**Curriculum Plan (ODD SEM 2024): B.Sc. (H) Mathematics I Year (Semester I)**

**DSC-1: ELEMENTS OF DISCRETE MATHEMATICS**

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| **Dr. Tajender Kumar**Assistant ProfessorDepartment of MathematicsKalindi College (University of Delhi)Delhi- 110008Mobile: +91 7417837644**E- mail**: tajenderkumar@kalindi.du.ac.in  |  | **Marks Distribution**  | **Theory** |  90 Marks |
| **Tutorial** |  40 Marks  |
| **Internal Assessment** | Assignment 30 Marks |
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| **Classes Assigned** | **Lectures** | 3 per week (Theory) |
| **Tutorial** | 1 per week  |
| **References** |  | 1. Rudolf Lidl, & Gunter Pilz (2004). Applied Abstract Algebra (2nd ed.). Undergraduatetext in Mathematics, Springer (SIE), Indian Reprint.2. Bernard Kolman, Robert C. Busby, & Sharon Cutler Ross (2009). Discrete MathematicalStructures (6th ed.). Pearson education Inc., Indian reprint. |
|  | **Week** | **Topics** |  |
|  | **Beginning/1st week with 3 days** **(**29-31 AUG, 02-07 SEP) | Sets, Propositions and logical operations. |  |
|  | **2nd week** **(**09-14 SEP) | Sets, Propositions and logical operations.[2] Chapter 1 (Section 1.1), and Chapter 2 (Section 2.1). |  |
|  | **3rd week** **(**16-21 SEP) | Conditional statements, Mathematical induction. |  |
|  | **4th week** **(**23-28 SEP) | Conditional statements, Mathematical induction.[2] Chapter 2 (Sections 2.2, and 2.4). |  |
|  | **5th week** **(**30 SEP-05 OCT) | Relations and equivalence relation, Equivalence classes, |  |
|  | **6th week****(**07-12 OCT) | Partial order relation, Partially ordered set.[1] Chapter 1 (Section 1.1, up to the Definition of POSET).[2] Chapter 4 (Sections 4.2 (up to Example 16), 4.4, and 4.5). |  |
|  | **7th week** **(**14- 19 OCT) | Hasse diagrams, Chain, Maximal and minimal elements, Least and greatestelements, |  |
|  | **8th week** **(**21-26 OCT) | Functions between POSETS, Order isomorphism, |  |
|  | **9th week** **(**04-09 NOV) | Lattice as a POSET, Lattice as an algebra and their equivalence.[1] Chapter 1 (Sections 1.5 to 1.10, and 1.12 to 1.14).[2] Chapter 6 (Section 6.1). |  |
|  | **10th week** (11-16 NOV) | Bounded lattice, Sublattice, Interval in a lattice.[1] Chapter 1 (Sections 1.11, 1.15, and 1.16). |  |
|  | **11th week** **(**18-23 NOV) | Products and homomorphism of lattices, Isomorphism of lattices.[1] Chapter 1 (Sections 1.17 to 1.20).  |  |
|  | **12th week** **(**25-30 NOV) | Distributive lattices, Complemented lattice, |  |
|  | **13th week** **(**02-07 DEC) | Partition and pentagonal lattice.[1] Chapter 1 (Sections 2.1 to 2.10). |  |
|  | **14th week** **(**09-14 DEC) | Boolean algebra, De Morgan’s laws, Boolean expressions, Truth tables,Logic diagrams. [1] Chapter 1 (Sections 3.1 to 3.6); [2] Chapter 6 (Section 6.5). |  |
|  | **15th week** (16-21 DEC) | Revision |  |
|  | **16th week only with 1 Days** (23 DEC) | Revision |  |
| Dispersal of classes, preparation leave and practical examination begin- 24 December, 2024. |