

**St. Philomena's College (Autonomous),
Bannimantap, Mysuru - 15.**

PG Department of Mathematics

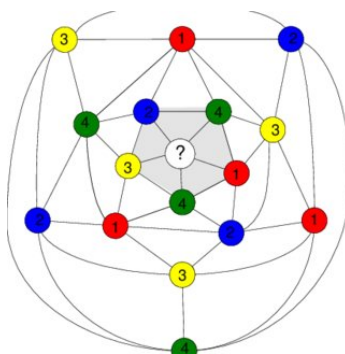


A Report On Special Lecture held during 02-07-2022

Special talk on Graph Coloring and Chromatic Polynomial

**Resource Person: Mr. David A Kalarkop,
Senior Research Fellow,
DoS in Mathematics,
Manasagangotri,
University of Mysore- 570006.**

Venue: Room number 79, PG Block.



Objectives

- 1) History of Graph Coloring problem.
- 2) To give insights on chromatic polynomial of a graph.
- 3) To explain their applications.
- 4) To describe the challenges in Research Areas in the subject in context.

Outlines of the Session:

- Preliminaries.
- Origin of graph theory- The Konigsberg bridge problem.
- History of Coloring of graph- Applications of Coloring in solving Sudoku problem.
- Motivation for Chromatic Polynomial of a graph.
- Fundamental Reduction Theorem.
- Few results on computation of chromatic polynomial.
- Chromatic Polynomial of Cocktail Party Graph.



The Mathematics special lecture series on Graph Coloring and Chromatic polynomial by David A Kalarkop was held on 2nd of July 2022. The speaker Mr David A Kalarkop is a Research scholar in the DoS in Mathematics, Manasagan-gotri Mysore. Mr.Bharatha K, Assistant Professor, PG Department of Mathematics ,welcomed the gathering and introduced the speaker. The lecture series began soon after welcoming the speaker.



The resource person David began his talk starting with a few basic definitions of Graph Theory. He described the history of a few famous Mathematicians like Leonhard Euler, Francis Guthrie, Augustus De Morgan, Sir William Rowan Hamilton, Arthur Cayley. He briefly explained the origin of Graph Theory through Königsberg bridge problem.



Moving on, he discussed about Graph Coloring, how to color two or more points in a graph, applications of coloring in solving sudoku problems. He explained the beauty of coloring of graphs through a video. He elucidated how Four-Color Conjecture and Five-Color Conjecture was proved. Then he shared the recent ideas of research in Graph Theory namely the Chromatic Polynomial of a Graph. Further he made students to deduce the chromatic polynomials of different graphs.

He concluded the session by giving insights on Fundamental Reduction Theorem and Chromatic Polynomial of a Graph.