W.e.f. 1996-97 AB

SX-IC 6

Paper IV - Topology

UNIT 1: Finite sets - countable and uncountable sets - infinite sets and the axiom of choice - well ordered sets - the maximum principle (Sec. 1.6, 1.7, 1.9, 1.10 1.11 of Ch.I of the Prescribed Text).

UNIT 2: Topological spaces - basis for a topology - the order topology - the product topology on XXY - the subspace topology - closed sets and limit points - continuous functions - the product topology - the metric topology (Secs. 2.1 to 2.10 of Ch.2 of prescribed text).

UNIT 3: Connected spaces-connected sets in the real line - components and path components - local connectedness - compact spaces-compact sets in the real line - limit point compactness-local compactness - The countability axioms - the separation axioms - the Urysohn lemma - The Urysohn metrization theorem. (Secs. 3.1 to 3.8 and 4.1 to 4.4 of Ch. 3 and 4 of Prescribed text)

UNIT 4: The Tychonoff theorem - completely regular spaces - The Stone-Cech compactification - complete metric spaces - compactness in metric spaces - pointwise and compact convergance - The compact - Open topology - Ascoli's theorem - Balre spaces (Secs. 7.1 and 7.3 to 7.7 of Chapter 7 of Prescribed Text).

Text Book: Topology : A First Course, by James R.Munkres, Prentice Hall of India Pvt. Ltd., New Delhi, 1992.