

MMA- C212

TOPOLOGY

MM : 100
Time : 3 hrs
L T P
5 2 0

Sessional : 30
ESE : 70
Pass Marks : 40

NOTE: The question paper shall consist of two sections (Sec.-A and Sec.-B). Sec.-A shall contain 10 short answer type questions of six marks each and student shall be required to attempt any five questions. Sec.-B shall contain 8 descriptive type questions of ten marks each and student shall be required to attempt any four questions. Questions shall be uniformly distributed from the entire syllabus. The previous year paper/model paper can be used as a guideline and the following syllabus should be strictly followed while setting the question paper.

Metric space and examples, Neighbourhood point, Open sets, Limit point, Derive set, Closed sets, Boundary of Set, Diameter of set, Convergence, Cauchy sequence, Completeness, Continuity of function in metric space, Some basic properties of continuity, Cantor intersection theorem.

Topological space and examples, Some elementary concept, Neighbourhood point, Basis and Sub-basis for a topology, Elementary concept of basis, Subspace topology and some basic concept , Definitions of Weak topology, Strong topology and Product topology.

Interior and exterior points of topological space, Limit and isolated points, Interior and closure of sets, Elementary concept of Interior and closure of sets, Boundary of set, Dense and it's elementary, Perfect set and examples.

Continuity of function in topological space, Continuity theorems for open and closed sets, Homeomorphism and its examples, Connected space and examples, Elementary of connectedness, Connected spaces of the real lines, Definition of path, Components and locally connected space, Totally disconnected space.

Compact space and examples, Elementary of compactness, Compact spaces of the real lines Limit point compactness, Sequentially compact space, Local compactness, Continuity and compactness, Tychonoff theorem.

First and second countable space, T_1 -Space, Hausdorff spaces, Regular spaces, Normal spaces, Completely normal space, Completely regular space,, Uryshon Lemma.

Text /Reference Books

- 1.C.A.R. Franzosa, Introduction to Topology, Narosa Pub.
2. G.F.Simmons, Introduction to Topology, Mc-Graw Hill
3. J.Munkers, Topology, Prentice Hall of India
- 4.Marwin J.Greenberg and J.R. Harper, Algebraic Topology, Westview Pr. (for Unit-V)
5. Schaum's outline series, General Topology, McGraw-Hill Pub.
6. Colin Adams, Introduction to Topology Pure & Applied [Pearson]