Paper Code: PS04EMTH29	Total Credit: 4
Title Of Paper: Graph Theory - II	

Unit	Description in detail	Weighting (%)
I	Spanning trees and enumeration: enumeration of trees in graphs, Cayley's formula, contraction by edge, matrix-tree theorem, decomposition and graceful labelling, separating sets.	25%
II	Optimization and trees: minimum spanning trees, Kruskal algorithm, shortest path – Dijkstra's algorithm, BFS method and applications. Network: Flows and cuts, Ford and Fulkerson algorithm.	25%
III	Eigen values of graphs, the characteristic polynomial, linear algebra of real symmetric matrices, eigen values and graph parameters, eigen values of regular graphs.	25%
IV	Matroids: Hereditary systems & examples, properties of matroids. Ramsey theory: The Pigeonhole principle, Ramsey's theorem, Ramsey numbers.	25%

Basic Text & Reference Books:-

➢ Narsingh Deo: Graph Theory with applications to Engg. And Computer Science, Prentice-Hallof India Pvt. Ltd., New Delhi, 1999.
➢ Douglas B. West: Introduction to Graph Theory.
➢ John Clark and D.A. Holton: A first look at graph theory (Allied Publishing Ltd., 1991).
➢ Robin J. Wilson: Introduction to graph theory.