**Curriculum Plan: B. Sc. (Hons.) Mathematics II (Semester III) Paper: Group Theory I**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Ms. Neelam BarejaDepartment of MathematicsKalindi College, University of Delhi, Delhi- 110008Mobile: +91-9899377666E- mail: Bareja.neelam@redifmail.com |  | Marks Distribution  | Theory  |  75 Marks   |
| **Internal Assessment** | Assignments 10 Marks |
| Home Examination 10 Marks |
| Attendance 5 Marks |
| **Classes Assigned** |  |  |
| Reference  | **[1]** | **Joseph A. Gallian, *Contemporary Abstract Algebra* (4th Edition), Narosa Publishing House, New Delhi, 1999.(IX Edition 2010)** |
|  | **Week** | Topics |
|  | *1st week Aug, 16th – 22nd, 2021* | Symmetries of a square  |  |
| *2th week Aug, 23th – 29th, 2021* | Dihedral groups, definition and examples of groups including permutation groups |
| *3rd week Aug, 30st - Sep 5th, 2021* | quaternion groups (illustration through matrices) |  |
| *4th week Sep, 6th – 12th, 2021* | elementary properties of groups |  |
| 5th week *Sep, 13th – 19th, 2021* | Subgroups and examples of subgroups |  |
| 6th week *Sep, 20th – 26th, 2021* | Centralizer, normalizer, center of a group, product of two subgroups. |  |
| 7th week Sep, 27st – Oct 3rd, 2021 | Properties of cyclic groups, classification of subgroups of cyclic groups |  |
| 8th week Oct, 4th - Oct 10th, 2021 | Cycle notation for permutations, properties of permutations, even and odd permutations, alternating group |  |
| 9th week Oct, 11th - 17th, 2021 | properties of cosets, Lagrange’s theorem and consequences including Fermat’s Little theorem |  |
| 10th week Oct, 18th - 24th, 2021 | External direct product of a finite number of groups |  |
| 11th week Oct, 25th – 31st, 2021 | Normal subgroups, factor groups, Cauchy’s theorem for finite abelian groups. |  |
| 12th week Nov, 1st – 7th, 2021 | Group homomorphism, properties of homomorphism,  |  |
| 13th week Nov, 8th - 14th, 2021 | Cayley’s theorem, properties of isomorphism. |  |
| 14th week Nov, 15th – 21st, 2021 | First, Second and Third isomorphism theorems. |  |
| 15th week Nov, 22th – 28th, 2021 | Revision  |  |