B.Sc. DEGREE EXAMINATION,ODD SEMESTER 2020
III Year V Semester
Modern Algebra

Max.marks :25

Answer any **FIVE** questions $(5 \times 5 = 25)$ Marks

1. Prove that the subgroup N of G is a normal subgroup of G if and only if every left coset of N in G is a right coset of N in G.
2. Prove that intersection of two subgroups is a subgroup.
3. Prove that a finite integral domain is a field.
4. Let R be a commutative ring with unit element whose only ideals are (0) and R itself. Then prove that R is a field.
5. State and prove Unique Factorization theorem.
6. State and prove the division algorithm.
7. Define kernel of a homomorphism of groups and show that it is a subgroup.