| Paper Code: PS01FIIT02 | Total Credit: 2 |
|---|---|
| Title Of Paper: Mathematics - I | |

| Unit | Description in detail | Weightage (%) |
|---|---|---|
| I | **Vectors and Matrices**<br>Vectors in Rn, dot product and norm. Matrix addition and scalar multiplication, Matrix multiplication , transpose of matrix, square matrices : Diagonal , upper and lower triangular, symmetric, skew symmetric, orthogonal matrices. Determinants of matrices up to order 3. | 25% |
| II | **Graph Theory**<br>Graph, multigraph, degree of vertex, paths , connectivity, subgraph, connected components, cut points, bridges, Special graphs: complete, regular and bipartite graphs,matrices and graphs. | 25% |
| III | **Planar Graphs and Trees**<br>Planar graphs , Maps and regions, Euler's formula, Nonplaner graphs, coloured graphs, colors and maps, trees. | 25% |
| IV | **Elementary Data Analysis**<br>Discrete and continuous frequency distribution, cumulative frequency distribution, graphical representation, Measures of central tendency: Mean, Median, Mode. | 25% |

**Basic Text & Reference Books:-**

- S.Lipschutz and Marc Lars Lipson : Discrete Mathematics, Schaum's series (Interational edition,1992).
- Vinay Kumar: Discrete Mathematics (BPB Publication, First edition-2002)
- S. C. Gupta, Fundamentals of Statistics, Himalaya Publishing House, 2004.