DAY-1

INVITED TALKS

Session 1

Speaker -Domingoes Cardoso

Designation –

Organisation - University of Avero, Portugal

Chairedby - E Sampath Kumar

Title – Overview of (k,τ)- Regular sets and its applications

Speaker started by giving the definition of (k,τ)- Regular sets, particular cases and their characterization. Also ways of determining (k,τ)- Regular sets. He also explained few theorems on characterization stated as “A graph G is Hamiltonian if and only if its line graph has a (2, 4)-regular set inducing a connected subgraph.” He also explained star sets and star complements. He also stated the theorem, “A graph G has a (κ, τ)-regular set if and only if the linear system (A G − (κ − τ)I n) x = τ ê, where I n is the identity matrix of order n, has a 0 − 1 solution. Furthermore, every 0 − 1 solution is the characteristic vector of a (κ, τ)-regular set”.

Duration -

Memento was given by - E Sampath Kumar

Session 2

Speaker - K A Germina

Designation

Organisation – Central University of Kerala

Chaired by - S A Choudam

Title - Survey on the measurement of structural balance in social network – an Algebraic approach

Started by giving definition of various keywords like signed graph, loose edge, half edge and gave application of signed graphs by psychologists. She explained fundamental theory of Signed graphs and POX model and gave an example of POX model which was followed by explanation

of balanced characterization and characterization theorem which is stated as " A signed graph is balanced if and only if for every u,v ε V, all paths connecting u,v has same sign" and " Subgraph of balanced graph is also balanced." She also explained the concept of switching and switching , equivalent class and structural balanced property.
She also raised some fundamental questions on signed graph like is the signed graph balanced and largest size of balanced edge set. She also explained Spectral clustering algorithm based oneigen vectors.

Duration –

Memento was given by - S AChoudam

Session 3

Speaker - Dr. Erica FeckovaSkrabulakova,

Designation –

Organisation - Technical University of Kosice, Slovakia

Chaired by: Dr. Johan Kok

Title: On colorings of graphs that omit repetitons

The third session of Day 1 was an invited talk by Dr. Erica FeckovaSkrabulakova from the Technical University of Kosice, Slovakia. The presentation that was titled 'On Colorings of Graphs that Omit Repetitions' was a 1-hour lecture that happened from 2pm to 3pm in the KE Auditorium. This session was chaired by Dr. Johan Kok from Tshwane Metro Police Department, South Africa.
Dr. Erica introduced the concept of repetitive and, non-repetitive or Thue coloring of graphs. Both vertex and edge colorings were discussed. Theorems concerning the bounds of Thue chromatic number for a few well-known families of graphs were explained. A few conjectures were also stated and scholars were encouraged to work on them. The concept of Facial non-repetitive coloring was also explored. Bound for facial Thue coloring of plane graphs was discussed. List coloring, Thue choice number, facial Thue choice number were some concepts that were introduced and a few theorems regarding the same were presented. Strong and weak Thue choice numbers were also introduced. As a concluding note, some questions that are currently being worked on, were posed to the scholars and they were encouraged to work on the same. The session ended with Dr Erica graciously accepting a token of our appreciation from Dr Johan Kok.

Duration –

Memento was given by -

Session 4

Speaker - Prof. Eunice GogoMPhako-Banda

Designation –

Organisation - University of Witwatersrand, Johannesburg

Title: Values of k for which the k defect polynomial of a graph is the zero polynomial

Chaired by - Dr. Erica FeckovaSkrabulakova

Session 4 of Day 1 was an invited talk by Prof. Eunice GogoMPhako-Banda from the University of Witwatersrand, Johannesburg. This talk was chaired by Dr. Erica Feckova Skrabulakova from the Technical University of Kosice, Slovakia. During the hour-long talk in the KE Auditorium that happened between 3pm and 4pm, Dr Eunice presented the lecture titled 'Values of k for which the k defect polynomial of a graph is the zero polynomial'. Dr Eunice, who introduced herself as a metric theorist, a knot theorist and an opportunistic applied graph-theorist, began the talk with a few preliminaries that included the concepts of proper coloring, bad edges and bad coloring. This was followed by the explanation of the concept of k-defect polynomial of a graph and its comparison with the chromatic polynomial, as the zero-defect polynomial, was drawn. Chromatic polynomials of trees, cycles, complete graphs and wheels, and Tutte polynomials were discussed. The interpretation of the coefficients of the k-defect polynomial was discussed, after which the floor was open for questions. Dr Eunice, who succeeded in inspiring all the ladies in the audience to pursue a career in Mathematics, was presented with a memento by Dr Erica.

Duration –

Memento was given by –

Contributory Session

Venue: K.E. Auditorium

Time:

Session Chair: Prof. Eunice GogoMphako – Banda.

1. Paper Title: A note on bounds for the general sum-connectivity index of some composite graphs.

   Author: B. Basavanagoud, Department of Mathematics, Karnatak University, Dharwad

   Given a graph G, the general sum-connectivity index is a molecular descriptor defined as $\chi_\alpha(G) = \sum_{uv\in E(G)}(dG(u) + dG(v))\ \alpha$, where $d_G(u)$is degree of a vertex u and α is a real number. In this paper, the author corrects some errors of Shehnaz Akhter et al. [Journal of Inequalities andApplications, (2017) 2017:76 DOI 10.1186/s13660-017-1350-y].Further, he obtained the lower and upper bounds for the generalsum-connectivity index of four types of graph operations involvingQ-graph.

2. Paper Title: On Monophonic position sets in graphs

   Author: Elias John Thomas, Department of Mathematics, Mar Ivanios College, Thiruvananthapuram.

   In this paper, a study on monophonic position number of a graph wasintroduced. The monophonic position number of certain common classes ofgraphs were determined and the classes of graphs of order n for which mp(G)∈ {2, n} were characterized. Apart from that an upperbound for thebipartite graphs was deduced. Finally, a realization theorem was presented to show that there is no general relationship between monophonic and geodesic position sets.

3. Paper Title: Degree Exponent Energy of a Graph

   Author: Praveen Jakkannavar, Department of Mathematics, Karnatak University, Dharwad

   The degree exponent matrix DE (G) of a graph G with n vertices, is a n × n square matrix with its $(i, j)^{th}$ entry as $d_i^{d_j}$ if i ≠ j and zero otherwise, where d_i and d_j are the degrees of i^{th} and j^{th} vertices of G, respectively. In the paper, the author obtained bounds for the degree exponent energy of

a graph and an upper bound for the spectral radius of DE(G). In addition, the characteristic polynomial of the degree exponent matrix of some special graphs were also obtained.

4. Paper Title: Average Degree Eigenvalues and Average Degree Energy of Some Graphs

Author: Dr. ShridharPatekar, Department of Mathematics, SavitribaiPhule Pune University,Pune.

5. Paper Title: Inverse complementary pendant domination in graphs

Author: B. Purushothama,S, Assistant Professor, Maharaja Institute Of Technology Mysore, Mandya

In this article, the author studied the new domination invariant called Inverse complementary pendant domination.He calculated the exact values for some standardfamilies of graphs and established some bounds for this parameter in termsorder. Further, he studied some important properties of thisparameter and some properties of the new parameter in the complement of graphs.

6. Paper Title: A note on bounds for the general sum-connectivity index of some composite graphs

Author: B. Basavanagoud, Department of Mathematics, Karnatak University, Dharwad

7. Paper Title: Some properties of semigroups generated from a function.

Author:Lejo J. Manavalan,Department of Mathematics,CUSAT

There are many ways to construct a semigroup from graphs, for exampleEndomorphism semigroup, graph semigroup, commutative graphsemigroup, inverse graph semigroup, path semigroup, etc. This paperdescribes a way in generating a semigroup from a function on a finite set,using directed graphs, studies the properties of the semigroup generated.

8. Paper Title: Graphs, colourings and uncertainty

Author: B. Erika FeckováŠkrabul'áková, Faculty of Mining, Ecology, Process Control and Geotechnology, Technical University of Košice, Košice, Slovakia

9. Paper Title: Min-Max and Max-Min Edge Graph Saturation Parameters

Author: Dr.S.Sudha, Assistant Professor, Mount Carmel College, Bengaluru

In this paper a general theoretical frame work forming-max and max-min edge graph saturation parameters was studied.

Venue: Block 4, 4501

Time: (4-6pm)

Session Chair: Dr. Sangeetha Shatish

1. Paper Title: Restrained Domination Number of Jump Graphs

   Author: G. Kokilambal, Thiagarajar College, Madurai, Tamil Nadu

   The speaker started with introducing the concept of domination and dominating set. Next the speaker introduced the concept of Dominating set with an example and mentioned about the application of that. Restrained Dominating Set was introduced with the help of examples.The speaker then introduced the concept of Jump edge and Jump graph mentioning about the history of those graphs.Then speaker mentioned about the properties of jump graphs. Few of the properties of those graphs were explained using manyexamples. Characterisation of the jump graphs was illustrated. Bounds on the Restraineddomination number of jump graphs was illustrated both in case lower bound and upper bound.

2. Paper Title: Partial Domination in Prism Graphs

   Author: Philo Nithya

   The speaker started the presentation with explaining the abstract of the paper.The concept of the Partial domination was explained with an example. Prism graphs was also explained using many illustrations.Prism graphs in case of the Peterson Graphs was showed.Few of the basic properties and the associated results of the Prism graphs and Partial domination was explained using many examples.The speaker then started to introduce the work which they have undertook. The speaker mentioned about the lower and upper bounds of the prism graphs and limits of the graphs.The speaker then illustrated the bounds using K5.

3. Paper Title: Independent and connected Domination in an undirected graph

   Author: SyedaAsmaKausar,Sri PaidmavatiMahilaVisvaVidyalaya, Tirupati, Andhra Pradesh

The speaker started the by introducing the definition and illustration of was shown in case of. Few of the properties of was illustrated.Independent Domination in was explained. Connected Domination in was explained. The speaker then explained a few results regarding the .Then the speaker mentioned about their work regarding the .The connected domination in case of undirected graph was explained.

4. Paper Title: A brief study on different types of Domination

Author: Monisha. G,Mount Carmel College, Bangalore

The speaker started with introducing the definition of Dominating set. Then speaker introduced the different types of domination which included Total domination number, Paired domination number, Connected domination number.The speaker illustrated Total domination number, Paired domination number, Connected domination number with an example.Next the speaker mentioned about a few results about Total domination number, Paired domination number, Connected domination number. Literature review about Total domination number, Paired domination number, Connected domination number was mentioned. Then speaker moved towards the observations which they have got during the course of the study. The relation between Total domination number, Paired domination number, Connected domination number was explained. Changing and unchanging parameters on different types of domination was explained with mentioning about a few results. A few observations regarding the fan graphs was explained.

5. Paper Title: K-rainbow Domination Number of Degree Splitting graph

Author: PavitraKumbargoudra, The Oxford college of Engineering, Bangalore

The speaker started the topic mentioning about the history of domination, mentioning about the Theory of Domination. The speaker then mentioned about the K-rainbow domination number. The speaker illustrated K-rainbow domination number with many examples mentioning about the practical aspects. The speaker then mentioned about the degree splitting of the graph. Then the literature review of the graph was explained. A few results regarding the K-rainbow domination number in degree splitting graph was explained and illustrated. The speaker then explained about the results which they have obtained during the course the study. The speaker then ended the talk with the open problem of obtaining the bounds for the graph.

6. Title of the talk: Total(1,2) Domination number of Graphs and its Complements

Author: S. Vallirani,Thiagarajar College, Madurai, Tamil Nadu

The speaker started with introducing the concept of domination and dominating set. Next the speaker introduced the concept of (1,2) Dominating number with an example and mentioned about the application of that. The speaker then explained about the known results regarding the (1,2) Domination number. The speaker then introduced Broom Graph illustrating it with an example. The Broom Graph in case of T1, T2, T3, T4, T5 was explained. Some characterisation of the complement of graphs was explained. Few theorems regarding the complement graphs was explained.

7. Paper Title: Double Monophonic Domination Number of Graphs

Author: A. Sadiquali,Alagappa University, Karaikudi , Tamil Nadu

The speaker started with introducing the concepts of Path, Chord, m-path,monophonic distance, monophonic eccentricity, monophonic radius,monophonic diameter. Path, Chord, m-path, monophonic distance, monophonic eccentricity,monophonic radius, monophonic diameter was illustrated using different graphs. Monophonic closure, monophonic domination and few other conceptsregarding monophonic graphs was explained mentioning about the Domination and domination number. Double Monophonic Domination in graphs was explained and illustrated with mentioning about the examples associated with it. The concept of weak extreme vertex was explained. A few basic results about Double Monophonic Domination was mentioned and illustrated. The speaker then concluded with the open question regarding obtaining the bounds of the Double monophonic Domination number for some standard graphs.

Venue:

Time:

Session Chair: DrK.A.Germina

1. Paper Title: Equitable irregular edge-weighting of κ_t-graphs of some graph.

Author: Anu Joseph

Presenter explained about edge weighted graphs(proper and non-proper edge weight). She has defined a new graph class k_t graphs of some fundamental graph classes and their equitable irregular edge-weighting.

2. Paper Title: AntimagicLabellingsOf Symmetric Digraphs Using Skolem Sequence

Author: M.Nalliah

Author explained the definition of antimagic labelling of digraph. He started his paper with few previously asked questions and their solution few of which is discussed in his paper. He defined skolem sequence and few example of first pair difference second pair difference and how to generalize it. His results investigate the existence of antimagic labeling using skolem sequences.

3. Paper Title: Closed Distance Antimagic Graphs

Author: Nancy J Cutinho

The presentor began by explaining distance magic labelling, (a, d)-distance antimagic graph, distanceant imagic labelling, closed distance antimagic labeling. Then she gave her new results on closed distance antimagic graph with some open problem.

4. Paper Title: Topological Integer Additive Set Labeled Graph

Author: Supriya Rajendran

Author explained few basics like set assignment , set labelling etc., Few already obtained results then explained starred complete graph and her result which includes the lower bounds for the number of edges to be attached.

5. Paper Title: Bounds for the sum via the cubes of the degree of a splice graphs

Author: Sushmitha Jain

Presenter started the paper with its relevance to chemicals and few chemically interested graphs. She obtained bounds for different type of splice graphs such as R-vertex and S-vertex splice, R-edge and S-edge splice, R-vertex neighborhood and S-vertex neighborhood splice, R-edge neighborhood and S-edge neighborhood splice.

6. Paper Title: Geodesic Convexity in Labeled Graphs

Author: Farisa M

Presenter reacted by recollecting graph labeling and its importance, later she defined two types of convexity geodesic convexity and monophonic convexity. She has made an investigation of geodesic convexity in a graph G with labelling function on the vertex set of G.

7. Paper Title: Universal α−graceful Related labeling of Various Graphs .

Author: Meeraben Pravinkumar

Presentation started with basic definition like gear graph,caterpillar etc., she then explained few main results which included few bounds, congruency which was clearly illustrated with example.

8. Paper Title: New results on transitivity of graphs

   Author: Libin Chacko Samuel

   Presenter started with few terminologies like Domatic number,Transitive partition, Transitivity, source set and sinkset. He explained few already existing results. He studied bound on the transitivity of graphs with respect to domination number and properties of the minimal tree with transitivity k.

9. Paper Title: Total Global Dominator Coloring of Graphs.

   Author: Chithra K P

   Presenter started with some basic like dominator coloring and total dominator coloring,global dominator and total global dominator coloring with illustrative example. Here she determined the exact value of total global dominator colours for different graph classes and its properties.

Venue:

Time: Contributory session ()

Session Chair:

1. Paper Title: Concept of Pebbling in Sierpinski Graphs

   Author: A. SagayaSuganya (ICETGT-19001), Assistant Professor at Crescent Institute of Science and Technology

   The presenter gave a background about the origin of Graph pebbling and then briefly explained the concepts of pebbling move, pebbling number of different graphs, fractals and so on. She then moved on to the main topic of her presentation, which is the pebbling number of Sierpinski Graphs. She explained her work on generalized Sierpinski Graphs, Sierpinski Triangle Graphs and also the applications of pebbling concept.

2. Paper Title: Optimal Pebbling of Total Graphs

   Author: NilaBindu(ICETGT-19078), CHRIST (Deemed to be University)

   The presenter gave a brief introduction about the presentation. She explained about when a distribution is said to be solvable, optimal pebbling number. The main aim of her work is to investigate the parameter optimal pebbling number in total graphs of paths and cycles. According to her research, the optimal pebbling number in total graphs of path on $5t + r$ vertices is determined to be $4t + r$, where $r \in \{-2, -1, 0, 1, 2\}$. Further, the optimal pebbling number in total graphs of a cycle on $5t + r$ vertices is determined to be $4t + r$, where $r \in \{0, 1, 2, 3, 4\}$. The optimal pebbling number in total graphs of stars is also determined.

3. Paper Title: On n-connected minors of the es-splitting binary matroids

Author: Dr. Santosh Dhotre(ICETGT-19008) Department of Mathematics, UGC Center for Advanced Study, SavitribaiPhule

The presenter gave a brief introduction to concepts of matroid and dual of a matroid, cycle matroid, graphic matroid, minor of a matroid, connectivity of a matroid, n connected matroid etc. He then explained on the es-Splitting and rank function of es-splitting matroid and also presented his work for 3-connected binary matroids and n-Connected Minors of es-Splitting Matroids

4. Paper Title: The Orientation number of Two Complete Bipartite Graphs with Linkages

Author: G. Rajasekaran(ICETGT-19009), Assistant Professor, VIT University

The presenter gave a quick introduction to the basic concepts of eccentricity, diameter, radius, distance orientation, orientation number and optimal orientation in graphs. He presented his work on certain theorem based on his work on the Orientation number of Two Complete Bipartite Graphs with Linkages

5. Paper Title: Some results on super strongly perfect graphs

Author: Soorya T E(ICETGT-19040) Department of Mathematics, National Institute of Technology Calicut

The presenter gave a brief introduction on strongly perfect graphs, clique and clique number, domination set, minimal dominating sets, maximal complete subgraphs, chromatic number, matching, symmetric difference , super strongly perfect graphs etc. She then presented her work on characterization of super strongly perfect graphs, matching and coloring in super strongly perfect graphs.

6. Paper Title: Graph theory and its applications in management research

Author: Sindhu(ICETGT-19073) CHRIST(Deemed to be University)

The presenter presented her work on graph theory its applications in management discipline. She explained about the use of theory of graphs in operational effectiveness in management organization and also how the concept of connectedness and graphical factoring can be used in management discipline.

7. Paper Title: On topological invariants of graph constructions

Author: MOHANAPPRIYA G (ICETGT-19086) Research Scholar, Department of Mathematics, Kongunadu Arts and Science

The presented introduced the concepts of k−Fold graph, k−Splitting graph, k−Shadow graph and also concepts related to them. She then presented her work on how the exact formulae for first and second Zagreb index, F−index, Hyper-Zagreb index, Symmetric Division Degree index, reformulated F−index of three graph constructions such as k−Fold graph, k−Splitting graph, k−Shadow graph of a graph are obtained. Also her work to obtain upper bound for the first and second multiplicative Zagreb index and Multiplicative sum Zagreb index of k−Fold graph, k−Splitting graph,k−Shadow graph of a graph.

Venue: 4504

Time: Contributory session (4:11pm to 6 pm)

Session Chair: Dr. MarcinWritkowski

1. Paper Title: Uniform number of trees

   Author: M. Elakkiya, Department of Mathematics , Amrita VishwaVidyapeetham Coimbatore

   Some of the result on uniform number of graphs for example banana tree, Palm tree, caterpillar among others.

2. Paper Title: Independence saturation parameters.

   Author: G. HimaBindu

   Author presented some results of minimum –maximum relation of independent sets of complete graphs, paths, cycles.

3. Paper Title: 2-order prime graph

   Author: Fr. Jomon K. Sebastian, Department of Mathematics, Manonmaniam Sundarnar University

   In here he defined a new graph known as 2-order prime graph. It was followed by characterization of such graphs and also characterization on cycles and stars. Chair person suggested the presenter to generalize the results for any prime.

4. Paper Title: Complement of intersection graph of principal ideal ring

   Author: T. Anitha,Department of Mathematics,The Gandhigram Rural Institution

Author gave examples of intersection graphs followed by existing result on the same. She presented new results on the number of isolated vertices in finite principle ideal ring.

5. Paper Title: Variety of rational resolving sets of a K^{th}power of a cycle

   Author : Padma M. M, Assistant professor department of mathematics Ambedkar Institute of technology Bangalore

   Some results on complete graph, cycles and their rational metric distance were presented. The presentation was given professionally and preparedness was well seen.

6. Paper Title: On k-local resolving sets of a k^{th} power of a cycle

   Author: Professor Jayalakshmi M, Department of Mathematics, Ambedkar Institute of Technology, Bangalore

   The presentation was well executed and questions which were followed were answered precisely.

7. Paper Title: Complex Networks as Hypergraphs : A survey

   Author: Divya P B , Department of Mathematics, Cochin University of Science and Technology

   As the name suggest it was a survey on Hypergraphs. She gave an overview of hypergraph theory, she explained the concept of uniform hypergraph, regular hypergraph among others.

8. Paper Title: The Domcentric Number of a Graph

   Author: Kaspar S, Assistant Professor from Vellore Institute of Technology

   Author explained different types of domination such as total domination, connected domination etc. He explained and gave an example of domcentric number of a graph. He presented some results on domcentric number of paths, cycles and complete graphs.

Venue: 4504

Time: Contributory session (4:10pm to 6 pm)

Session Chair: Dr. MarcinWritkowski

1. Paper Title: Some Adjacency Parameters in Fuzzy Graphs

   Author :Binu M, National Institute of Techonology, Calicut

In this presentation, cliques and independent sets with respect to various levels of relationships are studied. Also adjacency in specific levels find expressions in terms of clique index. And therefore focuses on clique indices of level graphs, that take different values at different levels in a fuzzy graph.Advantage - it helps to identify the levels at which the connectivity of the whole network fluctuate sharply help us to stabilize the connectivity of the network effectively A parameter that acts as an indicator of connectivity in different levels of a fuzzy graph will be advantageous in the connectivity perspective.

2. Paper Title: Reciprocal Transmission Based On Topological indices of Graphs and It's application in Chemistry

Author: S. Y. Talwar, Karnataka University ,Dharwad

The purpose of this paper is to study the reciprocal transmission (reciprocal status) based topolgical indices of a graph and use it to correlate with the chemical properties of certain molecules.Defines topological indices such as reciprocal transmission Arithmatic-geometric index,reciprocal transmission geometric-arithmatic index, reciprocal transmission sum-connectivity index, reciprocal transmission atom-bond connectivity index, reciprocal transmission augmented Zagreb index.Finds bounds for reciprocal transmission based on topological indices .Also finds the reciprocal transmission based on topological indices of some graphs like complete graphs, bipartite graphs, cycles with more than 3 vertices, wheel graphs with more than three vertices, friendship graphs with at least 2 vertices.Discusses the correlation between reciprocal transmission based topological indices and chemical properties such as boiling point, density, molecular mass and melting point of paraffins.

3. Paper Title: Graph of a Ring with respect to an Ideal

Author: ShailaPriya Rodrigues ,St. Aloysius College (Autonomus), Hampankatta, Karnataka

Introduces graph of a ring with respect to an ideal. Finds the graph theoretical properties of graph of a ring with respect to an ideal. Obtains relation between the graph theoretical properties of graph of a ring with respect to an ideal and the ideal. Also finds the characteristics of the graph when the ideal is a prime ideal.

4. Paper Title: Strong k-containers in fuzzy graphs

Author: Shanooka Ali, National Institute of Techonology, Calicut

This article discusses strong k-containers between pairs of vertices in a fuzzy graph.
The concept of container in graph theory evaluates the performance of communication of an interconnection networks. This property enables us to identify strong paths between any pair

of vertices.Using this, either one can control the data flow between pair of vertices or disconnect the entire network

5. Paper Title: Bipolar L-Fuzzy graph & Chromatic number of Bipolar L-Fuzzy Graph

   Author: Sreedevi V. S, Mahatma Gandhi University, Kottayam, Kerala

   This paper introduces bipolar L-Fuzzy Graph as a generalization of bipolar fuzzy graph. Defines Complete Bipolar L-Fuzzy graph and chromatic number of bipolar L-fuzzy graph. Discusses the Cartesian product and Union of Bipolar L-fuzzy graph and its properties. Proves that the Cartesian product of two bipolar L-fuzzy graph is also a bipolar L-fuzzy graph . Similarly proves that union of two Bipolar L-Fuzzy graph is again a Bipolar L-Fuzzy graph.

6. Paper Title: Study of different Degrees based on various operations on Fuzzy soft Graphs

   Author :Shashikala S Global Academy of Technology, Bangalore

   Focuses on the following : Degree of a vertex in Disjunction of two FSGs,Total degree of a vertex in Disjunction of two FSGs,Degree of a vertex in Conjunction of two FSGs,Total degree of a vertex in Conjunction of two FSGs

7. Paper Title : Laplacian Eigen values and few more properties of Sum Graph

   Author: Shine Raj S.N,Central University of Kerala, Kasaragod

Venue: 7

Time: Contributory session ()

Session Chair: Dr. Mukti Acharya

1. Paper Title: Computation of Graph Spectrum

   Author: Ann Susa Thomas - Assistant Professor, St. Thomas College, Kozhencherry, Kerala

   The main definitions included k-fold,duplication of a graph, second splitting product of graph, etc which was explained using appropriate illustrations followed by the preliminaries and the theorems of the paper.

2. Paper Title: on Adjacency of an Undirected graph on a finite set of Natural Numbers

   Author: PK Sravanthi

   The presentation included the proper examples and definitions for each theorem.

3. Paper Title: Application of Graph Theory in Real World Problems

Author: K Pushparani, Mount Carmel

The main topics included domination, bondage number, Kruskal's Algorithm. The area of applications on these topic were scheduling of course timetable with graph coloring approach and on Kirchoff's Laws in Electrical Circuit. The related case studies and the conclusions obtained were explained.

4. Paper Title: Spectra of Sub – Division Vertex Join of Graphs

Author: R. Pavithra

Presentor began with definitions of spectrum, cospectral, subdivision and its vertex join. She illustratively explained each of the defintions with appropriate examples followed by the preliminaries and theorems based on Adjacency Spectra, Laplacian Spectra, etc.

5. Paper Title: Rainbow Connection in Graphs

Author: Kulkarni Sunita Jagannatharao, Assistant Professor, Dr. Ambedkar Institute Of Technology, Bengaluru

The next presentation was on Star.The main terminology was Star Rainbow Coloring which was explained using examples. Followed by the Results on Star Rainbow connection for well known graphs like the cycle, wheel and the prism graph and the proofs based on it.

6. Paper Title: 1-Regular Semigraphs of Order p

Author: M S Chithra

The main keywords included Semiedge, k-semiedge, k-regular, etc. The main research content included 1 – regular semigraphs with exactly 3 vertices graphs with exactly 2 adjacent vertices. The presentation was appropriately illustrated and were explained detailedly followed by the theorems.

7. Paper Title: on Semifull Line Signed Graphs

Author: Hemavathi P.S from Vijayanagara Sri Krishnadevaraya University

The paper was mainly on properties of semifull Line signed graphs and its structural characterizations. The keywords included signed graphs, semifull line graphs and followed by theorems.

8. Paper Title: C- cordial Labelling of Line Signed Graphs

   Author: DivyaAntoney,Christ (Deemed to be University).

   The study is based on c – cordial labelling of line signed graphs of paths and cycles having a number of negative sections. The main terminologies included Signed Graph, Canonical Marking and Line Signed Graph. The keywords were explained clearly using illustrations followed by the results and theorems.

9. Paper Title: On the Category of Soft Graphs

   Author: Ratheesh K P, National Institute of Technology, Calicut, Kerala

   The preliminaries included Soft Set, Symmetric Soft Relation, Soft Graph Moorphism, etc. The presentation was illustriously explained. Followed by the theorems and also proposed future work on the topic. Each of the presentations were followed by a discussion where the session chair Dr. Mukti Acharya gave her valuable suggestions and areas of improvement for each of the presenter.

Venue: Block 4, Room No. 5604

Time: Contributory session ()

Session Chair: Dr.Mayamma Joseph, Christ(Deemed to be University)

1. Paper Title:Some results on Topological Indices of Nicotine

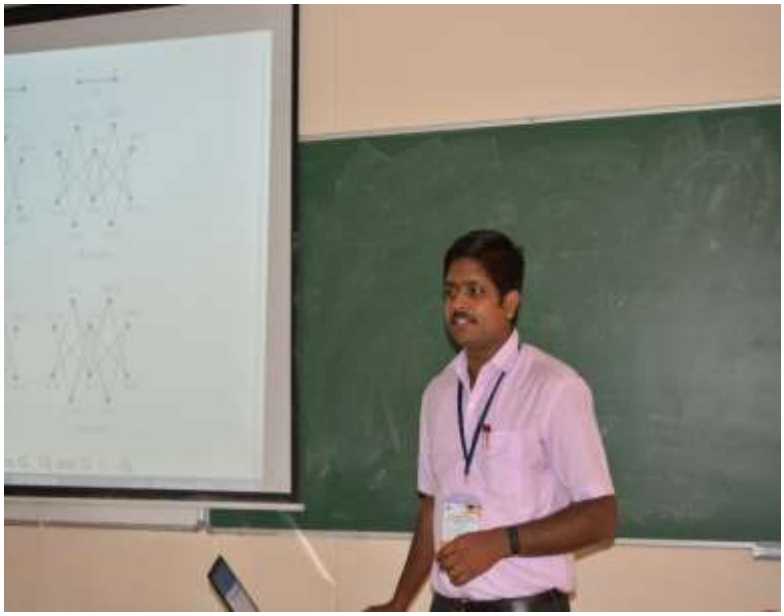
   Author: Dr.Jagadeesh R- GSC Bangalore

   The main highlight of the presentation was the application of Graph Theory in chemical compounds and in this presentation; the main result was on the topological indices of nicotine. The “Topological Index” of a graph was defined and the expressions for some topological indices of nicotine were discussed. The different Zagreb indices of nicotine were computed.

2. Paper Title :F-index and hyper Zagreb index of four new tensor products of graphs and their complements

Author: B.Basavanagoud and Anand P Barangi- Department of Mathematics,Karnatak University, Dharwad

Graphs and its transformation, total graphs as induced subgraphs to its transformation and relation between F-index, co-index of F-tensor products and its complements were the main pointscovered.F-index and hyper Zagreb index of F-tensor products of graphs and their complements were obtained. F-index is calculated explicitly, whereas hyper-Zagrab index is obtained as general for F-tensor products of the graphs. The conclusion of the presentaion was that study of these operations on graphs could be continued to other important topological indices to understand the structure of graphs embedded in the operations.



3. Paper Title:On Certain Topological Indices of Copper(II) Oxide

Author: V. Lokesha and K.Zeba Yasmeen-Research Scholar,Department of Studies in Mathematics, Vijayanagara Sri Krishnadevaraya University, Ballari.

Application of “Topological indices” to determine certain properties of Copper(II) Oxide were presented. Topological descriptiors/ indices, Zagreb indices, subdivision graph, semi-total point graph, description of Copper(II) Oxide and M-polynomial of Copper(II) Oxide were the main points covered in the presentaion. For plotting the graphs, Maple software was used.

4. Paper Title: : NeighbourhoodPseudochromatic polynomial of a path

Author: 4-Divya R-Research Scholar and lecturer at DayanandSagar

The definitions of coloring, proper coloring and graph colorings were presented. Pseudocoloring, neighbourhoodpseudocoloring and neighbourhoodpseudochromatic number were presented with examples. Java programming language was used to compute the coefficient of the polynomial. The general formula for k^{th} coefficient of the pseudochromaticpolynomail was derived and hence the pseudochromaticpoynomial of a path P_n was obtained.

5. Paper Title: F-index of Graphs based on new operations related to the corona of graphs

Author:Manjunath M-Research Scholar,Department of Studies in Mathematics, Vijayanagara Sri Krishnadevaraya University, Ballari.

Definition of “Topological Index” and a brief about its application in different fields were presented.Definitions of R-vertec corona, R-edge corona, R-vertex neighbourhood corona and R-edge neighbourhood corona were presented in detail with the related theorems. The explicit interpretaion for F-index of different forms of corona products in terms of Zagreb indices, graph size and order were obtained.

6. Paper Title: Topological Indices of K-Gamma Graphs

Author: G.Kiruthika-Research Scholar, Department of Mathematics, Bharathiar University Postgraduate Extension and Research Centre, Erode, India.

Definitions of Gamma graphs, k-Gamma graphs, junction vertex with illustrations were presented. Related theorems on the topological indices of these graphs like First Zagreb Index, Second Zagreb Index, Hyper Zagreb Index were proved. Swastika Graph and its application to PrntaErytritol Tetra Nitrate(PETN) was shown. Suggestions for improvement of the applications to chemical molecules were given by the chair-person.

7. Paper Title: On multiplicative Zagreb Indices of graphs with a deleted edge

Author: Mahesh Kale, Dept. of BSH, MPSTME, SVKM's NMIMS, Mumbai

Definitions of Multiplicative Zagreb indices, edge deletion and its effect on these Zagreb indices were explained in detail. Illustration of standard graphs, Paths, Cycles, Stars, and Tadpole graphs were given. Questions were asked by the chair-person, suitable answers were given.

8. Paper Title: Computation of few topological indices for subdivision of Cn and ring sum operation on some graphs using Python program

Author: S.Manimekalai

Various indices like Wiener Index, F index, Zagreb index, Total eccentricity index for the subdivision of cycles and ring sum operation on few graphs. The result relating to wiener index is verified using Python program. Definition of subdivision graph, link graphs, ring sum of graphs along with their Zagreb indices were explained

9. Paper Title:Totally Segregated Biicyclic Graphs withMaximum Irregularity

Author: Jorry T.F., Mercy College, Palakkad, Kerala.

A graph in which any two adjacent vertices have distinct degrees is a Totally Segregated Graph.we determine maximum irregularity of three types of connected totally segregated bicyclic graphs on n vertices. Bicyclic graphs, totally seregated bicyclic graphs, and basic bicycles were illustrated and explained. Then, theorems on the maximum irregularity of totally bicyclic graphs was explained.

Venue: 9 (Room No : 4508, Block 4)

Duration: 4pm to 5:15pm

Session Chair: Dr. Tabitha Rajasekar

1. Paper Title: A Study on Dominator Coloring of Mycielskian of Some Special Graphs

   Author: Albina.A, Department of Mathematics,SreeNarayana Guru College, Coimbatore

   The speaker spoke about a Dominator coloring of a graph G. A Dominator coloring of a graph G is a proper coloring of G in which every vertex of G should dominate every vertex of at least one color class. The dominator chromatic number χ_d (G) is the minimum number of color classes in a dominator coloring of G. In this paper you study the dominator chromatic number of mycielskian of certain graphs such as B_n, F_n, H_n, CH_n, DW_n, Fl_n. In this paper, you see the relation between domination number γ(G) and the coloring numbers χ(G) and χ_d (G). There are many interesting graph operations such as Corona, Cartesian and Strong Cartesian of graphs etc. to which this study can be extended.

2. Paper Title: q−Criticality of Co-secure Domination in Graphs

   Author: Navaneeth R, CHRIST(Deemed to be University), Bangalore

   For a graph G, a dominating set $X \subset V(G)$ is a co-secure dominating set if for each $u \in X$ there exist a vertex $v \in V(G) - X$ such that $uv \in E(G)$ and $X - \{u\} \cup \{v\}$ is a dominating set. The minimum cardinality of a co-secure dominating set is the co-secure domination number of G. A graph G is q−critical if the smallest arbitrary subset of edges of cardinality q, whose removal increases the co-secure domination number of G. We define the cost functions and q−criticality of co-secure domination in graphs, a detailed study on the cost function and q−criticality of paths and cycles with algorithms and determines the exact values of q for various families of graphs. The cost function and q−criticality of co-secure domination in graphs were defined. Study on q−criticality of paths and cycles with algorithms, further a discussion on q−criticality of various classes of graphs were done. The above study is useful for protection strategy in security system.

3. Paper Title: On semi unsecure total domination in graphs

   Author: Kumara M,Department of Mathematics, Bangalore University, Jnanabharathi Campus

   The speaker discussed about total domination in graphs , the bounds and properties obtained, its relationships with other graphs and the theoretic parameters obtained. All the graphs G = (V, E) considered here are simple, finite, non-trivial and undirected. A total dominating set $S \subseteq V$ is a semi unsecure total dominating set of G, if for every vertex $u \in V - S$, there exists $v \in S$ such that $uv \in E$ and $(S - \{v\}) \cup \{u\}$ is a dominating set but not total dominating set. The semi

unsecure total domination number γ_{sut} (G) is the minimum cardinality of a semi unsecure total dominating set in G.

4. Paper Title: A Study on Star Chromatic Number on Rooted Product of Graphs

Author: Lydia Mary Juliette Rayen A,Department of Mathematics Loyola College, Chennai.

The presentation was focused on Star Coloring. A star coloring of an undirected graph G is a proper vertex coloring of G (i.e., no two neighbors are assigned the same color) such that every path on four vertices uses at least three distinct colors. Star coloring has been productively utilized since from the 1980s in the computation of various complex problem solving techniques likesparse Jacobian matrices and Hessian matrices using finite differenceor automatic differentiation.It is also applied in question paper distribution and seating allotment of exam scheduling in order to avoid proxy activities.This paper facilitates to find the star chromatic number of various graph products, which are still open.

5. Paper Title: Independent Domination in Double Vertex Graphs

Author: RoopaPrabhu, S.J(Govt.)Polytechnic,Bangalore

A set S of vertices in a graph G is an independent dominating set of G if S is an independent set and every vertex not in S is adjacent to a vertex in S. In this paper, the speaker discussed about selected recent results on independent domination in graphs and presented some independent domination related properties of double vertex graphs.

6. Paper Title: Poset properties with respect to semi - ideal – basedzero-divisor graph

Author: Dr. B. Elavarasan,Department of Mathematics,Karunya University,Coimbatore

This paper deals with the understanding of the possible shapes of the graph Γ(R) as R ranges over the class of algebraic structures, andinferring the properties of the set of zero-divisors of R from Γ(R). The interplay between the posetproperties of P and the graph-theoretical properties of GI(P) and topological properties of Spec(P) where Spec(P) is the set of all prime semi-ideals of P have been investigated.

7. Paper Title: On the $\delta^{(k)}$colouring of powers of Cycles andPaths

Author: Merlin Thomas,CHRIST(Deemed to be University), Bangalore

In an improper colouring$c : V(G) \longrightarrow \{c1, c2, ..., cn\}$, an edge uv is said to be a bad edge if c(u)=c(v). A near proper colouring is acolouring which minimises the number of bad edges by restrictingthe number of colour classes that can have adjacency among their own elements. The $\delta^{(k)}$- colouring of graph G, consisting of kgiven colours , is a near proper colouring which minimizes thenumber of bad edges by permitting at most one colour class to

have adjacency among the vertices in it. In this paper, wedetermine the $\delta^{(k)}$- colouring of the rth power of Cycles and Paths,where $2 \leq r < d$ and d is the diameter of the graphs.

Venue:

Duration:

Session Chair: Paula Carvelho

1. Paper Title: Algorithmic Approach for Equitable Antimagic Labeling of Complete Graphs

   Author: Antony Puthussery, Department of Science and Humanities, CHRIST(Deemed to be University)

   Gave introduction on magic, supermagic, anti-magic labeling.Stated the following lemmas on equitable antimagic graph, “If K n is equitable antimagic graph, then (n 2 − n)(n 2 − n + 2) = 4(n(k + 1) − r), where k denotes the magic constant and r =n k (number of times k is repeated)”. The speaker also proved that K 4 and K 5 is not equitable antimagic graph and gave the following generalization “A complete graph K n of order n is equitableantimagic graph if and only if n = 2 or n > 5”. He also defined an algorithm for equitableantimgaic complete graph and finished the presentation by giving few examples.

2. Paper Title: Super (a,d)- Edge Antimagic Total labeling of Union of Stars

   Author: Prof. C. Palanivelu, Department of Science and Humanities Knowledge Institute of Technology, Salem.

   Gave preliminary introduction on star, graph labeling, vertex magic labeling and edge magic labeling. Explained and gave example of (a,d)-edge antimagic total labeling and super(a,d) edgeantimagic total labeling and stated the following two results: For odd $n \geq 3$, even $m \geq 3$ and $r \geq 3$, $s \geq 3$, there exists a super (a, 0) edge antimagic labeling of nK 1,r ∪mK 1,s, , δ(m, n) = 7, where δ(m, n) denotes the difference between m and n. For odd $n \geq 3$, even $m \geq 3$ and $r \geq 3$, $s \geq 3$, there exists a super (a, 2) edge antimagic labeling of nK1,r∪mK1,s, δ(m, n) = 7, where δ(m, n) denotes the difference between m and n.

3. Paper Title: Computation of Biconditional Cordial Labeling of Wheel Graph

   Author: B.J. Balamurugan, School of Advanced Sciences, VIT University, Chennai

   The speaker gave introduction on Biconditionalchordial labeling of graphs, biconditional chordial graph and example and proved the following theorems The wheel graph W n admits a Biconditional cordial labeling (i) when n ≡ 0 (mod 2) (ii) when n ≡ 1 (mod 2) and n = 4m + 1. The wheel W n does not admit a Biconditional cordial labeling when n ≡ 1 (mod 2) and n = 4m – 1 and gave the following conclusion: The wheel graph W n admits a Biconditional cordial labeling (i) when n ≡ 0 (mod 2) (ii) when n ≡ 1 (mod 2) and n = 4m + 1.

4. Paper Title: Z n - Magic Trees

Author: Roshni T, Research Scholar, Department of Mathematics School of Physical Sciences, C entral University of Kerala, Kasaragod

Gave introduction of A- magic graph, A-magic value and Fully magic graph following which the following main result was proved: A path P n is fully magic if and only if n = 2 And gave introduction on Weakly k-uniform caterpillar Any weakly n - uniform caterpillar is Z n−1 - magic for n ≥ 3. Let Tc be a weakly k - uniform caterpillar. Then, T c is Z n−1 – magic whenever k ≡ 1(mod n-1). Star graph K 1,n is Z n−1 - magic for n ≥ 3. A binary tree is a rooted tree in which there is exactly one vertex of degree two, which is the root vertex and all the remaining vertices are of degree one or three.

5. Paper Title: Some classes of Zn-magic graphs

Author: Shijin T V, Research Scholar, Department of Mathematics, School of Physical Sciences Central University of Kerala, Kasaragod

Gave introduction of A- magic graph, A-magic value and Fully magic graph and explained Cartesian product, lexicographic product and tensor product.Stated the preliminary theorem the cartesian product G × H ; the lexicographic product G ◦ H ; the tensor product G ⊗ H ; are also A- magic graphs and proved the following main results:
A path P n is fully magic if and only if n = 2, The ladder graph P 2 × P m , m > 2 is Z n -magic ∀n ≥ 3. The ladder graph P 2 × P m , m > 2 is Z n -magic ∀n ≥ 3, The grid graph G k,m = P k × P m , where k, m > 2 is Z n -magic ∀n ≥ 3, The stacked prism graph Y m,n = C m × P n is always Z 3 -magic. The composition P 2 ◦ P m , where m > 2 is Z n -magic ∀n.

6. Paper Title: On Cm and Cm − E-Supermagic Graphs

Author: Soorya P, Research Scholar, Department of Mathematics, School of Physical Sciences Central University of Kerala, Kasaragod

Gave example of edge magic graph, H- magic graph, H- supermagic graph, H-E supermagic graph then gave the following main results:
For any integer m ≥ 3 and n = 6, 7 the grid graph P m × P n is C 4 -supermagic., For any integer m ≥ 3 and n = 6, 7 the grid graph P m × P n is C 4 -supermagic. For any integer m ≥ 3 and n = 6, 7 the grid graph P m × P n is C 4 -supermagic. The wheel graph W n is C 3 − E-supermagic for odd n ≥ 5. The wheel graph W n is C 3 − E-supermagic for odd n ≥ 5. The fan graph F n is C 3 − E-supermagic for all integer n ≥ 2.

7. Paper Title: PBIB-Designs and association schemes arising from minimum edge dominating sets in certain families of graphs.

Author: - Shaikh Ameer Basha, Department of Mathematics JnanaBharathi Campus, Bangalore University

Speaker gave definition of edge domination, PBIB-Designs and Association schemes.
And gave the following theorem: The collection of all γ'-sets of a Petersen graph forms a PBIB-Designs with association scheme and parameters v = q, b = 5, g = 3, r = 1 and λ 1 = 0, λ 2 = 0 and λ 3 = 1. The payley graph was defined and gave the following results about it
The collection of all γ'-sets of 9 − Paleygraph forms a PBIB-Designs with association scheme and parameters v = q, b = 6, g = 3, r = 1 and association scheme does not exist and The collection of all γ'-sets of 13 − Paleygraph forms a PBIB-Designs with 2-association scheme and parameters v = q, b = 39, g = 5, r = 6 and association scheme does not exist.

8. Paper Title: Radio Number of Total Graphs of Few Classes of Graphs

Author: Noel Nathan, Department of Mathematics, CHRIST (Deemed to be University)

Speaker explained Radio Labeling, Radio Number, Total Graph (T(G)) of a graph G,
Complete Graph (K n), Wheel Graph (W n), Star Graph (K 1,n) and stated the following theorem For a Complete graph K n with n vertices and n ≥ 2, r n (K n) = (n − 1), and For a Wheel Graph W n ,r n (W 4) = 3 , r n (W 5) = 6 and ∀n ≥ 6, r n (W n) = n. The next theorem was also stated Let W n be a Wheel graph on n vertices then, r n (T(W 4)) = 9, r n (T(W 5)) = 12, r n (T(W 6)) = 29, r n (T(W 7)) = 31 and for n ≥ 8, r n (T(W n)) = 5n – 4. The following theorem is about total graph: For any Star graph K 1,n we have, r n (T(K 1,n)) = 2n + 1.