

FMCE207	Math-II	3-0-0	3
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Module I : (12 Hours)

Bounded and unbounded sets, Infimum and Supremum of a set and their properties, Order completeness property of \mathbb{R} , Archimedian property of \mathbb{R} , Density of rational and irrational numbers in \mathbb{R} .

Neighbourhood, Open set, Interior of a set, Limit point of a set, Closed set, Countable and uncountable sets, Derived set, closure of a set, Bolzano- Weierstrass theorem for sets.

Sequence of real numbers, Bounded sequence, limit points of a sequence, limit inferior and limit superior convergent and non-convergent sequences, Cauchy's sequence, Cauchy's general principle of convergence

Module II : (12 Hours)

.Infinite series and its convergence, Test for convergence of positive term series, Comparison test, Ratio test, Cauchy's root test.

Preliminary Notations, Group Theory : Algebraic structures, Groups, Some Examples of Groups, Subgroups, A Counting Principle, Cosets, Normal Subgroups and Quotient Groups,

Module III: (12 Hours)

Group Homomorphisms, Isomorphisms, Automorphisms, Permutation Groups.

Ring Theory : Definition & Example of Rings, Some Special Classes of Rings.

TEXT BOOKS:

1.G. Das & S. Pattnaik : Fundamentals of Mathematical Analysis, TMH

2.Topics In Algebra, by I. N. Herstein, Wiley Eastern.

Ch. 1, Ch. 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.10, Ch. 3.1, 3.2, 3.3, 3.4