

I Sessional Examination 2021

M. Sc I Sem (Mathematics)

Paper I

(Advanced Abstract Algebra)

Maximum Marks - 20

Note: Solve all questions. All questions carry equal marks.

- Q1. State and prove Jordan-Hölder theorem for composition series of a finite group.
- Q2. Show that every nilpotent group is solvable.
- Q3. Prove that, every subgroup and every homomorphic image of nilpotent group is nilpotent.
- Q4. Define solvable group and prove that a group G is solvable if and only if $G^{(k)} = (e)$