = 0$ Various interesting properties among the values of x, y and z are presented.

- **Dr. S. Vidhyalakshmi, Ms. K. Lakshmi, and Dr. M.A. Gopalan**-Lattice Points on the Non-Homogeneous Cubic Equation $x^3 + y^3 + z^3 + (x + y + z) = 0$ “, Impact Journal of Science and Technology, Vol. 7(1), Page No. 21-25, 2013.

Abstract:

We obtain infinitely many non-zero integer triples (x, y, z) satisfying the homogenous cubic equation with three unknowns $x^3 + y^3 + z^3 - (x + y + z) = 0$ Various interesting properties among the values of x, y and z are presented.

- **Dr. S. Vidhyalakshmi, Ms. K. Lakshmi, and Dr. M.A. Gopalan**- “Gaussian – Diophantine quadruples with property D (1)”, IOSR Journal of Mathematics (IOSR-JM), www.iosrjournals.com, e- ISSN: 2278-3008, p-ISSN: 2319-7676, Vol. 10(1), Ver. II, Page No. 12-14, May-June 2014.

Abstract:

A set of m Gaussian integer is called a complex Diophantine m -tuple with the property D (z) if the product of its any two distinct elements increased by z is a square of a Gaussian

integer. In this paper, we present Gaussian-Diophantine quadruples with property D (1). Few examples of complex Diophantine quadruples with the property D (1) are presented.

- **Dr. S. Vidhyalakshmi, Ms. G. Sumathi, and Dr. M. A. Gopalan-** "Gaussian Integer Solution of Sextic Equation with Four Unknowns $x^6 - y^6 = 4z(x^4 + y^4 + w^4)$ ", Archimedes J.Math, ISSN 2278-084X (Peer Reviewed) (Impact Factor: 0.47) <http://www.domainsmoon.com/>, Vol.3 (3), Page No.263-266, 2013.

Abstract:

The sextic equation with four unknowns represented by the Diophantine equation $x^6 - y^6 = 4z(x^4 + y^4 + w^4)$ has been analyzed for Gaussian integer solutions. A few interesting relations between the solutions and special polygonal numbers are exhibited.

- **Dr. S. Vidhyalakshmi, Ms. G. Sumathi, and Dr. M. A. Gopalan-** "On the Exponential Diophantine equation $x^x y^y = z^z$ & $x^{x^n} y^{y^m} = z^z$ ", International Journal of Modern Engineering Research (Peer Reviewed) www.ijmer.com, ISSN 2249-6645, Vol. 3(6), Page No. 3466-3468, 2013.

Abstract:

In this paper, two different forms of exponential Diophantine equations namely $x^x y^y = z^z$ & $x^{x^n} y^{y^m} = z^z$ are considered and analyzed for finding positive integer solutions on each of the above two equations. Some numerical examples are presented in each case.

- **Dr. S. Vidhyalakshmi, Ms. G. Sumathi, and Dr. M. A. Gopalan-** "On the Cubic Equation with Eight Unknowns $x^3 + y^3 + z^3 + w^3 = u^3 + v^3 + p^3 + a^3$ ", Bulletin of Mathematics and Statistics research, (Peer Reviewed) <http://www.bomse.com>, Vol. 1(1), Page No. 23-29, 2013.

Abstract:

We obtain infinitely many non-zero octuple (x, y, z, w, U, V, P, Q) satisfying the cubic equation with eight unknowns $x^3 + y^3 + z^3 + w^3 = u^3 + v^3 + p^3 + a^3$. Various interesting relations between the solutions, polygonal numbers, pyramidal numbers, and centered pyramidal numbers are obtained.

- **Dr. S. Vidhyalakshmi, Ms. G. Sumathi, and Dr. M. A. Gopalan-** “Integral Solution of Non-Homogeneous Sextic equation with four unknowns $x^4 + y^4 + 16z^4 = 32w^6$ “, Antartica Journal of Mathematics (Peer Reviewed) ISSN 0972-8643, <http://www.domainsmoon.com/>, Vol. 10(6), Page No. 623-629, 2013

Abstract:

The non-homogenous sextic equation with four unknowns represented by the Diophantine equation $x^4 + y^4 + 16z^4 = 32w^6$ is analyzed for its patterns of non-zero distinct integral solutions and three different methods of integral solutions are illustrate. Various interesting relations between the solutions and special numbers, namely, polygonal numbers, Pyramidal numbers, Jacobsthal numbers, Jacobsthal-lucas numbers, Pronic numbers, Star number, Gnomonic numbers, centered polygonal numbers, centered triangular numbers, Centered hexagonal numbers, pyramidal numbers, Centered Decaconal numbers, Centered Icositetragonal numbers pyramidal numbers centered Icosinonagonal Numbers pyramidal numbers Centered Tricontagonal numbers are exhibited.

- **Dr. S. Vidhyalakshmi, Ms. G. Sumathi, and Dr. M. A. Gopalan-** “On the Non-homogeneous Heptic equation with four unknowns $(x^2 + y^2)(x + y)^4 = z^4w^3$ “, International Journal of Engineering Research-Online (Peer Reviewed) International Journal Articles available online <http://www.ijoer.com>, ISSN 2321-7758, Vol. 1(2), Page No. 252-255, 2013

Abstract:

The non-homogenous heptic equation with four unknowns represented by the Diophantine equation $(x^2 + y^2)(x + y)^4 = z^4w^3$ is analyzed for its patterns on non-zero distinct integral solutions. Various interesting relations between the solution and special numbers, namely, Pyramidal number, Pronic numbers, Centered numbers, Hexascogonal number, Fourth Dimensional Figurate numbers are exhibited.

- **Dr. S. Vidhyalakshmi, Ms. G. Sumathi, and Dr. M. A. Gopalan-** “On the Ternary Biquadratic Non-homogeneous equation $x^2 + ny^3 = z^4$ “, Caley Journal of Mathematic (Peer Reviewed) ISSN 2278-1749 <http://www.domainsmoon.com/>, Vol. 2(2), Page No. 169-174, 2013.

Abstract:

The ternary biquadratic non-homogenous equation represented by the Diophantine equation $x^2 + ny^3 = z^4$ is analyzed for its patterns of non-zero distinct integral solutions. A few interesting relations between the solutions and special numbers are exhibited.

- **Dr. S. Vidhyalakshmi, Ms. G. Sumathi, and Dr. M. A. Gopalan-** "Observations on the hyperbola $x^2 = 19y^2 - 3^t$, Scholars journal of Engineering and Technology (SJET) ISSN: 2321-435X, (Peer Reviewed), Vol. 2(2A), Page No.152-155, 2014.

Abstract:

The binary quadratic equation $x^2 = 19y^2 - 3^t$, is considered and a few interesting properties among the solutions are presented. Employing the integral solutions of the equation under consideration, a few patterns of Pythagorean triangles and rectangles are observed.

- **Dr. S. Vidhyalakshmi, Ms. G. Sumathi, and Dr. M. A. Gopalan-** "On Special Families of Hyperbola $x^2 = (4k^2 \pm k)y^2 + \alpha^{2t}, \alpha > 1$, The International Journal of Science & Technology, ISSN:2321-919X, (Peer Reviewed) www.theijst.com, Vol. 2(3), Page No. 94-97, March 2014.

Abstract:

The binary equation $x^2 = (4k^2 \pm k)y^2 + \alpha^{2t}, \alpha > 1$ is considered for finding its integer solutions and a few interesting properties among the solutions are presented. Also, we present infinitely many positive integer solutions in terms of Generalized Fibonacci sequence of numbers, Generalized Fibonacci Lucas sequences of numbers. Six other families of hyperbolas along with their integer solutions and corresponding recurrence relations among the integer solutions are exhibited.

- **Dr. S. Vidhyalakshmi, Ms. G. Sumathi, and Dr. M. A. Gopalan-** "Integral Solution of Sextic Non-homogeneous equation with five unknowns $x^3 + y^3 = z^3 + w^3 + 6(x + y)t^5$, International Journal of Engineering Research Online, ISSN (Print): 2347-5013, ISSN (Online): 2319-6890, IF: 0.421(Issued by Global Impact Factor) Index Copernicus Value (ICV): 5.49 points, Vol. 1(2), Page No. 146-150, 2013.

Abstract:

The sextic non-homogenous equation with five unknowns represented by the Diophantine equation $x^3 + y^3 = z^3 + w^3 + 6(x + y)t^5$ is analyzed for its patterns of non-zero distinct integral solutions. A few interesting relations between the solutions and special numbers are exhibited.

- **Dr. S. Vidhyalakshmi, Ms. G. Sumathi, and Dr. M. A. Gopalan-** “On the Surd Transcendental equation with five unknowns $4\sqrt{x^2 + y^2 + \sqrt[2]{z^2 + w^2}} = (r^2 + 1)^{2n}r^5$ ”, IOSR Journal of Mathematics (IOSR-JM) e-ISSN: 2278-5728 p-ISSN: 2319-765X <http://iosrjournals.org/>, Impact factor=1.312, Vol. 17, Issue 4, Page No.78-81, July-Aug 2013.

Abstract:

The transcendental equation with five unknowns represented by the Diophantine equation $4\sqrt{x^2 + y^2 + \sqrt[2]{z^2 + w^2}} = (r^2 + 1)^{2n}r^5$ is analyzed for its patterns of non-zero distinct integral solutions.

- **Dr. S. Vidhyalakshmi, Ms. G. Sumathi, and Dr. M. A. Gopalan-** “Gaussian Integer solution of non-homogenous Quadratic Equation with four unknowns $x^2 + y^2 = 3z^2 + w^2$ ”, International Archive of Applied Science and Technology, Peer reviewed, ISO9001:2008, www.soeagra.com, Vol. 4(3), Pager No. 58-61, September 2013.

Abstract:

The homogenous quadratic equation with four unknowns represented by the Diophantine equation $x^2 + y^2 = 3z^2 + w^2$ has been analyzed for Gaussian integer solution. A few interesting relations between the solution are exhibited.

- **Dr. S. Vidhyalakshmi, Ms. G. Sumathi, and Dr. M. A. Gopalan-** “On the ternary non-homogeneous cubic equation $x^3 + y^3 + z(x^2 + y^2 - 20) = 4(x + y)z$ ”, Impact Journal of Science and technology, ISSN: 0973-8290, Vol. 7(2), Page No.1-6, 2013.

Abstract:

The non-homogenous cubic equation with three unknowns represented by the Diophantine equation $x^3 + y^3 + z(x^2 + y^2 - 20) = 4(x + y)z$ is analyzed for its patterns of non-zero distinct integral solutions. A few interesting relations between the solutions and special numbers are exhibited.

- **Dr. S. Vidhyalakshmi, Ms. G. Sumathi, and Dr. M. A. Gopalan-** "Lattice points in the elliptic paraboloid $3x^2 + 2y^2 = 3z$ ", Impact Journal of Science and technology, ISSN: 0973-8290, Vol. 7(2), Page No.41-46, 2013.

Abstract:

The ternary quadratic Diophantine equation representing the elliptic paraboloid $3x^2 + 2y^2 = 3z$ is analyzed for its patterns of non-zero distinct integral solutions. A few interesting relations between the solutions and special polygonal numbers are exhibited.

- **Dr. M.A. Gopalan, Dr.S. Vidhyalakshmi, and Ms. S Mallika-** "An interesting transcendental equation $6\sqrt[2]{Y^2 + 3X^2} - 2\sqrt[3]{Z^2 + W^2} = R^2$ ", Cayley Journal of Math (Peer Reviewed) ISSN 2278-1749 <http://www.domainsmoon.com/>, Vol.2 (2), Page No. 157-162, 2013.

Abstract:

The transcendental equation with five unknowns given by $6\sqrt[2]{Y^2 + 3X^2} - 2\sqrt[3]{Z^2 + W^2} = R^2$ is analyzed for its infinitely many non-zero integral solutions. A few interesting properties among the solutions are presented.

- **Dr. M.A. Gopalan, Dr.S. Vidhyalakshmi, and Ms. S Mallika-** "On the exponential Diophantine equation $k^2z - xk^2 = ky$ ", International Journal of Engineering Research-Online (Peer Reviewed) International journal Articles available online <http://www.ijoer.com>, ISSN 2321-7758, Vol.1(2), 2013.

Abstract:

Four different infinite families of non-zero distinct integral solutions to the exponential Diophantine equation $k^2z - xk^2 = ky$ are obtained. A few interesting relations between the

solutions and special numbers namely centered polygonal numbers, centered pyramidal numbers, Jacobsthal numbers, lucas numbers, and kynea numbers are presented.

- **Dr. M.A. Gopalan, Dr.S. Vidhyalakshmi, and Ms. S Mallika-** “On the homogenous quintic equations with five unknowns $x^5 - y^5 + xy(x^3 - y^3) = 34(x + y)(z^2 - w^2)p^2$ ”, IOSR journal of mathematics (IOSR-JM) (Peer Reviewed) e-ISSN: 2278-5728 p-ISSN: 2319-765X <http://iosrjournals.org/>, impact factor=1.312, Vol. 7(3), Page No.72-76, Jul-Aug 2013.

Abstract:

The quintic Diophantine equation with five unknowns given by $x^5 - y^5 + xy(x^3 - y^3) = 34(x + y)(z^2 - w^2)p^2$ is analyzed for its infinitely many non-zero distinct integral solutions. A few interesting relations between the special numbers namely centered polygonal numbers, centered pyramidal numbers, Jacobsthal numbers, lucas numbers, and kynea numbers are presented.

- **Dr. M.A. Gopalan, Dr.S. Vidhyalakshmi, and Ms. S Mallika-** “On the exponential Diophantine equation $x^{x^m} y^{y^n} z^{z^p} = w^w$ ”, International Journal of Mathematical Trends and Technology ISSN: 2231-5373 <http://www.ijmtjournal.org>, Vol. 4(11), Page No: 247-253, Dec 2013.

Abstract:

The exponential Diophantine equation in four variables given by $x^{x^m} y^{y^n} z^{z^p} = w^w$ is considered and analyzed for finding its non-zero integer solutions for different choice of m and n. A few numerical illustrations are presented for the values of m and n given by (m,n)- (1,1), (2,2), (2,1),(1,2), $\frac{1}{2}, 1$). A few relations between the solutions and the special numbers are also presented.

- **Dr. M.A. Gopalan, Dr.S. Vidhyalakshmi, and Ms. S Mallika-** “On the Exponential Diophantine equation $[k^2 + 2(\alpha + 1)k + \alpha(\alpha + 2)]x + 1 = y^2$ ”, International Journal of Applied Mathematical Science ISSN 0973-0176 <http://www.ripublication.com/>, Vol. 6(3), Page No.189-191, 2013.

Abstract:

In this paper, we prove that the Diophantine equation $[k^2 + 2(\alpha + 1)k + \alpha(\alpha + 2)]x + 1 = y^2$ has a unique non-zero integer solution. Also, the Diophantine equations $(5k+2)+1=y^2$ and $2k^2 - 2k + 19) + 1 = y^2$ have no non-zero integer solution.

- **Dr. M.A. Gopalan, Dr.S. Vidhyalakshmi, and Ms. S Mallika-** “Some Special non-extendable Diophantine Triples, Scholars Journals of Engineering and Technology, ISSN: 2321-435X, www.sasublishres.com, Vol. 2 (2A), Page No. 159-160, 2014.

Abstract:

We construct some non-extendable p_3 Diophantine triples with property and exhibited few theorems on p_3 .

- **Dr. M.A. Gopalan, Dr.S. Vidhyalakshmi, and Ms. S Mallika-** “Special family of Diophantine Triples “, Scholars Journals of Engineering and Technology, ISSN: 2321-435X, www.sasublishres.com, Vol. 2 (2A), Page No. 197-199, 2014.

Abstract:

In this paper, we present two special Diophantine triples in which the sum of any two is a perfect square.

- **Dr. K. Meena, Dr. M.A. Gopalan, Dr.S. Vidhyalakshmi, and Ms. S Divya-** ‘Relation between M-Goal Numbers through the Solution of the equation $z^2 = 8x^2 + y$ “, International Journal of Science & Technology, ISSN 2321-919x, www.theijst.com, Vol. 2(1) Page No. 50-53, Jan-2014.

Abstract:

The ternary quadratic equation given by $z^2 = 8x^2 + y$ is considered. Employing its non-zero integral solutions, relations among few special polygonal numbers are determined.

- **Dr. M.A. Gopalan, Dr. S. Vidhyalakshmi, Ms. A. Kavitha, and Ms. M.Manjula-** “On the Non-homogeneous Ternary Quintic Equation $x^2 - xy + y^2 = 7z^5$, Research Inveny-International Journal of Engineering and Science, ISSN: 2278-4721, www.researchinveny.com, Vol. 3(5), Page No. 54-57, July 2013.

Abstract:

The ternary Quintic Diophantine equation given by is $x^2 - xy + y^2 = 7z^5$ analyzed for its patterns of non-zero distinct integral solutions. A few interesting relations between the solutions and special polygonal numbers are exhibited.

- **Dr. M.A. Gopalan, Dr. S. Vidhyalakshmi, Ms. A. Kavitha, and Ms. E.Premalatha-** "On the Homogeneous Bi-Quadratic Equation with Five Unknowns $x^4 - y^4 = 5(z^2 - w^2)R^2$, International Archive of Applied Sciences and Technology, ISSN: 0976-4828, www.soeagra.com/iaast/iaast.htm, Vol. 4(3), Page No. 37-44, 2013.

Abstract:

The Bi-quadratic equation with 5 unknowns given by $x^4 - y^4 = 5(z^2 - w^2)R^2$ is analyzed for its patterns of non-zero distinct integral solutions. A few interesting relations between the solutions and special polygonal numbers are exhibited.

- **Dr. M.A. Gopalan, Dr. S. Vidhyalakshmi, Ms. A. Kavitha-** "On the transcendental equation $7^2 \sqrt{y^2 + 2x^2} + \sqrt[3]{x^2 + y^2} = z^2$ ", Diophantine J.Math, (Peer Reviewed) ISSN 2278-1714 <http://www.domainsmoon.com/>, Vol. 2(2), Page No. 77-85, 2013.

Abstract:

The transcendental equation with five unknowns represented by the Diophantine equation $7^2 \sqrt{y^2 + 2x^2} + \sqrt[3]{x^2 + y^2} = z^2$ is analyzed for its patterns of non-zero distinct integral solutions and two different methods of integral solutions are illustrated.

- **Dr. M.A. Gopalan, Dr. S. Vidhyalakshmi, Ms. A. Kavitha-** "On the Special Transcendental Equation $\sqrt[3]{x^2 + y^2} = (\alpha^2 + \beta^2)^s z^2$ ", IJAMS, Vol. 6(2), Page No. 135-139, 2013.

Abstract:

The transcendental Equation with five unknowns represented by the Diophantine equation $\sqrt[3]{x^2 + y^2} = (\alpha^2 + \beta^2)^s z^2$ is analyzed for its patterns of non-zero distinct integral solutions and two different methods of integral solutions are illustrated.

- **Dr. M.A. Gopalan, Dr. S. Vidhyalakshmi, Ms. A. Kavitha-** “Integral solution to the bi-quadratic with five unknowns $(x + y + z + w)^2 = xyzw + 1$ ”, IOSR, (Peer reviewed), e-ISSN: 2278-5728 p-ISSN: 2319–765X <http://iosrjournals.org/>, Vol. 7(4), Page No. 11-13, July-Aug (2013),.

Abstract:

The main thrust of this paper is to study the biquadratic equation with four unknowns $(x + y + z + w)^2 = xyzw + 1$. We present six different infinite families of positive integral solutions to this equation.

- **Dr. M.A. Gopalan, Dr. S. Vidhyalakshmi, Ms. A. Kavitha-** On the Quintic Equation with Five Unknowns $2(x - y)(x^3 + y^3) = 19(z^2 - w^2)p^3$ IJOER (Peer reviewed), <http://www.ijoeer.in/>, ISSN: 2321-7758, Vol. 1.1(2), Page No. 279-282, 2013.

Abstract:

We obtain infinitely many non-zero integer (x, y, z, w, p) satisfying the quintic equation $2(x - y)(x^3 + y^3) = 19(z^2 - w^2)p^3$. Various interesting properties among the values of $x, y, z,$ and p are presented.

- **Dr. M.A. Gopalan, Dr. S. Vidhyalakshmi, Ms. A. Kavitha-** “On the Integral Solutions of The Binary Quadratic Equation $x^2 = 15y^2 - 11^t$ ”, Scholars Journal of Engineering and Technology, ISSN: 2347-9523, www.sapublishres.com, Vol. 2(2A), Page No. 156-158, 2014.

Abstract:

The binary quadratic Diophantine equation represented by $x^2 = 15y^2 - 11^t$, t odd is analyzed for its non-zero distinct integer solutions. Employing the lemma of Brahmagupta, infinitely many integral solutions of the above Pell equation are obtained. The recurrence relations on the solutions are also presented. A few interesting relations among the solutions are given. Further, there exist no integer solutions when t is given.

- **Dr. M.A. Gopalan, Dr. S. Vidhyalakshmi, Ms. A. Kavitha-** “ On the Integral Solutions of the Binary Quadratic Equation $x^2 = 4(k^2 + 1)y^2 + 4^t, k, t \geq 0$, Bulletin of Mathematics and

Statistics Research, ISSN: 2348-0580, <http://www.bomsr.com>, Vol. 2(1), Page No. 42-46, 2014.

Abstract:

The binary quadratic Diophantine equation represented by $x^2 = 4(k^2 + 1)y^2 + 4^t$, $k, t \geq 0$ is analyzed for its non-zero distinct integer solutions. Employing the lemma of Brahmagupta, infinitely many integral solutions of the above Pell equations are obtained. The recurrence relations on the solutions are also presented. A few interesting relations between the solutions and special numbers patterns namely, Polygonal numbers are also given. Further employing the integer solutions of the considered Pell equation, a special pattern of Pythagorean triangle is obtained.

- **Dr. M.A. Gopalan, Dr. S. Vidhyalakshmi, and Ms. A. Kavitha-** "Observation on the quintic with four unknowns $x^3 + y^3(x^2 + xy + y^2) + (x + y)(x^2 + y^2)w^2 = z(x^4 + x^3y + x^2y^2 + xy^3 + yx^4)$ ", Impact Journal of Science and Technology , Vol. 7(2), Page No. 15-19, 2013.

Abstract:

We obtain infinitely many non-zero integer quadruples (x, y, z, w) satisfying the quintic equation $x^3 + y^3(x^2 + xy + y^2) + (x + y)(x^2 + y^2)w^2 = z(x^4 + x^3y + x^2y^2 + xy^3 + yx^4)$. Various interesting properties among the values of x, y, z and w are presented.

- **Dr. M. A. Gopalan, Dr.S. Vidhyalakshmi, and Ms. J. Umarani-** Integral Points on the Homogeneous cone $x^2 + y^2 = 37z^2$ ", cayley J.math (Peer Reviewed) ISSN 2278-1749 <http://www.domainsmoon.com/>, Vol. 2(2), 2013, Page No. 101-107.

Abstract:

The ternary quadratic equation $x^2 + y^2 = 37z^2$ representing a homogenous cone is analyzed for its non-zero distinct integral points on it. A few interesting properties among the solutions are presented.

- **Dr. M. A. Gopalan, Dr.S. Vidhyalakshmi, Ms. J. Umarani, and Ms. D. Maheswari -**Integral Points on the Hyperbola $x^2 + y^2 - 4xy + 26 = 0$ ", International Journal of Pure and

applied Mathematical Sciences, <http://www.gbspublisher.com>, ISSN 0972-9828 Vol. 6(5), Page No. 419-424, 2013.

Abstract:

The binary quadratic equation representing the hyperbola $x^2 + y^2 - 4xy + 26 = 0$ is analyzed for its non-zero distinct integral points on it. The recurrence relations satisfied by x and y are presented. A few interesting relations between the solutions and special numbers are presented.

- **Dr. M. A. Gopalan, Dr.S. Vidhyalakshmi, and Ms. J. Umarani-** Remarkable Observations on the Hyperbola $y^2 = 24x^2 + 1$ “, Bulletin of Mathematics and Statistics Research, ISSN: 2348-0580, (Peer Reviewed), <http://www.bomsr.com/>, Vol. 1(1), Page No. 9-12, 2013.

Abstract:

The binary quadratic equation $y^2 = 24x^2 + 1$ is considered and a few interesting properties among the solutions are presented. Employing the integral solutions of the equation under consideration, a few special Pythagorean triangles are obtained.

- **Dr. M. A. Gopalan, Dr.S. Vidhyalakshmi, and Ms. J. Umarani-** On the Ternary Quadratic Diophantine Equation $6(x^2 + y^2) - 8xy = 21z^2$, Scholars Journal of Engineering and Technology (SJET), (Peer Reviewed), and ISSN: 2321-435X, www.saspublishers.com, Vol.2 (2A), Page No. 108-112, 2014.

Abstract:

The ternary quadratic equation $6(x^2 + y^2) - 8xy = 21z^2$ representing a homogenous cone is analyzed for its patterns non-zero distinct integral points. A few interesting properties among the solutions and special numbers namely, polygonal numbers, centered polygonal numbers, Pyramidal Numbers, Gnomonic numbers are presented.

Department of Microbiology

- **Ms. K. Anandhi and Ms. T. Ushadevi-** “A study on Antioxidant, Proximate analysis, Anti microbial activity and Phytochemical analysis of *Ipomoea pescaprae* by GC-MS”, International Journal of Biotechnology and Allied Field, (Peer Reviewed) ISSN: 2320-0774, <http://ijbaf.com/>, Vol. 1(7), Page No. 380-386, July 2013.

Abstract:

Plants have been an importance source of medicine with qualities for thousands of years. Mainly on traditional remedies such as herbs for their history it has been used as a popular folk medicine. *Ipomomea pescaprae* is used as medicinal values. Screening of photochemical analysis of *Ipomomea pescaprae* shows that almost of the chemical constituents are present Tannin, Phlobattannis, Saponin, Flavanoids, Steroids, Terpenoids and cardiac glycosides Anthoquinones which are used in medicinal purpose. *Ipomomea pescaprae* are having the antimicrobial activity against human pathogens. In 100% concentration of extraction zone of inhibition is high. But 25%, 50% and 75% shows the lowest inhibition activity. Proximate analyziz indicates the nutrients efficacy. In GC-MS analysis some of the Phytocomponents are screened as Eugenol, n-HExadecanoic acid, 1, 2-Benzenedicarboxylic acid, diissooctyl ester, Phenol, 2,4-bis are present in *Ipomomea pescaprae*.

- **Ms. K. Anandhi and Ms. T. Ushadevi-** “Analysis of Phytochemical Constituents, Antimicrobial activities of Clerodendron inerme against some selected pathogens”, International Journal of Biotechnology and Allied Field-, ISSN:2320-0774, (Peer Reviewed) <http://ijbaf.com/>, Vol. 1(7), Page No :387-393, July 2013.

Abstract:

The aim of the study was to investigate the Clerodendron inerme Phyto chemical compounds and antimicrobial activity of different extracts. The phyto chemical compounds screened by qualitative and GC-MS method. Qualitatively analyzed tannin, saponnin, flavanoids and terponoids gave positive results and phlobatannis and steroida gave negative results. In the GC-MS analysis, 21 bioactive phyto chemical compounds were identified in the ethanolic extract

of *Clerodendron inerme*. Three different solvents such as aqueous, ethanol and chloroform were used to extract the bioactive compounds from the leaves of *Clerodendron inerme* to screen the anti microbial activity selected plant pathogens by agar diffusion method. The maximum antibacterial activities were observed in ethanol extracts. Other than aqueous extract chloroform extract. *Clerodendron inerme* plant extract with ethanol can be used as antibacterial agents.

- **Ms. T. Ushadevi, Ms. R. Sathya, Ms. R. Shanmuga Priya, and Ms. K. Anandhi** - "Phytochemical Screening and Antibacterial Efficiency of *Allium porrum* Extracts", International Journal of Pharma and Bioscience, Impact Factor = 0.67, ISSN: 0975-6299, <http://www.ijpbs.net/>, Vol. 4(4), Page No: (B) 647-651, Oct 2013.

Abstract:

Phyto chemical constituent of *Allium porrum* leaf extracts and its antibacterial potentialities were evaluated using different solvents. Phytochemical screening of the different extracts showed that leaves contains important compound such as amino acid with sulphate, carbohydrate, Phenols, Proteins, flavanoids, alkaloids, Steroids, Tannin and saponin. Aqueous, methanol and acetone extracts of plant leaves were used for assessing antibacterial activity against *Salmonella typhi*, *Klebsiella pneumoniae*, *Staphylococcus aureus*, *Pseudomonas aeruginosa* and *Protus vulgaris* by agar well diffusion method. The present study demonstrated that the aqueous, methanolic, acetone extracts of *A. porrum* consists different phytochemical components thus exhibit variations in the antibacterial activity. These promising extracts open the prospects of finding new clinically effective antibacterial compounds.

- **Ms. S. Bhuvaneshwari, Mr. S. Madhavan, and Mr. A. Paneerselvam**- "Enumeration of Endophytic Bacteria from *Solanum trilobatum* L", World Journal of Pharmaceutical Research, ISSN: 2277-7105, Impact Factor: 0.9861, ICV: 5.90, <http://www.wjpr.net/>, (Peer Reviewed), Vol. 3(2), Page No. 2270-2279, 2014.

Abstract:

Endophytic bacteria are beneficial microbes that reside in living plant tissues, mainly in the intercellular space and inside vascular tissues, without either doing harm to the host or

providing any benefit to other microbial residents. Entophytes can be use full for prospection of bioactive compounds that may have medical and pharmaceutical applications. The aim of the present work was to investigate the bacterial Entophytes from the medicinal plant solanum trilobatum L. Totally 15 bacterial entophytes were isolated by using nutrient agar and LB medium. Among these, twelve isolates were Gram positive and three isolates were Gram negative. The bacterial entophytes were partially characterized by biochemical test. Isolated bacterial entophytes might be use full to its respective host solanum tribolatumL. and might be economically and pharmaceutically important bioactive compounds.

Department of Physics

- **Ms. S. Santhakumari, Ms. R. Padmavathy, and Ms. E. Jasmine VasanthaRani-** “Thermo Chemical, Solvation Number and Acoustical Parameters of a Sulfa Drug using Ultrasonic Velocity”, International Journal of Recent Scientific Research, (Peer Reviewed) <http://www.recentscientific.com>, Impact Factor: 3.0, IC Value: 5.01, ISSN 0976-3031 Vol.4(9), Page No.1347-1349, and September 2013.

Abstract:

Measurement of ultrasonic velocity in non-aqueous electrolytic solution gives information about the behavior of solution such as molecular association and disassociation. The attraction and repulsion between the molecules of the components involved shows considerable effects upon the physical and chemical properties of a solution such as density, viscosity and ultrasonic velocity. Benzene sulphonamide is one of the sulfa drug used in the treatment of gastroinbtestinal, duodenyl ulcer, neurological disorder are analyzed for the solution of the sample, in formamide. Adiabatic compressibility, salvation number, apparent molal volume and apparent molal compressibility are computed and analyzed for Benzene sulphonamide in non-aqueous solution. The structure making/breaking nature of the solute in the solvent is envisaged.

- **Ms. S. Santhakumari, Ms. R. Padmavathy, MS. S. Sujatha, and Ms. E. Jasmine VasanthaRani-** “Analysis of Solvation Number, Adiabatic Compressibility and Specific Acoustic Impedance of Glycyl and Amide Salts”, ISST Journal of Applied Physics (Peer Reviewed) <http://www.isst.org.in/>, IF: 0.85, ISSN 0976-903X, Vol. 4(2), Page No.57-60, Dec 2013.

Abstract:

Ultrasonic is novel and challenging method that is being developed for bimolecular where non-invasive technique is of great interest. Ultrasonic Velocity measurements are highly sensitive to molecular interaction and used to provide qualitative information about the physical nature and strength of the molecular / inter ionic interactions. The amino acids belong to an

important family of biomolecules which serve primarily as the basic building block of all proteins. The sample glycyl L leucine is used in the study of protein structure and functions. Another sample sulphanilamide is the potent antibiotic which is the important in the control of urinary tract infections and meningococcal meningitis prophylaxes. Solvation is the association of solvent molecules with solute ions in a solution. Adiabatic compressibility of a solution varies due to the effect of hydrogen bonding or induced Dipole-dipole interactions. Specific acoustic impedance is the characteristic impedance of the medium and experiments were carried out from a low concentration to high concentration at different temperatures. The measured values of density, viscosity and ultrasonic velocity were used to compute solvation numbers, adiabatic compressibility and specific acoustic impedance. An attempt is made to identify the entry of solvate into the samples and the entry of biological molecules into solvate which supports to identify the molecular structure.

- **Ms. S. Sujatha, Ms. E. Jasmine Vasantharani, and Ms. R. Padmavathy-** "Ultrasonic Analysis of Acoustic and Thermodynamic Properties of a Glycylpeptide in Non-Aqueous Medium", International Journal of Physics and Applications, (Peer Reviewed) <http://urpjournals.com/>, ISSN 0974-3103, Vol.5 (2) 2013 Page No.109-114.

Abstract:

Ultrasonic technique is a vital probe in evaluating the thermodynamical parameters such as internal pressure and free volume. The main advantage of considering the internal pressure in calculating the transport properties lies in the fact that it is experimentally measurable and depends on molar volume. By measuring the fundamental parameters, the specific acoustic impedance, Rao's constant, intermolecular free length, internal pressure and free volume were computed. Amino acids have been in the study of protein structure and function. In the present study, non-aqueous solutions of Glycyl -L-leucine have been taken with different molalities. The density, viscosity and ultrasonic velocities were measured in the temperature range from 278.15K, 288.15K, 298.15K, 308.15K, 318.15K, 328.15K. An attempt will be made to identify the entry of solvate into the sample and entry of biological molecules into the solvate.

- **Ms. S. Sujatha, Ms. E. Jasmine VasanthaRani, and Ms. R. Padmavathy-** “Thermodynamical and Electrochemical Analysis of a Glycyl Salt in Non-Aqueous Medium”, International Journal of Research in Pure and Applied Physics , (Peer Reviewed) <http://urpjournals.com/> ISSN 2278-134x , Vol. 3(3), Page No. 16-19, 2013.

Abstract:

Knowledge of solute – solvent interaction is very important to understand the fundamental phenomena like solubility of proteins, folding/unfolding processes, denaturation of proteins etc. in solutions. Peptides have been used in the study of protein structure and function. Internal pressure is closely related to solubility parameters which determine the way in which the interaction occurs in the system and also it can be measure exoerimentally. Free volume dependant properties have close connection with the molecular structure and it may account interesting features about interactions in the solutions. Suryanarayanaand kuppusamy have formulated quantitative relationships between the internal pressure, free volume and equivalent conductance. The solutions of different molalities were prepared in formamide and experimental studies were made from a very low concentration to a high concentration and at different temperatures. In the present work, the results are analyzed on the basis of ultrasonic methods to interpret the structural changes taking place I the solution.

- **Ms. R.Padmavathy, Ms. S. Sujatha, and Ms. Jamsine VasanthaRani-** “Role of Ultrasonics to Study the Behaviour of a Short Peptide in Non-aqueous medium”, Elixir Ultrasonics 68, (Peer Reviewed), ISSN: 2229-712X, www.elixirpublishers.com, Page No. 22293-22295, 2014.

Abstract:

Probing bio-molecules by ultrasonic technique is novel and powerful tool for characterizing their physico-chemical properties. Peptides find wide applications in drug production and as an ingredient in nutritional supplements. Glycyl-L-Glycine is the simplest dipeptide used in biochemical research and in the preparation of biodegradable polymers. Measurement of ultrasonic velocity plays an important role in the study of transport properties such as adiabatic compressibility, specific acoustic impedance, and intermolecular free length,

internal pressure and free volume are computed for various molalities and at various temperatures. The results are analyzed on the basis of solute-solvent interactions.

- **Ms .R.G. Vidhya, Mr. R. Ramasamy, and Ms. L. Vijayalakshmi-** “Optical Characterization of Gel Grown Zinc Tartarate Crystals”, International Journal of Physics and Research (IJPR), ISSN(Print) : 2250-0030 ; ISSN(Online) : 2319-4499; Impact Factor(JCC) : 1.9845; Index Copernicus Value(ICV) : 3.0, <http://www.tjprc.org/>, Vol. 3(3), Page No 97-100, Aug 2013.

Abstract:

The present technological day runs for efficient NLO material with good optical characterization. These materials allow manipulation of the fundamental properties of laser light beams. The data storage devices require improved NLO materials. It is useful in communication technology. In recent years the growth of tartrate single crystal has become popular among research workers because of ferroelectric non-linear optical and spectral characteristics. The zine tartrate single crystal is grown in silica gel by single diffusion method. Gel method is used to grow this tartrate crystal near ambient temperature. The optical properties of these crystals are studied by FTIR and UV analysis. The grown crystals ahoe optical transparency in visible region.

- **Ms.R.G.Vidhya, Mr.R.Ramasamy, and Ms.L.Vijayalakshmi-** “Effect of Manganese on Some Mixed Tartrate Crystals”, Asian Academic Research Journal of Multidisciplinary (AARJMD), Index Copernicus (ICV) - 5.05; ISRA - 2.015; GIF - 0.50, ISSN 2319-2801, Vol. 1(17), Page No.298-306, Jan-2014.

Abstract:

The compounds of different tartrate find their applications in medical and pharmaceutical fields. Materials with excellent non linearities are studied for their applications in telecommunication, optical computing and optical data storage. The good quality crystals of different tartrate are grown by single diffusion gel method. The effects of doping manganese on these crystals are studied from FTIR and UV spectrum. Good quality crystals are obtained within a period of 20 days. The grown crystals have wide optical transparency in the visible region, which is the desired property of NLO materials.

Department of Social Work

- **Ms. K. Vijaya and Ms. N. Janani-** "A Study on Psycho-Social Problem Faced by Parents of Physically Challenged Children" SELP- Journal of Social Sciences, ISSN: 0975-9999, www.selptrust.org, Vol. 3(IV), Page No. 175-179, Oct 2013.

Abstract:

Disabled is the clear preference in contemporary American English it referring to people having either physical or mental impairments, with the impairments themselves preferable termed disabilities. The study reviews the psycho-social problems faced by parents of physically challenged children. Recent study shows that the parents of handicapped children face enormous problems both emotional and economic strain on the family. The parents of handicapped children feel that they are neglected by their relatives. The study focuses on the extent of family which has its impact on financial, family routine, family interaction and effect. Physical health and mental health of the family members. The researcher used the descriptive research design for the study. The main aim for having used this design was to analyze the problem precisely as well as to increase the awareness knowledge of the researcher about the magnitude of the problem. The universe of the current study constitutes a total of 50 respondents which the researcher collected. In the present study the researcher could analyze the social problem, economic problem, health status, educational level, social status, psychosocial problem of parent of handicapped children. In this study Majority of the respondents live in nuclear family and half of the respondents were female. Less than half of the respondents had viral infection during pregnancy. Also half of the respondents identified the defect below 10 years and vast majority of the respondents child were not affected by genetic illness and Majority of the respondents had felt stress. A systematic and continuous assessment for the problem faced by the parents with the help the parents to achieve their goal in the world. Social worker should be appointed in all spheres of life to provide psychosocial relief to the parents. The parents of handicapped children can be given an awareness program through the mass media at regular intervals. It is estimated more than 50% of the parents face mental

strain and stress. Awareness is very essential to prevent their problems, guidance and counseling to be given to the parents to reduce their mental strain.

- **Ms. N. Hemalatha and Dr. A. Savarimuthu-** “A Study on Employee Retention Techniques”, Blue Ocean Research, ISSN: 2319-5614, <http://borjournals.com>, Vol.2(8), August 2013.

Abstract:

The objective of perusing this study is to assess the level of satisfaction of employee retention technique at GB Engineering Enterprises PVT Limited., Trichy

This study gains significant because of employee retention technique can be approached from various angles. It is desirable state of existence involving retention strategies generally fall in to one of four categories salary working conditions, job enrichment and education. These four elements together constitute. The structure of employee retention technique which on it's totally is based. Addressing these issues demands a specialized approach in developing retention strategies, or they reality is the academic libraries may begin losing talented employees to non-library employers who can offer higher-paying jobs with better working conditions.

To study the opinion of the employee about the various aspect of the company. To study about how the organization takes interest & develop approaches towards the retaining employee. There is no significant association between educational qualification of the respondents and their overall retention techniques. This indicates that majority 55% of the respondents felt respondents felt that the retention techniques of management are high and others s felt is low.

- **Ms. N. Hemalatha and Dr. A. Savarimuthu-** “A Study on the Problem Faced by HIV+ VE Children Who Come to ‘Trust Me’ Support”, Blue Ocean Research, ISSN: 2319-5614, <http://borjournals.com>, Vol. 2(9), September 2013.

Abstract:

AIDS is an acronym made up of the first letter of the words **Acquired Immune Deficiency Syndrome**. The virus that caused AIDS is known to be Human immune deficiency virus HIV. A person may be infected with HIV and might be perfectly well with no physical symptoms. i.e HIV non-symptomatic. The term AIDS is used when the disease has progressed and the person develop one or more serious infection or conditions. HIV is present throughout

the body. Social, cultural and religious practices strongly influence children's need. A child from a culture in which the extended family is the principal care giving unit for children will have different needs from a child from a community. The main forms of transmission are limited to blood, vaginal/cervical, urine, human tissues, tears, semen, saliva, cerebrospinal fluid and breast milk. The main objective is to study about the health status of the respondents and to study the psychosocial problems faced by the respondents. The researcher adopted descriptive research design and convenient sampling was used to collect data. The major findings are: Majority 80% of the respondents are taken care of their parents and majority 64% belongs to rural background.

- **Dr. K. Kavitha Maheswari, and Dr. J. Godwin Prem Singh-** "Impact of Socio Economics Status on Higher Education Aspiration Among rural girls", ZENITH International Journal of Multidisciplinary Research, (Peer Reviewed) ISSN: 2231-5780, Vol.3 (9), Page No. 181-192, and September 2013.

Abstract:

An attempt was made in the present investigation to study the impact of socio-economic status on higher education aspiration among rural girls and examine whether there was any significant difference between the higher education aspirants and on aspirants with regard to their socio-economic status. Socio-economic status is the independent variables and the higher education aspiration is the dependent variable of the study. A sample of 370 respondents from the universe of 926 students were selected through stratified proportionate random sampling technique the groups of mathematics, science, commerce and vocational groups. Socio-economic status scale by Dr.Meenakshi (1985) was administered for data collection along with other variable like course of study, academic performance and favorable family environment towards education. The results revealed that there exists a significant difference between the respondent's higher education aspiration with regard to their overall socio-economic status, especially the dimensions of profession, property, locality and social status shown a significant difference between the higher education aspirants and non-aspirants.

- **Dr. K. Kavitha Maheswari, and Dr. J. Godwin Prem Singh-** “Self Concept an influencing Factor of Rural Students achievement Motivation”, Asian Academic Research Journal of Social and Humanities, (Peer Reviewed) ISSN: 2278-859X, Vol. 1 (15), Page No.189-207, and Sep 2013.

Abstract:

The present research investigates the relationship between the self-concept and achievement motivation in order to measure the effects of these item on each other. Study is a descriptive research. Study sample were 370 twelfth standard girls students selected by stratified proportionate random sampling method. Analysis of data was performed by simple frequency and Karl people’s method. Results of study reveals that majority of the respondents had high level of physical, educational, moral and overall self concept and above average level of social, temperamental and intellectual self concept and exactly half of the respondents perceived low level achievement motivation and the remaining half had high level of achievement motivation. This study proved that self concept of the respondents positively influenced the achievement motivation of them. All the dimensions of self concept have significant positive relationship with achievement motivation of the respondents. Thus the research hypothesis is confirmed. In the end paper, findings are discussed and practical recommendations are presented.

- **Dr. K. Kavitha Maheswari-** “Plight of Early married Women-an Obstacle to women empowerment”, Asian Academic Research Journal of Social and Humanities, (Peer Reviewed) ISSN: 2278-859XVol. 1(15), Page No.352-361, Sep 2013.

Abstract:

All over the world, marriage is the universal social institution. It has been more than a century but India has not been able to stop children marriage. Especially in rural India, parents think that early marriage offers production from the dangers of sexual assaults are more generally offers the care of a male guardian to their daughters. The present study deals with the plight of early married women and how the system of early marriage affects their development. This descriptive study was undertaken in 10 villages of Burgur Block, Krishnagiri District, TamilNadu. Multistage sampling was adopted to carry out the study by using a self prepared

interview schedule covering the socio, economic, education, health condition of the early married women and how their development has been hampered by early marriage. There were totally 110 respondents, who have undergone marriage before the attainment of 18 years of age interviewed. Because of early marriage the girls were not able to enjoy their childhood, they are burdened with family responsibilities, and their health is also affected and the respondents did not like early marriage. Girl children and their parents in rural areas have to be given enough sensitization about the importance of women development and the problems of early marriage. The child marriage restraint Act must also be enforced properly. Both government and organizations should work hand in hand to eliminate the problem of early marriage.

- **Dr. K. Kavitha Maheswari, and Ms. T. Devi-** “Problems Encountered by Non-Government Organizations- an Overview” SELP- Journal of Social Sciences, ISSN: 0975-9999, www.selptrust.org, Vol. 3(IV), Page No. 250-256, Oct 2013.

Abstract:

NGO or voluntary organizations are non-profit making agencies that are constituted with a vision by a group of likeminded people, committed for the uplift of the poor, marginalized, unprivileged, underprivileged, impoverished, downtrodden and needy and they are close and accessible to the target groups, flexible in administration, quicker in decision making, timely in action and facilitating the people towards self reliance ensuring the fullest participation in the whole process of development. NGOs of present day are facing a lot of problems with respect to organizational administration, fund availability and utilization, quality of services, committed leadership and people’s participation. Though there are a wide variety of problems the nongovernmental organizations facing, few organizations are functioning with limited fund and committed staff showing developmental changes. This paper is an attempt to showcase the general problems faced by nongovernmental social work organizations.

- **Ms. T. Mahadevi, and Dr. K. Kavitha Maheswari-** “Problems Experienced by Women Undergoing Inter-fertility Treatment”, SELP- Journal of Social Sciences, ISSN: 0975-9999, Page No. 421-427, Vol. 3(IV), and Oct 2013.

Abstract:

This descriptive research aimed to know the Psycho-social problems experienced by married women under fertility treatment in Tiruchirappalli. The researcher used a self prepared interview schedule to collect the data from the respondents and the researcher was able to know the various psycho social problems like the problems in their marital life, family life, and social life through this study. Hence proper psychosocial counseling, awareness and support can be of greater use to deal with this issue.

AREAS FOR RESEARCH

COMPUTER SCIENCE

- ✘ *Artificial Neural Networks*
- ✘ *Data mining*
- ✘ *Bio Informatics*
- ✘ *Image Processing and Pattern Recognition*
- ✘ *Computer Applications using Discrete Mathematical Tools*

COMMERCE

- ✘ *Marketing*
- ✘ *Inventory Management*
- ✘ *Finance Management*
- ✘ *Effective Management & Administration*

MICROBIOLOGY

- ✘ *Agricultural Microbiology*
- ✘ *Mycology*
- ✘ *Environmental Microbiology*

BIOCHEMISTRY

- ✘ *Biomolecules, Biotechnology*
- ✘ *Immunology Endocrinology Enzymes / Cancer Biology*
- ✘ *Techniques, Molecular Biology*
- ✘ *Clinical Biochemistry, Food & Nutrition*

TAMIL

- ✘ *Mozhiyiyal*
- ✘ *Ariviyal Tamil*
- ✘ *Sangam Literature*
- ✘ *Bhakthi Literature*

MATHEMATICS

- ✘ *Number Theory*
- ✘ *Fluid Dynamics*
- ✘ *Applied Mathematics*

MANAGEMENT STUDIES

- ✘ *Pay on perquisites*
- ✘ *Employability skills in Arts & Science*
- ✘ *Women Role in IT sector*

SOCIAL WORK

- ✘ *Community Development*
- ✘ *Medical and Psychiatry*
- ✘ *Human Resource Management*