Advanced Topic in Topology and Modern Analysis--- I

Course No. MM-CP-307   *Maximum Marks: 100*
Duration of Examination: 3 hrs   *(a) External Exam: 80*
                                                 (b) Internal Exam: 20

Unit I

Uniform spaces. Definition and examples, uniform topology, and metrizability complete regularity of uniform spaces, pre-compactness and compactness in uniform spaces, uniform continuity.

Unit II

Uniform continuity, uniform continuous maps on compact spaces Cauchy convergence and completeness in uniform spaces, initial uniformity, simple applications to function spaces, Arzela- Ascoli theorem**.**

Unit III

Abstract Harmonic Analysis, Definition of a topological group and its basic properties. Subgroups and quotient groups. Product groups and projective limits. Properties of topological groups involving connectedness. Invariant metrices and separation Axioms.Structure theory for compact and locally compact Abelian groups.

Unit IV

Some special theory for compact and locally compact Abelian groups. The Haar integral. Haar measures invariant means defined for all bounded functions.Convolutions of functions and measures. Elements of representation theoy. Unitary representation of locally compact groups.

Test Books

1. K.d. Joshi Introduction to General Topology.
 2. G. Murdeshwar, Central Topology
 3   I.M. James Uniform Spaces.
 4   E. Hewitt & K.A Ross, Abstract harmonic Analysis-I
 5   G.B folland, Real Analysis
 6   J.M. Munkres, Topology (afirst course/ Second Course)
 7   F.H. Croom, Basic concept of Algebraic Topology.
 8   G.F. Simmons Introduction to
 9   Topology and Modern Algebra.
 10 J.B. Conway, A course in Functional Analysis (GTM_96, Springer Verlag**).**