W-3312(A)

M.A/M.Sc. (Fourth Semester) Examination, (Second Chance) June-2020

MATHEMATICS

Paper - 402

Advanced Functional Analysis

Time : Three Hours
Maximum Marks : 85 (For Regular Students)
Minimum Pass Marks : 29
Maximum Marks : 100 (For Private Students)
Minimum Pass Marks : 34

Note : Attempt **all** questions.

Unit-I

Q.1. Discuss application of Banach contraction principle.

Unit-II

Q.2. i) Define a balanced set and show that closure of a balanced set is balanced.

ii) Prove that every neighbourhood of "O" is absorbing.

Unit-III

Q.3. Let X be a topological vector space prove that X is hormable if and only if X is hausdorff and X contains a bounded convex, open neighbourhood of "O".

Unit-IV

Q.4. State and prove Banach Alaoglu theorem.

Unit-V

Q.5. State and prove the krein-milman theorem.