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& COMPUTER SCIENCE – ANDHRA LOYOLA 2019

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Andhra Loyola College (Autonomous) Vijayawada, Andhra Pradesh, India
IMRF Institute of Higher Education & Research, India

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PREFACE

Dear Associates

Welcome to each and every one of you congregated for the prestigious International Conference on Advances & Applications in Mathematics, Statistics & Computer Science – Andhra Loyola 2019, Andhra Pradesh, India in collaboration with IMRF Institute of Higher Education & Research, India.

We know that an academic conference is a symposium for inventive academicians and imaginative researchers to give academics an opportunity to present their academic works, concepts and new discoveries and to exchange their ideas and develop their works and also to share idea in presenting fordevelopment in the new research and topics and so forth. Together with academic or scientific journals,conferences plausibly provide a central channel for exchange of information among earnest researchers.

IMRF with its Academic Chapters in many Countries, since inception, has a great academic, research and social priorities to promote the spirit of values and orientations in multidisciplinary research functions of educationby working out in dexterity required by the integrity of a sophisticated social world order duly transmittingcentral heritage with scientific bent of mind forming socialization process in respect of reformation of attitudes to confer a serene status for a rational being called man on this civilized planet, of course, from the threshold of Ratna Prasad Multidisciplinary Research and Educational Society.

While presenting you with this sonata of latest academics and research findings, I humbly place on record my loyal acknowledgement of sincere appreciation, due recognition and heart-felt thanks to all intellectual paper presenters, article contributors, members on the esteemed Editorial Board, centres of higher learning in collaboration with IMRF, foreign-national delegates, erudite plenary speakers, scholarly participants and all those who are directly or indirectly in conformity with this IMRF conferences from home and abroad for their righteous everlasting support in one and all aspects and my sincere thanks to Andhra Loyola College (Autonomous), Vijayawada, Andhra Pradesh, India for their ever dynamic support and cooperation. Gratitude is attitude!

With effusive thanks,

Dr.Ratnakar D. Bala
Conference Chairman

| **Rev.Fr.P.Balashowry, S.J., Rector** | **Rev.Fr.Dr.M.Sagayaraj, S.J., Correspondent** | **Rev.Fr.G.M.Victor Emmanuel , S.J. Principal** |

About Andhra Loyola College (Autonomous)

Andhra Loyola College, established in 1954 has been imparting quality higher education since its inception to students of both the telugu speaking States in particular and to the students all over the Country. The College was accorded Autonomy by the University Grants Commission from the academic year 1987 - 1988 and had been one of the very few Autonomous Colleges that were enjoying autonomous status for more than three decades. The College has entered into its 65th year of fruitful and meaningful existence.

Credentials of the College in the recent past: NIRF Rank 2019 : Andhra Loyola College (ALC) was ranked at 45th place under the Colleges Category in Institutional Ranking Framework for the year 2019 by the Ministry of Human Resources Development, Govt. of India, New Delhi. Our College is the only College from both the telugu speaking states to find place among the first fifty ranks.

NAAC Accreditation : ALC was accredited at A+ grade with a CGPA of 3.66 out of 4.00 in III cycle by the National Assessment and Accreditation Council (NAAC). Again the College with highest CGPA in both the telugu speaking states. RUSA Funding : Under the Rashtriya Utchathar Siksha Abhiyan (RUSA) scheme of MHRD, Govt. of India,our College was selected under Component Eight for 'Enhancing Quality and Excellence in select Autonomous Colleges' for its academic credentials. Among all the Colleges in the State of Andhra Pradesh, only two colleges got selected under this component, wherein agrant of Rs.5.00 crores was sanctioned to the College.

ISO Certification: Our College has also been certified as an ISO 9001:2015 Institution under the scope of certification "Providing Quality Education" for a period of three years from 2019 to 2022.

TEAM ALCMS 2019

Chief Patron
Rev.Fr.P.S.Amalraj, S.J.
Provincial Andhra Jesuit Province

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Rev.Fr.Dr.M.Sagayaraj, S.J., Correspondent

Conference Director
Rev.Fr.G.M.Victor Emmanuel, S.J.
Principal, ALC

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Dr.N.Srinivasa Rao, HOD, Statistics
Mr.P.Venu Gopala Rao, HOD, Mathematics
Mr.T.Kamalakar Raju, HOD, Computer Science

Organizing Committee : All the members of respective departments

Department of Mathematics

P. Venu Gopala Rao
Head of The Department

Profile of The Department:
Department of Mathematics has been one of the major Departments right from the inception of the college in 1954. The Department has been striving its best for academic and personal excellence. The Department of Mathematics lays special emphasis on the development of Intellectual Ability along with Analytical Skills. Since its inception the Department of Mathematics is in the forefront of dedication in the service of students. The Department is proactive in its attempt to update the curriculum to help the students remain competitive in a globalised society. The Department has grown from its humble beginnings and now has 26 Faculty Members (one Ph.D and six M.Phil holders) and offers the following courses.

Intermediate (MPC and MEC)
B.A. (Mathematics, Statistics, Economics)
B.Sc.(Mathematics, Statistics, Physics)
    (Mathematics, Physics, Chemistry)
    (Mathematics, Physics, Computer Science)
    (Mathematics, Statistics, Computer Science)
    (Mathematics, Electronics, Computer Science)
    (Mathematics, Pharmaceutical Chemistry, Computer Science)
    (Mathematics, Big Data Analytics, Statistics)
    (Mathematics, Artificial Intelligence, Statistics)

M.Sc. Mathematics
The Department also offers General Electives like Analytical Aptitude, Quantitative Aptitude, Advanced Aptitude to provide job opportunities to the students of all combinations.The department is engaged in student centred activities like skill development workshops,Guest Lectures, Seminars. Staff members of the Department published Research Papers in various International Journals.

Name of the Staff Member	Qualifications	Designation	Specialization
Mr.M.Arokiasamy	M.Sc., B.Ed.,M.Phil., PGDCA	Lecturer	Boolean Near-rings
Dr.N.V.Ramana Murty	M.Sc, M.Phil.,Ph.D	Reader	FuzzyCommutative Algebra
Mr.A.Shou Reddy	M.Sc., B.Ed	Lecturer	Modern Algebra
Mr.P.Chenchu Babu	M.Sc.	Lecturer	Matrix Theory
Rev.Fr.G.M.Victor Emmanuel,S.J.	M.Sc.	**Principal**	Linear Algebra
Mr.P.Venu Gopala Rao	M.Sc., M.Phil.	**Head of the Department**	Near-rings
Mr.M.Mariya Das	M.Sc., M.Phil.	Lecturer	Near-rings
Rev.Fr.P.Balashowry,S.J..	M.Sc.	**Rector**	Algebra
Mr.Ch.Srinivasa Rao	M.Sc.	Lecturer	Graph Theory
Mr.P.Krishna Prasad	M.Sc., PGDCA	Lecturer	Real Analysis
Ms.K.Anuradha	M.Sc., PGDCA, M.Phil.	Lecturer	Algebra
Ms.B.N.Padmavathi	M.Sc., M.Phil., PGDCA	Lecturer	Algebra
Ms.D.Tabitha	M.Sc., M.Phil., B.Ed	**Vice -Principal**	Automata Theory
Ms.J.Hari Priya	M.Sc.	Lecturer	Linear Algebra
Ms.P.Hepsi Buela	M.Sc., M.Ed	Lecturer	Algebra
Ms.V.Madhavi	M.Sc.	Lecturer	Real Analysis
Mr.M.Narendra Babu	M.Sc.	Lecturer	Algebra
Mr.B.Balaji	M.Sc.	Lecturer	Real Analysis
Ms.K.Judy	M.Sc.	Lecturer	Graph Theory
Ms.G.Mary Joshna	M.Sc., B.Ed	Lecturer	Complex Analysis
Mr.K.Naga Koteswara Rao	M.Sc., B.Ed	Lecturer	Near-rings
Ms.G.Taraka Lakshmi Sirisha	M.Sc.	Lecturer	Group Theory
Ms.K.V.L.Naga Mallika	M.Sc.	Lecturer	Group Theory
Ms.B.Sailaja	M.Sc., B.Ed	Lecturer	Functional Analysis
Ms.T.Hima Bindu	M.Sc.	Lecturer	Numerical Analysis
Ms.K.Priyanka	M.Sc.	Lecturer	Algebra

Department of Statistics

Dr N. Srinivasa Rao
Head, Department of Statistics

Profile of The Department:

Department of Statistics was established as a sub set of Mathematics department in the year 1954. The Department has evolved into a full-fledged department in the year 1991. Presently the department offers five courses viz., B.Sc (Mathematics, Statistics and Physics), B.Sc (Mathematics, Statistics and Computer Science), BA (Mathematics, Statistics and Economics) B.Sc (Mathematics, Statistics and Big Data Analytics) and B.Sc (Mathematics, Statistics and Artificial intelligence) with six sections consisting of 896 students.

Vision and mission of the department is to promote the use and knowledge of Statistics in all fields in which Statistics can contribute to a better understanding of scientific and social phenomena, and enhance the quality of decisions and conclusions made on the strength of the statistical approach.

Department has nine faculty members of which three had doctorate degrees and three are pursuing their doctorate degree work. Department is providing services to research scholars in other disciplines like Economics, Commerce, Management, Political Science etc.

Department offers the following electives for our students
(i) Statistical Quality Control   (iv) Demography
(ii) Optimization Techniques   (v) Actuarial Statistics
(iii) Basic Data Analysis Using R   (vi) Data Base Management Systems

Our computer lab is equipped with 60 systems and departmental library has around 300 books.

Our Department Faculty Members:

1. Dr K Srinivas
2. Sri KM Nagarjuna
3. Sri N.Lakshmi Niranjan
4. Sri S.Sai Suresh
5. Smt KNVR Lakshmi
6. Smt K Neelima
7. Sri A.Siva Nagarjuna
8. Dr D. Madhu Latha

Department of Computer Science

T.Kamalakar Raju
Head of The Department

About:
The Department of Computer Science has been successfully spreading its branches since 1988. Initially, the Department has offered courses like B.Sc. (Computer Science, Mathematics & Physics), B.Sc.(Computer Science, Statistics & Mathematics) B.Sc.(Computer Science, Electronics & Mathematics) and B.Sc. (Computer Science & Electronic Technology), but keeping in view the research output and industry requirements the Department has stemmed out new courses like B.Sc. (Big Data Analytics), B.Sc. (Artificial Intelligence)to meet the needs of the hour.

The Department is well-resourced with the modern computer labs and infrastructure. The well-equipped Air-conditioned Computer centres with 600 systems and latest configuration are meeting the needs of the contemporary intellects. The labs are connected to High-speed Internet to impart high-quality education to the students. As the Department of Computer Science deals with the design, application, and Management of Information System (MIS), to facilitate such learning, the programs are designed to offer students to work on various hardware and software platforms. The Department also organizes Seminars and Workshops to improve the technical skills of the students, so that they can face global competition. The Department of Computer Science also takes care of Software and Hardware requirements of the entire college.

The strength of the Department of Computer Science is Undeniably the Alumni, who had pursued their Masters in various elite National and International Universities. A good number of students are being placed through campus placements in major IT, ITES, and core MNCs like Infosys, IBM, Tech Mahindra, Accenture, Cognizant and so on with good packages of more than 2 to 4 lakhs per annum. Global excellence and local relevance in research, teaching and technology development is the main motto of the department, to achieve this, the students are encouraged to carry out innovative research in their relevant fields and deliver quality services to match the needs of the technical edification, industry, and society.

The backbone of our department is our distinguished members of the department, who are always dedicated and devoted towards the comprehensive development of our students by training them physically and expressively through games, sports, and technical competitions. The students are motivated to establish their career in Private or Public Sectors. The students are trained to design, research and implement products and services in the field of Computer Science through strong communication, management, and professional skills. The Department of Computer Science aims at the development of Academic and Career Excellence(ACE) Computer Professionals with ethical values and public concerns.

Computer Science Department Staff Details:

Sl. No.	Name of the Staff	Qualification	Designation
1	Mr.S.A.B. Nehru	M.Sc., PGDBA.	Lecturer
2	Dr. K. B. S. Sastry	M.Sc., PGDCA, M.S., M.Phil., Ph.D.	Lecturer
3	Mrs. A. Lavanya	M.Sc., APSET	Lecturer
4	Mr.T. Kamalakar Raju	M. Sc. (IS), B.Ed., M.Phil.	Head of the Dept.
5	Mrs.N.Sireesha	M.Sc. (IS), M.Tech.	Lecturer
6	Mrs.L. Nageswari Devi	DOEACC'B'Level, M. Tech., APSET	Lecturer
7	Ms.K.Aparna	M.Sc.,	Lecturer
8	Mr.M.Ravi Kumar	MCA, NET, APSET	Lecturer
9	Mr.G.Sudhakara Rao	MCA, M.Tech	Lecturer
10	Mr.G.V.S.Narasimaha	MCA, APSET	Lecturer
11	Mr.T.Mallikarjun	M.Tech.	Lecturer
12	Ms.Y.Karuna Manjusha	M.Tech.	Lecturer
13	Ms.K.Mounika	M.Tech.	Lecturer
14	Mrs.A.Lakshmi Prasanna	MCA	Lecturer
15	Ms.A.Sandhya Rani	M.Sc.	Programmer
16	Ms.D.Rupavani	MCA	Programmer
17	Ms.K.Ramyasree	M.Tech.	Programmer
18	Mr.K. Anil	MCA	Software Specialist
19	B.Munni Shirisha Rani	B. Tech.	Programmer
20	Mr.A.Lakshmana Rao	B. Tech.	Programmer
21	Ms.Lilly Joel	MCA	Programmer
22	J.Satyanarayana	MCA	Programmer

Tentative Program - International Conference on Advances & Applications in Mathematics, Statistics & Computer Science - Andhra Loyola 2019			
Nov 01-02, 2019 | Andhra Loyola College (Autonomous) Vijayawada, Andhra Pradesh, India			
	01/11/2019		**02/11/2019**
09.00 to 09.30	**Formal Registrations**	09.30 to 09.45	**Formal Registrations**
09.30 to 10.30	**Inaugural Function**	09.45 to 10.30	**Plenary Talk : Dr. Kiran Sree Pokkuluri** Professor, Dept. of Computer Science and Engineering Shri Vishnu Engineering College For Women Bhimavaram, Andhra Pradesh, India
10.30 to 11.15	**Key Note: Prof. Bhavanari Satyanarayana** Professor, Dept of Mathematics Acharya Nagarjuna University, Guntur	10.30 to 11.15	**Plenary Talk : Dr B. Janakiramaiah** Professor, Dept. of Computer Science and Engineering Prasad V. Potluri Siddhartha Institute of Technology Kanuru, Vijayawada, Andhra Pradesh, India
11.15 to 11.30	Coffee Break	11.15 to 11.30	Coffee Break
11.30 to 12.15	**Plenary Talk : Dr. W. G. Samanthi Konarasinghe** Institute of Mathematics & Management, Ranala Colombo University, **Sri Lanka.**	11.30 to 12.15	**Plenary Talk : Prof. B. Re. Victor Babu** Professor, Dept of Statistics Acharya Nagarjuna University, Guntur
12.15 to 13.00	**Plenary Talk : Dr. B. Satyanarayana** Professor, Dept of Mathematics Acharya Nagarjuna University, Guntur	12.15 to 13.00	Paper Presentation Sessions in Parallel Sessions
13.00 to 14.00	**Lunch**	13.00 to 14.00	**Lunch**
14.00 to 16.00	Paper Presentation Sessions in Parallel Sessions	14.00 to 15.00	Valedictory Function
16.00	**Refreshments**	16.00	**Certificate Distribution & Refreshments**
16.30	**First Day Conference Closes**	16.30	**Conference Closes**

Paper Presentation Details												
Math	TRACK 1	M011A	M014A	M018A	M022A	M023A	M024A	M027A	M028A	M029A	M031A	M034A
Stat & CS	TRACK 2	M012A	M013A	M016A	M020A	M021A	M030A	M039A	M059A	M066A	M015A	M041A
Math	TRACK 3	M035A	M036A	M037A	M038A	M042A	M043A	M045A	M046A	M047A	M049A	M050A
Math	TRACK 4	M051A	M053A	M054A	M055A	M056A	M057A	M058A	M063A	M064A	M065A	M067A

.

CONTENTS

CONTENTS

CONTENTS

CONTENTS

CONTENTS

SAMA CIRCULAR MODEL AND ARIMA ON FORECASTING CONSUMER PRICE INDEX OF INDIA

DR. W. G. SAMANTHI KONARASINGHE

Abstract: The Consumer Price Index (CPI) is a statistical composite indicator which measures the average change in prices over time that consumers pay for a basket of goods and services. The CPI indicates whether the economy of a country is experiencing inflation, deflation or stagflation. It gives insight about the effectiveness of the economic policies of the government and economic performances of a country. The CPI is used to adjust; wages, retirement benefits, tax brackets, and other important economic indicators. It helps authorities for strategy development and policy making, in order to overcome the inflation. The CPI projects relationships between financial markets and consumer prices, hence helps in investment decisions. Therefore academicians and researchers keep eye on CPI and attempted in forecasting them. Yet, studies based on forecasting consumer price Index of India were limited.

Literature revealed that, time series forecasting techniques; Trend Analysis, Vector Auto Regression Models (VAR), Auto Regressive Integrated Moving Average (ARIMA) and Seasonal Auto Regressive Integrated Moving Average (SARIMA) were widely applied for forecasting CPI of various countries. Among them the ARIMA/ SARIMA were the most successful. But, academicians have identified few weaknesses in ARIMA technique. Accordingly, ARIMA forecasts do not follow the pattern of actual series; ARIMA can be applied only if the data series has constant mean and constant variance (stationary series); ARIMA is unable to separate the seasonal and cyclical variations of a series. In contrast, the Sama Circular Model (SCM) is applicable in modelling non stationary series, and also capable in differentiating seasonal and cyclical variations of a series. Therefore, ARIMA/ SARIMA models and the SCM were tested on forecasting Indian CPI.

Monthly data from January 2006 to December 2018, obtained from International Monetary Fund (IMF) were used for the analysis. Box plots, Time Series plots and Auto Correlation Functions (ACF) were used for pattern recognition. Goodness of fit tests and measurements of errors were used in model validation. The ACF of residuals and Ljung-Box Q statistics (LBQ) were used to test the independence of residuals. The Probability plot and the Anderson Darling test were used to test the normality of residuals. Forecasting ability of models was assessed by Mean Square Error (MSE) and Mean Absolute Deviation (MAD).Results revealed that the ARIMA/ SARIMA do not satisfy model validation criterion, but does SCM. Measurement of errors of SCM was extremely low in both model validation and verification. It is concluded that the SCM is suitable in forecasting consumer price index of India.

Keywords: Consumer Price Index, ARIMA, Sama Circular Model.

***

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CONSTRUCTION OF WEYL GROUP FOR THE LIE ALGEBRA $sl(2;C)$

G. M. VICTOR EMMANUEL, N. V. RAMANA MURTY, P. BALASHOWRY

Abstract: Weyl groups have a significant role in the study of representation theory of Lie algebras. Also, Weyl groups are involved in an important symmetry to the representations of Lie Algebras of Lie groups. So, this paper makes an attempt to study Weyl group of the Lie algebra $sl(n;C)$. Mainly, it has been concentrated on the Weyl group of the Lie algebra $sl(2;C)$ of the matrix Lie group $SL(2;C)$ of all 2 x 2 invertible complex matrices with determinant one.

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STABILITY OF THE RIEMANN SOLUTION FOR A HYPERBOLIC SYSTEM OF CONSERVATION LAWS

T. RAJA SEKHAR

Abstract: In this work, we study the interactions between classical elementary waves and delta shock wave in quasilinear hyperbolic system of conservation laws. This governing system describes a thin film of a perfectly soluble anti-surfactant solution in the limit of large capillary and Peclet numbers. This system is one of the example of non-strictly hyperbolic system whose Riemann solution consists of delta shock wave as well as classical elementary waves such as shock waves, rarefaction waves and contact discontinuities. A delta shock wave is a generalization of an ordinary shock wave, it consists of a discontinuity line plus a distributed Dirac delta function with the discontinuity line as its support. A delta shock wave is over-compressive in the sense that the number of characteristics entering the discontinuity line of the delta shock wave is more than in the case of an ordinary shock wave. We establish the generalized Rankine-Hugoniot jump condition for delta shock wave and the position, propagation speed and strength of delta shock wave are computed. The global structure of the perturbed Riemann solutions are constructed and analyzed case by case when delta shock wave is involved.

***

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PARAMETRIC ESTIMATION OF CURE RATE IN IDENTICAL MIXTURE MODELS OF SURVIVAL DISTRIBUTIONS FOR BREAST CANCER PATIENTS

KANNEDARI SIVA NAGA RAJU, T. LEO ALEXANDER

Abstract: The analysis of survival data with a possible cure fraction has attracted much interest in the last two decades. Various models and estimation methods have been proposed for such data and they have been applied in many fields, especially in cancer clinical trials. In this paper, we introduce two methods of fitting a 2 component identical mixture model to estimate the cure rate, where the population is assumed to comprising of two sub-populations. Expectation-Maximization (EM) Algorithm and Bayesian approach were used for the estimation of the parameters of the parametric identical mixture models. The fitted distributions help us to identify the underlying distribution of the sub-population. The estimated cure rate can be used to judge the efficacy of the treatment for Breast Cancer patients.

Keywords: Bayesian estimation, Breast Cancer, Cure Rate, EM algorithm, Mixture Model and Survival Distribution.

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PRICE, LOANABLE FUND AND INDIFFERENCE CURVES: THEORIZING AUTHORITY THROUGH MISUSE OF MATHEMATICS, LOGIC AND IMPROBABLE ASSUMPTIONS

ACHYUT OAK

Abstract: Price , Loanable Fund and Indifference Curves theories as they are taught and studied today in various colleges and universities is purely an attempt to glorify the subject through misuse of mathematics and logic. Some examples are cited below .

In Price theory with some arbitrary data (quantity on the X axis and price on the Y axis) two lines one with positive slope and another with nagative slope are drawn in the first quadrant . In the development of the theory , tastes , incomes , prices of other goods , new substitutes , availability and such other important factors are totally ignored . Utility is another function introduced which is purely a mental concept . Mathematical curves are used as an ornament .

For Indifference Curves (ICs) following assumptions are made i) ICs slope downwards to the right ii) ICs are concave to the origin iii) ICs can not intersect each other iv) ICs can not meet or even touch each other or be tangent to eachother . Inspite of the assumptions geometrically and physically the measure is supposed to be ORDINAL . At no stage any mathematical equations are given .

In Loanable fund theory X axis is Loanable Fund and Y axis is Rate of Interest . Interest has been defined / described /explained by many economists in different ways . Loanable Fund theory explains rate of interest through the equilibrium between demand for and supply of Loanable Fund . Demand Curves (Dis- savings , Investment and Hoarding) and Supply Curves (Savings , Disinvestment , Dishoarding and Bank Money) represent these seven components by straight lines . All these assumptions do not pass mathetical rigor and practical situations .Many important factors like time , duration , risk, productivity , taxation market standing etc are totally ignored .

Paper gives the details of the anomolies seen . The author does not give any solution but feels that this topic should go in the history and does not deserve a place in current Economics

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RADIATION AND CHEMICAL REACTION EFFECTS ON MHD CASSON FLUID FLOW PAST A SEMI-INFINITE VERTICAL MOVING POROUS PLATE

A.SANDHYA, G.VENKATA RAMANA REDDY, G.V.S.R.DEEKSHITULU

Abstract: A speculative investigation has been presented to explore the significant features of MHD convective Casson fluid flow past a semi-infinite moving vertical porous plate with heat source/sink are included in the flow configuration. The governing partial differential equations are remodeled into ordinary differential equations using appropriate non-dimensional variables. The ensuing differential equations are solved analytically using two term perturbation technique method. The result of flow heat and mass transfer analysis on the velocity, temperature and concentration profiles are given graphically. The numerical values of the physical parameters like Skin friction, Nusselt number, and Sherwood number are shown in tabular form, results shows that Casson parameter enhances the velocity, temperature and concentration fields are decreases for increasing the values radiation and chemical reaction.

Keywords: Casson parameter, MHD, Heat source/sink, Heat and mass transfer.

***

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FORECASTING USING ARTIFICIAL NEURAL NETWORKS & STATISTICAL TECHNIQUES: A CASE STUDY ON MANSOON RAINFALL & ITS NON-LINEAR BEHAVIOR OF TELANGANA REGION

DR. M. NAVEEN KUMAR, P. RAJESHWAR

Abstract: It is strongly assumed that, about 80% of the annual rainfall of the country is received during the monsoon seasons. Due to the large reliance of the country's agriculture that accounts for about 25% of the Gross Domestic Product (GDP), and employs about 70% of the population, on the monsoon rains, for growing crops especially like cotton, rice, oilseeds and coarse grains, even a few days of delay in the arrival of the monsoon, can badly affect the economy, as already evidentially experienced during the numerous droughts in India in the 1990s. So, in consideration with the most significant positive impacts of the monsoon rain, among its other environmental, economic and social effects, over agriculture, flora, fauna and the entire eco-systems, the overall well-being of the subcontinent's residents as well as the most essential hydro-electric power generation.

***

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COMPARISON OF DIFFERENT VARIETIES OF TURMERIC: ON-FARM RANDOMISED COMPLETE BLOCK DESIGN (RCBD) AND ITS STATISTICAL ANALYSIS

DR. J. PURUSHOTHAM

Abstract: The aim of this paper is to study the different varieties of Turmeric of an on-farm experiment conducted in randomized Complete Block Design (RCBD). An on-farm experiment was carried out at Ankapur (Village) of Armooor Mandal of Nizamabad District of Telangana State during the season 2018. A set of 5 varieties of Turmeric were used in this and data was collected for a period of 60, 90 and 120 days on various parameters like Plant Height (cm), Number of Leaves, Leaf Fresh Weight (gm /plant), Leaf Dry Weight (gm/plant), Stem fresh Weight (gm/plant), Stem Dry Weight (gm/plant), Root Fresh Weight (gm/plant), Root Dry Weight (gm/plant), Rhizome Fresh Weight (gm/plant), Rhizome Dry Weight (gm/plant). We study the significant differences between the 5 varieties of Turmeric in various parameters (Treatments) discussed above using F-ratio (Variance Ratio).

Keywords: Randomised Complete Block Design (RCBD), F-Ratio/Variance Ratio.

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FUZZY RELATIONS AND OPERTIONS ON FUZZY RELATIONS WITH NUMEROUS APPLICATIONS

A. MUNEERA, DR. T. NAGESWARA RAO

Abstract: Fuzzy relations and their applications have the rapid development in computer technology and applied in real world problems of science and engineering. In earlier days, there was no mathematical concept to define vagueness. There is a real need for solid mathematical models that are capable of grasping the imprecision and uncertainty intrinsically present in the information systems. The fuzzy numbers and fuzzy values are widely used in engineering applications because of their suitability for representing uncertain information. Fuzzy relations are capable of grasping the human way of tackling complex phenomena, thus, aiming towards completeness of information. In this paper we discuss the arithmetic operations subtraction and division operations and derived some properties of fuzzy sets. We extend our study to Triangle Fuzzy Number where the method of subtraction and division has been modified. These modified operators yield the exact inverse of the addition and multiplication operators.

Keywords: Fuzzy Arithmetic, Fuzzy Relation, Triangular Fuzzy Number.

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l-AXIAL VERSIONS OF OFFSET BETA AND SINE SKEWED VON MISES MODELS

GIRIJA, S.V.S., RADHIKA A J V, V SASTRY, CH., SREEKANTH Y.

Abstract: Girija et al (2014) have defined Arc offset Beta model. Umbach and Rao (2012) developed sine Skewed Von Mises distribution. This paper is aimed at extending these models as *l*-axial models to enable the researcher to use the above models from arc to circular models by suitably choosing the value of positive integer *l*. Hence, derived pdf, cdf, characteristic function and tabulated population characteristics.

Keywords: Offsetting Method, Bivariate Distributions, Circular, Semicircular Model, Arc Model, Asymmetric Circular, Von Mises.

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THE DISCRETE RISING SUN WRAPPED CAUCHY MODEL

S.V.S.GIRIJA, P. SRINIVASULU, R. SRINIVAS

Abstract: The circular models based on the Rising Sun function are motivated by purely mathematical considerations as a smoothing function and possible application. This work takes a further step in this direction using several mathematical tools such as Real Analysis along with MATLAB and are applied to enlarge the horizon of Mathematical Statistics. Circular model using the Rising Sun function on continuous Wrapped Cauchy distribution is available in literature. Here an attempt is made to construct new discrete circular model by applying the methodology of discretization on the Rising Sun Wrapped Cauchy distribution and the population characteristics are evaluated using MATLAB.

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PRIME & SEMIPRIME PARTIAL IDEALS OF
LEFT OPERATOR PARTIAL SEMIRING

M SIVA MALA, P V SRINIVASA RAO, K KIRAN KUMAR

Abstract: A partial Γ-semiring is a structure possessing an infinitary partial addition and a ternary multiplication, subject to a set of axioms. The partial functions under disjoint-domain sums and functional composition is a partial Γ-semiring. In this paper we obtain one to one correspondences between the set of all prime (semiprime) partial Γ-ideals of a partial Γ-semiring R and the set of all its corresponding prime (semiprime) partial ideals of left operator partial semirings L of R.

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FIBONACCI NUMBERS IN DATA SECURITY

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Abstract: Security is the main issue in communication or transmission of data from one place to another and encryption is one of the ways to ensure security of the transmitted data. Here in this paper we have proposed an algorithm of data encryption & decryption using Fibonacci numbers. The proposed method provides two levels of security from an unauthorized excess as compared to the existing encryption methods.

Keywords: Encryption, Decryption, Fibonacci Numbers, Data Security.

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MATHEMATICAL MODELLING OF BIOMOLECULAR SPECTRA

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Abstract: Vibrational spectroscopy is a important tool for the elucidation of structure of molecules. The study of vibrational frequencies of bio molecules helps in better understanding of the molecular structure, which have a great importance in medical science. The Lie algebraic method is helpful to study the spectra of biological molecules for identifying diseases in early stage and also useful to compare in vivo experimental results.

The Hamiltonian operator which is used in Lie algebraic framework for n interacting bonds of polyatomic molecules is

$$H = E_0 + \sum_{i=1}^{n} A_i C_i + \sum_{i<j}^{n} A_{ij} C_{ij} + \sum_{i<j}^{n} \lambda_{ij} M_{ij}.$$

Where A_i, A_{ij} and λ_{ij} are the algebraic parameters which vary from molecule to molecule and C_i, C_{ij} and M_{ij} are algebraic operators.

The determined vibrational frequencies of some bio molecules by Lie algebraic mehod are compared with experimental data. The results by this theoretical method are consistent with the experimental data.

Keywords: Vibrational spectra, Hamiltonian operator, Lie algebraic method, Least-Squares fitting

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IMPROVISING THE PERFORMANCE OF ROCKET NOZZLE THROAT USING GENETIC ALGORITHM

ADDEPALLI V.N. KRISHNA

Abstract: This paper is a study of one dimensional heat conduction in Rocket Nozzle Throat which is insulated with Graphite insert at its inner end and helps in improving its performance. The Nozzle throat is subjected to high temperatures at one end and the other end is maintained at room temperatures. The physical problem is characterized by a cylinder of infinite length and thickness L, imposed with a net heat flux at x= o, with the other end being insulated. The problem is solved by using Heat Conduction Technique (HCP) by placing sensors in measuring temperatures at suitable locations. The outcome of the work is processed with Machine Learning algorithm like Genetic algorithm in identifying the optimal location of sensor position which helps in improvising the performance of Rocket Nozzle throat system.

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DATA PROTECTION & PRIVACY LAW AROUND THE WORLD

HARSHIL JOSHI, BIJAL JOSHI

Abstract: People are now living their life digitally, they have multiple digital devices all are having multiple applications that help them for their day to day activity like carpooling, shopping, net banking, food ordering etc. People are also caring personal assistance devices like HomePod, Amazon Echo, Google Home etc. These all mobile applications and personal assistant devices are helping us to live our digital life in a better way. However, we are not aware that by using these applications or devices we have given a grant to them to access our personal data. This can be in the form of obvious things like your name, delivery addresses, payment options, contact number, email address, location, browsing behavior etc. Techgiants further use these data in everything from sales to marketing to customer relationships. They are legally not allowed to share your gathered data but now a days every next news is about data stealing or leaking or may be selling to third parties who eventually then target to consumers with tailored advertising. Techgiants are selling your personal data without your consent (or with but you don't know about that). You might be receiving a call for home loans or personal loans without applying! How did they get your number? Your mobile number is stolen and sold. Many security breaches and unclear policies require policy makers and regulators to rectify and amend. European Union has implemented General Data Protection Regulation in the year 2018, The law makers of the United States (excluding California) and India are yet to present their amendment in their respective parliaments for Personal Information and Data Protection Bill. What other nations have done or doing to protect their citizens' personal data? And what is still missing?

Keywords: personal data protection laws, digital data, data privacy law

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SOFT MORPHOLOGICAL OPERATORS ON FUZZY HYPERGRAPHS

NUJA M UNNIKRISHNAN, BINO SEBASTIAN, K V THOMAS

Abstract: A new framework that extends the concepts of soft mathematical morphology into hypergraphs and fuzzy hypergraphs are explored. This provide a method of expansion of soft morphology and its related areas.

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NUMERICAL SOLUTIONS OF
CONTINUOUS SINGULAR MATRIX LYAPUNOV SYSTEMS

SUDARSAN MSVD, VENKATA SUNDARANAND PUTCHA, G. V. S. R. DEEKSHITHULU

Abstract: The theory of differential equations offers a broad mathematical basic to understand the problems of modern society, which are complex and interdisciplinary by nature. The main objective in studying differential equations is to analyze the different phenomenon of nature by developing suitable mathematical models. Singular systems are much more often encountered than ordinary systems. Under disturbance, not only singular systems lose stability, but also great changes take place in their structure, such as leading to impulsive behavior. Many problems in electrical networks, singularly perturbed systems, composite systems, Leontieff models in multisector economy, Leslie population models in biology can be described by Singular systems. Matrix Lyapunov systems appear in Construction of Lyapunov Functions for stability and also Parametric optimization problems. Singular matrix Lyapunov systems have extensive applications in System Theory, Design of Optimal Filters, Power Systems and Signal Processing.

This paper deals with the construction of the solution for the Non-Homogenous singular matrix Lyapunov system

$$E(t) \, \dot{X}(t) = A(t)X(t) + E(t)X(t)A^T(t) + F(t),$$

where $A(t)$, and $F(t)$ are square matrices of order n whose elements are real or complex functions defined on R (or C), $E(t)$ is a singular matrix for all t in the time interval of consideration, by developing the variation of parameters formula after constructing the general solution of the Homogenous singular matrix Sylvester system

$$E(t)X\dot{X}(t) = A(t)X(t) + E(t)X(t)A^T(t).$$

We present approximate solutions of the initial value problem and two-point boundary value problem associated with Non-Homogenous singular matrix Lyapunov system.

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SEIDEL ENERGY OF $G_{m,n}$ GRAPH

M. SIVA PARVATHI, M. VENKATA ANUSHA, S. UMA MAHESWARI

Abstract: Let $G_{m,n}$ be a simple undirected graph with vertex set $V = I_n = \{1,2,3,\cdots,n\}$ and $u, v \in V$ are adjacent if and only if $u \neq v$ and $u + v$ is not divisible by m where $m \in N$ and $m > 1$. In this paper we discuss the concepts of Seidel energy, Seidel matrix energy, minimum dominating Seidel energy, minimum dominating Seidel matrix energy of the graph $G_{m,n}$.

Keywords: Energy of A Graph, Seidel Energy, Seidel Matrix Energy, Minimum Dominating Seidel Energy, Minimum Dominating Seidel Matrix Energy, Spectrum.

AMS Subject Classification: 05C50, 05C35.

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DATA ENCRYPTION TO DECRYPTION BY USING LAPLACE TRANSFORM

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Abstract: In this paper, we introduce an encryption and decryption procedure with high security by mathematical model, using Laplace transformation and Inverse Laplace Transformation for the given transforming data from one end to other end. We also give an example. Here we convert plain text to ASCII code.We take two primes as a primary key for encryption and decrypt in of the original data.

Keywords: Encryption, Decryption, Cipher text, Laplace transformation, Inverse Laplace transformation, ASCII code.

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SORET AND CHEMICAL REACTION EFFECTS ON AN UNSTEADY MHD FREE CONVECTION FLOW OF RADIATIVE NANOFLUID THROUGH POROUS MEDIUM

DR. D. VIDYANADHA BABU

Abstract: A numerical investigation has been carried out to discuss the Soret and chemical reaction effects on an unsteady MHD flow of a nanofluid past a moving vertical permeable semi infinite flat plate with constant heat source through porous medium with suction. Nanofluids are used due to its advantages like enhancement of thermal conductivity, stability, small concentration and Newtonian behavior and particle size dependent. Dimension less transformations are used to transform the governing partial differential equations into a set of ordinary differential equations. These differential equations are then solved analytically by perturbation technique. The results are presented graphically and discussed for various resulting parameters.The flow features and heat transfer characteristics for different values of the governing parameters viz. skinfriction coefficient, local Nusselt number, Soret number , chemical reaction parameter and Sherwood parameter are analyzed and discussed in detail.

Keywords: MHD, Free convection, Nanofluid, soret, Porous medium, and Suction.

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A RULE BASED FOR SELECTION OF RAPID PROTOTYPING PROCESS IN RAPID PRODUCT DEVELOPMENT THROUGH THE METHOD OF OBTAINING EXPECTED VALUES WITH MATRIX MULTIPLICATION BY CHI SQUARE STATISTICS.

E.S.RAMA RAVI KUMAR, M S V D SUDARSHAN, R LAKSHMI NARAYANACHARYULU

Abstract: In this manuscript, a relevant technique is proposed for evaluation of theoretical values through chi square statistics based decision making method with matrix multiplication, to rank and select an alternative Rapid Proto type system (R P System), and obtained the same alternative (rank of RP – 5) which is not deviated from all other existing techniques of evaluating ranks of RP systems for a given RP problem. The chi square statistic based method is very simple and it looks Goodness of fit test, but it is used to find expected values in a simple way so that to find the ranks of RP systems in a simple approach with the matrix multiplication. The methodology used in this paper helps the problem solvers, a possible big time saving and easy computation to obtain best alternative RP system. An example is included to illustrate the technique.

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ON QUOTIENT BF-ALGEBRAS VIA INTERVAL-VALUED FUZZY DUAL IDEALS

D. RAMESH, B. SATYANARAYANA, N. SRIMANNARAYANA

Abstract: The present paper gives a new construction of a quotient BF-algebra $\dfrac{X}{\widetilde{\mu}}$ by a Interval-valued fuzzy dual ideal $\widetilde{\mu}$ in X and establishes that interval-valued fuzzy dual homomorphism, we show that if $\widetilde{\mu}$ is a interval-valued fuzzy dual ideal of X, then $\dfrac{X}{\widetilde{\mu}}$ is a BF-algebra X if and only if $\widetilde{\mu}$ is a interval-valued fuzzy dual ideal of X and investigate some of its properties.

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AN OVER VIEW: APPLICATIONS OF GRAPH THEORY IN DIFFERENT BRANCHES OF SCIENCES

M.DURGADEVI, S.NAGADURGA, SHAIK.SHAREEFA

Abstract: The field of mathematics plays vital role in various fields. One of the important areas in mathematics is graph theory which is used in structural models. Graph theory started its journey from the problem of Koinsberg bridge in 1735. Graph theory is a branch of mathematics which has wide application in other area of mathematics as well as in other branches of science. It has also significant role in our everyday life. Graph theory is the study of *graphs*, which are mathematical structures used to model pairwise relations between objects. In computer science, graphs are used to represent networks of communication, data organization, computational devices, the flow of computation, etc. Graph theory is also used to study molecules in chemistry and physics. In condensed matter physics, the three-dimensional structure of complicated simulated atomic structures can be studied quantitatively by gathering statistics on graph-theoretic properties related to the topology of the atoms**.**

Keywords: Mathematics, Graph, Path, Pairwise, Network.

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DESIGN OF FAULT TOLERANT DISCRETE SYSTEMS - REDUNDANCY OBSERVABILITY AND CONTROLLABILITY

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Abstract: Computer and communication networks, robotics and manufacturing systems, and automated traffic system are modeled by Discrete-Event Systems (DES). Modeling involves errors and accuracy of systems are effected by performance needs and the risk of faults. So it is mandatory to design control for fault tolerant systems. Consequently measure of redundancy that determines possible recovery from faulty actuators or sensors is an important problem in Applied Mathematics and Systems Control. In this paper we will give a bound for the simultaneous faults DEScan correct by identifying the components that are vulnerable to faults. In this paper we formulate DES by

$$T(n + 1) = A(n)T(n) + F(n)U(n), T(0) = T_0, n > 0,$$
$$Y(n) = C(n)T(n) + D(n)U(n),$$

Where control $U(n)$ and output $Y(n)$ are of sizes $m \times s$ and $n \times n$ respectively. Here $T(n), A(n), F(n), C(n),$ and $D(n)$ are matrices of order $s \times s, s \times s, s \times m, r \times s,$ and $r \times m$ whose elements are continuous functions of n on $J = [0, N] \subset R(N > 0)$. We present a method for critical components identification through controllability and Observability Gramians which provide information regarding the plant's response to sensor failures. The developed theory gives vital estimates which are of immense importance in the design of control.

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PRIMAL Γ - IDEALS ON Γ - SEMIGROUPS

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Abstract: In this paper, we consider S be a commutative additive Γ- semigroup with identity ' o ' and let $S \neq \{o\}$. This paper we study some properties of primal Γ- ideals of the Γ- semigroup S. And we characterize primal Γ- ideals of a Γ- semigroups.

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TABULAR CUSUM CHARTS WITH STATISTICAL PROCESS CONTROL

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Abstract: Control charts are the most popular tool of statistical process control for monitoring variety of processes. In this paper, I explained cumulative sum (CUSUM) control scheme in brief, present numerical example and it is verified that the CUSUM is an efficient alternative to Shewhart procedures. It is shown that CUSUM scheme is more efficient in detecting small shifts in the mean of a process. The comparison shows the overall good detection performance of our scheme for a span of shifts in the mean. The CUSUM Control Chart platform creates a CUSUM chart with decision limits, similar to a Shewhart chart.

Keywords: CUSUM Control Chart, $\overline{X}$-Control Chart, Simulation, Statistical Process Control.

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ON VARIOUS RAINBOW CONNECTION NUMBERS OF GRAPHS

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Abstract: An edge-coloured path is *rainbow* if all of its edges have distinct colours. For a connected graph G, the *rainbow connection number* rc(G) of G is the minimum number of colours in an edge-colouring of G such that, any two vertices are connected by a rainbow path. Similarly, the *strong rainbow connection number* src(G) of (G) is the minimum number of colours in an edge-colouring of G such that, any two vertices are connected by a rainbow geodesic (i.e., a path of shortest length). These two concepts of connectivity in graphs were introduced by Chartrand et al. in 2008. Subsequently, vertex-coloured versions of both parameters, rvc(G) and srvc(G), and a total-coloured version of the rainbow connection number, trc(G), were introduced. In this paper we introduce the strong total rainbow connection number strc(G), which is the version of the strong rainbow connection number using total-colourings. Among our results, we will determine the strong total rainbow connection numbers of some special graphs. We will also compare the six parameters, by considering how close and how far apart they can be from one another. In particular, we will characterise all pairs of positive integers *a* and b such that, there exists a graph G with trc(G) = a and strc(G) = b, and similarly for the parameters rvc and srvc.

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EFFECTIVENESS OF GAMIFICATION AS A TOOL OF ACTIVE CLASSROOM LEARNING TO ENHANCE SCIENCE PEDAGOGY AMONG B.ED. TRAINEES OF BABASAHEB BHIMRAO AMBEDKAR UNIVERSITY AT LUCKNOW

DR. VICTORIA SUSAN IJJINA

A little knowledge that acts is worth infinitely more than much knowledge that is idle.

- Khalil Gibran

Abstract: Education System is changing at a very rapid pace. Academic revolution taken place in India in the past half century is marked by a paradigm shift in scope and opportunity. Education is the process of helping the child to adjust to this changing world. One of the main aims of education in the modern society is to keep pace with the advances in knowledge and technology. In such a society knowledge cannot be received passively. Pedagogy is hinged on the imagination and activism of the teacher. The main purpose of education is awakening of curiosity, stimulation of creativity, development of proper interests, attitudes and values and building of essential skills like capacity to think and judge for oneself. The role of the present day teacher has become very challenging, complex and multifaceted. Engaging students in the learning process increase their attention and focus, motivates them to practice higher level critical thinking skills and promotes meaningful learning experiences. Gamification can help in effective and active classroom learning. The present study focuses on active classroom learning to enhance the knowledge of students.

Keywords: Gamification, Pedagogy, Learner.

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FUZZY Z$^+$ TRANSFORMS

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Abstract: In this paper the idea of fuzzy Z$^+$ Transform is proposed. Basic definition is given.Related properties are studied with some examples.

Keywords: Fuzzy Set, Fuzzy Number, Fuzzy Z$^+$Transform, Fuzzy Valued Functions.

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REPRESENTATION OF LATTICES ON PRE A*-ALGEBRA

A. SATYANARAYANA, U.SURYAKUMAR, V. RAMABRAHMAM

Abstract: This paper analyzes the notion of lattice structure on Pre A*-algebra. It has been derived the corresponding properties of the Pre A*-lattice L. Furthermore, identified a congruence relation β_a on L and proved that the set of all congurences on L is a distributive Pre A*-Lattice. Also described an ideal on Pre A*-lattice L and shown that F(L) the set of all ideals of L is a distributive Pre A*-lattice under the set inclusion. Also introduced the notion of ideal congruence on Pre A*-lattice and derived its various significant properties.

Keywords: A*-Algebra, Pre-A*-Algebra, Boolean Algebra, Partially Ordered Set, Homomorphism.

AMS subject classification (2000): 06E05, 06E25, 06E99, 06B10.

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DOMINATING SETS OF CARTESIAN PRODUCT GRAPHS OF CAYLEY GRAPHS WITH ARITHMETIC GRAPHS

S.UMA MAHESWARI, M.SIVA PARVATHI, B.BHARATHI

Abstract: Graph Theory has been realized as one of the most flourishing branches of modern Mathematics finding widest applications in all most all branches of Sciences, Social Sciences, Engineering, Computer Science, etc. Number Theory is one of the oldest branches of Mathematics, which inherited rich contributions from almost all greatest mathematicians, ancient and modern. Product of graphs are introduced in Graph Theory very recently and developing rapidly. Graph Product is a fundamental tool with rich applications in both graph theory and theoretical computer science. The extensive literature on products that has evolved over the years present a wealth of profound and beautiful results. In this paper, we consider Cartesian product graphs of Cayley graphs with Arithmetic graphs and present domination parameter of these graphs.

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SCILAB AND ITS APPLICATIONS IN TEACHING AND LEARNING OF NUMERICAL COMPUTATIONS

M. AROKIASAMY, G. LITTLE FLOWER

Abstract: A variety of specialized software tools such as MATLAB, Mathematica, Octave, and Scilab exist for Numerical computing. Scilab (Scientific Laboratory), an open source scientific software for numerical computations and simulation, provides a powerful open computing environment for scientific and engineering application in a user-friendly environment. Educational and industrial organizations around the world make the best use of Scilab. It helps us to understand the fundamental mathematical concepts and master problem-solving skills using numerical methods. It can be used to test algorithms or to perform numerical computations. This paper presents an overview of Scilab structured programming features and the management of real matrices to do calculations.

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OPTIMAL ALLOCATION OF AGRICULTURAL LAND UNDER CULTIVATION FOR THE DIFFERENT CROPS IN A YEAR BY GOAL PROGRAMMING MODEL

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Abstract: In agricultural planning, problems are encountered multi-objective in nature. This has opened C scope of using multi-objective programming methods in place of single objective linear programming. In this paper a model for optimal allocation of agricultural land under cultivation for the different crops in a year and developing the annual agricultural plan is proposed. The priority based goal programming has been developed as the most flexible method for solving the problems involving multiple and conflicting goals in nature. This paper will examine the test results.

Keywords: Agricultural Land, Goal Programming, Land Utilization, Agricultural Development Program.

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QUASI IDEALS IN TERNARY PARTIAL SEMIRINGS

PRABHAKARA RAO. Y

Abstract: In this paper the notions of quasi ideal, principal quasi ideal and minimal quasi ideal in a ternary partial semiring are introduced and study some properties of these three ideals. Also introduce the notions of minimal left ideal, minimal lateral ideal and minimal right ideal in ternary partial semiring and characterize regular ternary partial semiring in terms of these ideals in ternary partial semiring.

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EFFECTS OF CHEMICAL REACTION, THERMAL RADIATION AND RADIATION ABSORPTION ON THE OSCILLATORY FLOW OF A CONDUCTING FLUID IN AN ASYMMETRIC WAVY CHANNEL IN THE PRESENCE OF ALIGNED MAGNETIC FIELD.

DR. V. MANJULATHA AND DR. CH. BADARINARAYANA.

Abstract: In this article, the effects of chemical reaction, thermal radiation and absorption of radiation on MHD oscillatory flow of an optically conducting thin fluid in an asymmetric wavy channel filled with porous medium in the presence of aligned magnetic field is studied. Based on some simplifying assumptions, an analytical solution of the governing equations for fully developed flow is obtained in closed form. The influence of various flow parameters on concentration, temperature and velocity distributions are analyzed and illustrated graphically. The expressions for skin friction, the rate of heat and mass transfer coefficients at the channel walls are derived, discussed numerically for different physical parameters and exhibited in tabular form. We observed that with the increasing values of magnetic parameter or porous medium shape factor parameter, the velocity decreases whereas it increases with an increase of thermal and solutal Grashof numbers. It is clear that as the increase of radiation parameter or absorption of radiation parameter increases the temperature of the fluid. It is noticed that an increase in the Schmidt number or chemical reaction parameter leads to a decrease of concentration within the walls. Nusselt number increases with increasing radiation parameter or Reynolds number or Peclet number or absorption of radiation parameter at the wall $y = h_1$ whereas the phenomenon is reversed at the wall $y = h_2$

This study is carried out as oscillatory flows in a porous medium have a wide range of applications in Science and Technology and also convection in a channel in the presence of thermal radiation has its importance in many practical applications. The purpose of this research is to obtain a better understanding of the flow instabilities and heat transfer in wavy passages so that design guidelines may be developed.

Keywords: Oscillatory Flow, Wavy Channel, Chemical Reaction, Radiation, Absorption Of Radiation, Porous Medium.

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SPECULATION OF NEWTON'S FORWARD INTERPOLATION FORMULA

T. HIMA BINDU

Abstract: The nonlinear synchronous differential conditions, don't have logical arrangements however require the use of numerical methods for their answer. There are a few numerical strategies for separation, incorporation, and the arrangement of normal and incomplete differential conditions .These techniques depend on the idea of limited contrasts. The motivation behind the Limited Distinction Strategies and Interjection is to build up the precise wording utilized in the analytics of limited contrasts and to determine the connections between limited contrasts and differential administrators, which are required in the numerical arrangement of standard and fractional differential conditions.

Numerical interjection alludes to introducing some obscure data from a given arrangement of known data. The method of insertion is broadly utilized as an important apparatus in science and designing. Scientific uses of interjection incorporate induction of computational systems for • Numerical differentiation• Numerical combination • Numerical arrangements of differential conditions . In this paper we produce new Newton's Forward Interjection Recipe's utilizing 12, 13 and 14, that help us to ascertain any numerical coordination with especially less measure of error's, the thought is increment the coefficients as opposed to making numerous interims .

Keywords: Newton's Forward Interjection, Numerical separation, Numerical joining, Numerator and Denominator.

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COMPUTATIONAL STUDIES OF MOLECULAR INTERACTIONS IN THE BINARY MIXTURES OF ETHYL LACTATE WITH SOME SUBSTITUTED ETHANOLS AT 303.15 K

P.V.S. SAIRAM, M.V.D.N.S. MADHAVI, G. SRINIVASA RAO

Abstract: Molecular interactions in the binary mixtures of ethyl lactate and certain substituted ethanols viz., 2-aminoethanol and 2-chloroethanol are presented in this study from the measurements of density and viscosity. The densities and viscosities for pure liquids ethyl lactate, 2-aminoethanol, 2-chloroethanol and their binary mixtures have been measured at temperature 303.15 K at atmospheric pressure over the entire composition range. The excess thermodynamic parameters such as excess molar volumes, excess viscosity are computed from the experimental data. These excess properties are fitted to a Redlich–Kister type equation and the corresponding standard deviations are computed. The variation of these properties with composition of ethyl lactate are discussed in terms of intermolecular interactions present in these binary liquid mixtures. An attempt is made to compare the merits of the theoretically evaluated viscosities using various models of Grunberg–Nissan, Katti–Chaudhri, Heric–Brewer, McAllister, Hind et al etc with the experimentally measured values at 303.15 K. The excess molar volumes are found to be negative whereas the deviations in viscosity are found to be positive for all the mixtures, over the entire composition range. The volumetric and viscometric studies indicated that the interactions between ethyl lactate and substituted benzenes follow the order: ethyl lactate + 2-aminoethanol > ethyl lactate + 2-chloroethanols.

Keywords: Density, Viscosity, Excess Molar Volume, Molecular Interactions.

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A NOTE ON FUZZY INTUITIONISTIC IDEALS OF SEMINEARRINGS

P.VENU GOPALA RAO, FR. G.M.VICTOR EMMANUEL, M.MARIA DAS, D.VENKATA SATISH

Abstract: Seminearring is an algebraic system, which is a generalization of both a semiring and a nearring. The algebraic systems with binary operations of addition and multiplication satisfying all the ring axioms except possibly one of the distributive laws and commutativity of addition are called "Nearrings". A semiring is an algebraic system which is closed and associative under two operations, usual addition, multiplication,and satisfies both distributive laws. In this paper, the notion of an intuitionistic left fuzzy k- ideal of a seminearring is introduced and some related results are proved.

Keywords: Seminearring, Intuitionistic Left Fuzzy k-ideal.

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A BRIEF NOTE ON THE PRIME RADICALS OF NEAR-RINGS AND NEAR-RING MODULES

K. NAGA KOTESWARA RAO, B. BALAJI

Abstract: In this paper we study different prime radicals of near-rings and near-ring modules. We obtain different prime radicals and modules in near-rings. Also we discuss the comparison of different prime radicals of near-rings and near-ring modules. We provide examples in support of our discussion to illustrate our discussion is valid.

Keywords: Prime Radicals, Modules, i-Prime Near-Rings and Near-Ring.

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COMMON FIXED POINT THEOREM FOR ɸ-CONTRACTIVE MAPS IN COMPLEX VALUED METRIC SPACES AND APPLICATION

B.BALAJI, K. NAGA KOTESWARA RAO

Abstract: In this paper, we prove some common fixed point theorems for almost ɸ - contractive for two pairs of maps under the assumption that there two pairs are weakly compatible and satisfy (CLR$_g$) property. Our theorems generalize extends various theorems in additions metric spaces. We provide examples in support of our theorems and also we provide applications.

Keywords: Common Fixed Points, Complex Valued Metric Space, Almost ɸ - Contractive Maps.

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MATHEMATICAL MODELLING ON RATING SYSTEM

G. USHA KUMARI

Abstract: Mathematicians are in the habit of dividing the universe into two parts: Mathematics, and everything else, that is the rest of the world, sometimes called the real world. When we use mathematics to understand a situation in the real world, then perhaps use it take action or even to predict the future, both the real world situation and then ensuing mathematics are taken seriously. The situations and the questions associated with them may be any size from huge to little. The big ones may lead to life time careers .Electromagnetic theory, medical imaging and cryptography are such examples. Whether the problem is huge or little, the process of "interaction", between the mathematics and the real world is the same. We have mathematical model of the idealized question. We then apply our mathematical instincts and knowledge to the model and gain interesting sights, examples, approximations, theorems, algorithms.

We will model rating systems like those used in many sports. We need to consider the various factors that the human mind employs to 'rate', one team over another, then we will model a way to consider these factors in order to make a systematic, mathematical rating method. Considering the factors that we think should include when comparing one team or player to another. We use this intuition to create a simple model for rating system. We need to know about the Elo Rating System, one of the first systems of its kind, which was developed for chess players. The Elo system has three elements that help to determine the 'Per Game Rating Change', K-factor, Expected results and score. We consider the different factors of the Elo system and make judgments about them based on both mathematics and intuition and then consider another rating system RPI and make decisions about its effectiveness based on their experience and intuition.

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A NOTE ON FUZZY BI- IDEALS OF NEARRINGS

M.MARIYA DAS, FR. G.M.VICTOR EMMANUEL, P.VENU GOPALA RAO

Abstract: An algebraic system, with two binary operations addition and multiplication satisfying all the axioms of a ring except possibly one of the distributive laws and commutative law of addition is called a "Nearring". Ideals of rings play an important role in the construction and characterization of rings as well as in other algebraic systems in particular nearrings. Bi-ideals of rings are the generalization of quasi ideals which are in turn the generalization of one sided ideals of rings, like left ideal and right ideal. Bi ideals of different algebraic structures are studied by many authors. In this paper, we study some properties of the fuzzy bi- ideals of nearrings.

Keywords: Nearring, Ideals, Quasi Ideals, Bi-Ideals, Fuzzy Ideals, Fuzzy Bi-Ideals.

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STOCK MARKET DATA MODELLING USING FITNESS ORIENTED JAYA ALGORITHM-BASED DEEP BELIEF NETWORK

A. KULLAYA SWAMY, DR. B. SAROJAMMA

Abstract: Data mining plays a major role in forecasting the open price details of the stock market. But it fails to address the dimensionality and expectancy of a naive investor.. Hence, a future prediction model named time series model is implemented.

In this model, the stock market data is fed to the proposed Deep Neural Networks (DBN), and the number of hidden neurons is optimized by the modified Jaya Algorithm (JA), based on the fitness function. Hence the algorithm is termed as Fitness oriented Jaya Algorithm (FJA), and the proposed model is termed as FJA -DBN. The primary objective of this open price forecasting model is the minimization of the error function between the modeled and actual output. The performance analysis demonstrates that the deviation of FJA –DBN in predicting the open price details of the Tata Motors, Reliance Power and Infosys data shows better performance in terms of Mean Error Percentage (MEP), Symmetric Mean Absolute Percentage Error (SMAPE), Mean Absolute Scaled Error (MASE), Mean Absolute Error (MAE), Root Mean Square Error (RMSE), L₁-norm, L₂-Norm and Infinity-Norm (Least Infinity error.

The proposed model can be used to forecast the open price details.

The investors are constantly reviewing past pricing history and using it to influence their future investment decisions. There are some basic assumptions used in this analysis, first being that everything significant about a company is already priced into the stock, other being that the price moves in trends. This paper presents a technique for time series modeling using Jaya algorithm. This is the first work utilizes Fitness oriented Jaya Algorithm -based optimization for stock market open price prediction.

Keywords: Deep Belief Network, Error Minimization, Jaya Algorithm, Stock Market Data, Time Series Modeling.

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MHD CASSON FLUID FLOW OVER A PLATE WITH NON-UNIFORM HEAT SOURCE/SINK

DR.MUDDA RAMESH, DR. P. SRINIVASA SAI

Abstract: A two dimensional (2D) boundary layer MHD (magneto hydrodynamics) flow of Casson fluids over a plate filled with a porous medium has been explored. Radiation, viscous dissipation and non-uniform heat source/sink effects are considered in energy equation. The boundary layer governing differential equations are modeled and transformed to a system of non-linear ODE'S with the aid of similarity transformations. The final equations along with boundary conditions are solved numerically by Runge-Kutta Felhberg method. The graphical analysis has been emphasized for both the fluid and dust phase velocity, temperature fields to the influence of sundry dynamical flow quantities. In addition, the physical quantities of interest namely friction factor, Nusselt numbers are presented in plots and tables and discussed elaborately to the impacts of physical flow parameters. The final results are checked with the earlier published articles. A nice validation is obtained.

Keywords: Mixed Convection, Casson Fluid, Radiation, Non-Uniform Heat Source/Sink.

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ALGEBRAIC NUMBER FIELDS AND NUMBER RINGS IN NUMBER THEORY

KANURADHA, B.N.PADMAVATHI, D.TABHITA

Abstract: In this paper, it is given the introduction to the algebraic number field and it is explained that some properties of algebraic number field in number theory .An algebraic number field is a finite extension of Q. Algebraic number theory studies the arithmetic of algebraic number fields the ring of integers in the number field. Algebraic number theory involves using techniques from (mostly commutative) algebra and finite group theory to gain a deeper understanding of number fields. The main objects in algebraic number theory are number fields, rings of integers of number fields, unit groups, ideal class groups, norms, traces, discriminants, prime ideals . Number ring is a subring of a number field. This introduction shows how number rings arise naturally when solving equations in ordinary integers. Here we try to find all integral solutions to the equation $x^2 - dy^2 = 1$ for $d = 3$ and more using Fermat's factorization in number field and also try to generalize all properties with quadratic rings and quadratic fields.

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P-ADIC IDEALS OF A COMMUTATIVE RING

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Abstract: In this paper, it is given the introduction to the theory of p-adic numbers and it is explained that some Algebraic properties of p-adic numbers . It is well known that decimal fractions are two types; namely, terminating and non-terminating decimals. But, their integral part contains always a finite number of digits. In case of p-adic numbers, it is quite different. The p-adic integers can be thought of as writing out integers in base p, but one can have infinitely many digits to the left of the decimal (and none on the right; but the rational p-adic numbers can have finitely many digits on the right of the decimal). The set of p-adic numbers is denoted by Qp. Qp is actually the fraction field of Zp(set of p-adic integers); in particular it is a field and Q, which is the fraction field of Z, naturally embeds into Qp. In this paper, p-adic ring introduced and study the notion of p-adic ring by a complete analogy of that of real ring. By using this new notion, it has been generalized the concept of p-adic ideal of a commutative ring with unity. An Integral domain A is a p-adic ring if the quotient field of A is a p-adic field. It is easy to see that the ring K[X] of polynomials over K is a p-adic ring. In this paper, it is proved that a prime ideal I of the ring K[X] is a p-adic ideal if and only if the quotient ring K[X]/I is a p-adic ring.

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LINEAR ESTIMATION IN FISHER-TIPPETT DISTRIBUTION

K. SRINIVAS, A.V. DATTATREYA RAO

Abstract: Derived order statistics moments to calculate linear estimation of location and scale parameters of Fisher-Tippet distribution for specified values of the shape and index parameters from doubly censored samples using Lloyd's (1952) method. MATLAB algorithm developed for the evaluation of BLUEs for specified values the shape and index parameters from doubly censored samples.

Keywords: Order Statistics, Fisher-Tippett Distribution, Linear Estimation, BLUE's

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A STUDY ON DISTRIBUTIVELY GENERATED NEAR RINGS ON THE CLASS OF RECURSIVE LANGUAGE

D.TABHITA, K.ANURADHA, B.N.PADMAVATHI

Abstract: In this paper we defined a class of recursive languages and attempted to prove the near ring structure in Turing machines. We also introduced the concepts of Semi Turing Machine, Group Semi-Turing Machine and Sub Near-Ring of the Turing Machine. Further the Class of l -Recursive languages are tested for closure properties.

Keywords: Turing machine, Sub Near-Ring, l -Recursive languages .

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FS-COMPLEMENT OPERATOR- FS-FUNCTIONS – COMPLEMENTED IMAGES AND INVERSE IMAGES –SOME PROPERTIES-A REVIEW

K.V. UMA KAMESWARI, D.RAGHU RAM, CH.RAMA SANYASIRAO, V.YOGESWARA, BISWAJIT RATH

Abstract: In this paper we review complement of an image and inverse image of an Fs-subset under an Fs-function and study the corresponding Fs-subset properties.

Keywords: Fs-set, Fs-subset, Fs-empty set, Fs-Complement, Fs-function, Image of an Fs-subset, Inverse image of an Fs-set.

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F-SETS-FS-SETS AND CHOICE AXIOM – A REVIEW

D.RAGHU RAM, K.V.UMAKAMESWARI, CH.RAMA SANYASIRAO, V.YOGESWARA, BISWAJIT RATH

Abstract: A limitation of L-fuzzy sets and generalization of L-fuzzy sets to f-sets by N V E S Murthy be discussed. Further, generalization of f-sets   by V.yogeswara etc……,which are called Fs-sets be also discussed. How the axiom of choice is absent in L-fuzzy sets and exist in   f-sets and Fs-sets can be known in this review.

Keywords: L-fuzzy sets, F-sets, Fs-sets, Axiom of choice.

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F-COMPLEMENT OF F-SUBSETS- FS- DE MORGAN LAWS- A REVIEW

D.RAGHU RAM, K.V.UMAKAMESWARI, CH.RAMA SANYASIRAO, V.YOGESWARA

Abstract: In this paper we review the complementation f-subsets, Fs-subsets and DeMorgan laws of Fs-subsets.

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F-MAPS-FS-FUNCTIONS – A REVIEW

K.V.UMAKAMESWARI, D.RAGHU RAM, CH.RAMA SANYASIRAO, V.YOGESWARA

Abstract: In this section the notions of an f-map, increasing f-map, decreasing f-map and preserving f-map, and the various categories which can be formed out of these maps are introduced, Further, generalization of f-maps   by V.Yogeswara etc……,which are called Fs-functions are discussed in this review.

Keywords: f-map, , Fs-Functions, Increasing ,Decreasing.

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