

# Modern Algebra I

1. State the structure theorem on finitely generated abelian groups.
2. Classify all the finite groups of order 6. Justify your answer.
3. Let  $G$  be a group and  $H$  be a subgroup. State the definition of a normal subgroup and provide one explicit example of a group  $G$  and its subgroup which is not normal in  $G$ .