

**Subject: Advanced Mathematical Physics II**

**(Date: 17/03/20)**

## Part 2: Group Theory

*Instructor: Ajay Mishra*

*Course: BSc. Physics (Hons) 6 sem*

### Topics Covered:

- Groups basics (Axioms need to be satisfied like Closure , inverse, identity and associativity).
- Types of Group
  - Finite and Infinite group
  - Permutation Group ( $P_n$ )
  - Symmetric group
  - Cyclic Group
  - Dihedral Group ( $D_n$ )
  - Quaternion Group
- Basic theorem of group theory
  - Cayley theorem
  - Lagrange theorem
- Basic properties of group theory
  - Subgroup
  - Cosets (Left Cosets and right cosets)
  - Normal subgroup
  - Class of group

### Suggested References for the above topics

1. Group Theory and Its Application to Physical Problems : Morton Hamermesh
2. Group theory for Physicist : A.W Joshi

**A tutorial (#4) is attached and everyone are requested to kindly submit the assignment by solving the assignment and making a pdf document on the AMP-2 whatsapp group made for the discussion of all the above mentioned topics.**

**For quick revision short notes on *Calculus of Variation* (Part I of the course) is attached as well. Kindly go through the notes.**