**Curriculum Plan (ODD SEM 2025): 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** **(**01-02,04-09AUG) | Sets, Propositions and logical operations.[2] Chapter 1 (Section 1.1), and Chapter 2 (Section 2.1). |  |
|  | **2nd week (**11-16 AUG) | Conditional statements, Mathematical induction.[2] Chapter 2 (Sections 2.2, and 2.4). |  |
|  | **3rd week (**18-23 AUG) | Relations and equivalence relation, Equivalence classes, 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). |  |
|  | **4th week (**25-30 AUG) | Hasse diagrams, Chain, Maximal and minimal elements, Least and greatestelements, Least upper bound, greatest lower bound in POSETS, Zorn’s lemma, Functionsand bijective functions.[1] Chapter 1 (Sections 1.1 to 1.4).[2] Chapter 5 (Section 5.1). |  |
|  | **5th week (**01-06 SEP) | Hasse diagrams, Chain, Maximal and minimal elements, Least and greatestelements, Least upper bound, greatest lower bound in POSETS, Zorn’s lemma, Functionsand bijective functions.[1] Chapter 1 (Sections 1.1 to 1.4).[2] Chapter 5 (Section 5.1). |  |
|  | **6th week (**08-13 SEP) | Functions between POSETS, Order isomorphism, 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). |  |
|  | **7th week (**15-20 SEP) | Functions between POSETS, Order isomorphism, 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). |  |
|  | **8th week (**22-27 SEP) | Bounded lattice, Sublattice, Interval in a lattice.[1] Chapter 1 (Sections 1.11, 1.15, and 1.16). |  |
|  | **9th week (**29 SEP-04 OCT) | Products and homomorphism of lattices, Isomorphism of lattices.[1] Chapter 1 (Sections 1.17 to 1.20). |  |
|  | **10th week**. (06-11 0CT) | Distributive lattices, Complemented lattice, Partition and pentagonal lattice.[1] Chapter 1 (Sections 2.1 to 2.10). |  |
|  | **11th week (**13-18 0CT) | 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). |  |
|  | **12th week (**20-25 OCT) | 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). |  |
|  | **13th week (**27-01 NOV) | Boolean functions, Disjunctive normal forms (as join of meets), Minimal formsof Boolean polynomials.[1] Chapter 1 (Sections 4.13, and 4.15 to 4.17). |  |
|  | **14th week (**03-08 NOV) | Quine Mc-Cluskey method, Karnaugh maps.[1] Chapter 1 (Sections 6.1 to 6.5); [2] Chapter 6 (Section 6.6). |  |
|  | **15th week** (10-15 NOV) | Switching circuits, Applications of switching circuits.[1] Chapter 2 (Sections 7, and 8). |  |
|  | **16th week with additional 3 Days** (17-22, 24-26 NOV) | Revision |  |
| Dispersal of classes, preparation leave and practical examination begin- 27 November, 2025. |