Roll No. .....

Y – 3181

M.Sc. (Mathematics) Fourth Semester EXAMINATION,

May/June-2021

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

1. Let T be a contraction mapping defined on a complete metric space X, then prove that T has a unique fixed point. 17/20

Unit-II

2. If M is a closed linear subspace of a Banach space X then prove that X/M is a Banach space under the quotient form. 17/20

Unit-III

3. Explain normable and meterizable topological vector spaces. 17/20

Unit-IV

4. State and prove open mapping theorem for Frechet space. 17/20

Unit-V

5. State and prove Krein Milman's theorem. 17/20