Weekly planner Discrete Structures

Text Book

Kenneth H. Rosen, Discrete Mathematics and Its Applications, seventh Edition., McGraw-Hill.

|  |  |  |
| --- | --- | --- |
| Week # | Lecture | Topics with suggested practice questions |
| 1 | 1 | 1.1 Propositional Logic (Q1 - 15 , Q24 - 28 (any 2), Q16 – 18, Q30, Q32 - 37 (any 2), Q40 or 41,Q42) |
| 2 | 1.2 Applications of Propositional Logic (Q 1-10)  1.3 Propositional Equivalences : Logical Equivalences, |
| 2 | 3 | 1.3 Propositional Equivalences : Using De Morgan’s Laws Constructing New Logical Equivalences, Propositional Satisfiability  (Q11,12,Q17-33,Q34,35,Q58-62(ANY OF TWO OR THREE PARTS)) |
| 4 | 1.4 Predicates and Quantifiers: Predicates, Quantifiers, Quantifiers with Restricted Domains, |
| 3 | 5 | 1.4 Logical Equivalences Involving Quantifiers, Negating Quantified Expressions, Translating from English into Logical Expressions, Using Quantifiers in System Specifications  Q1-10(ANY TWO),Q11-20(ANY TWO),Q21-29(ANY TWO),Q30-34(ANY TWO),Q35-42,Q43-50(ANY TWO) |
| 6 | 1.5 Nested Quantifiers, Translating Mathematical Statements into Statements  Involving Nested Quantifiers, Translating from Nested Quantifiers into English |
| 4 | 7 | 1.5 Translating English Sentences into Logical Expressions, Negating Nested Quantifiers  Q. 6-8, 11, 16-18, 24-32 (any 2 questions),33-38 (any 2 questions ),39 0r 40,41-47 ( any two questions ) |
| 8 | 1.6 Rules of Inference, Valid Arguments in Propositional Logic, Rules of Inference for Propositional Logic, Using Rules of Inference to Build Arguments |
| 5 | 9 | 1.6 Fallacies, Rules of Inference for Quantified Statements, Combining Rules of Inference for Propositions and Quantified Statements. (1-10, 12, 14, 16, 17, 19, 21, 24, 28, 33,) |
| 10 | 2.1, 2.2 and 2.3 |
| 6 | 11 | 2.5 Cardinality of sets. countable sets |
| 12 | uncountable sets (Question 1,3,6,9,10,12,16, 19,22, 34, 35)  9.1 Relations and Their Properties (all even numbered questions ) |
| 7 | 13 | 9.3 Representing Relations 1-22  9.4 definitions of reflexive and transitive closure (question 1-4) |
| 14 | 9.5 equivalence relation (question 1-20, 25,31,32, 41, 42)  1.7 Proof Techniques (questions 1-15(any 5 questions), 18,20,22, 24,26,29,33, 37) |
| 8 | 15 | 1.8 (questions 1-10)  5.1 Mathematical Induction |
| 16 | 5.1 Mathematical Induction (Questions 1,2 any one out of all the below group 3,4 5,6,7,8 9,10,11 12 13-17 any 2 18,19 any 1 20,21 22,23 31-34 35-37 38,39)  5.2 Strong Induction |
| 9 | 17 | 5.2 Strong Induction (questions 1-15 25,26)  4.1 Divisibility |
| 18 | 4.1 Modular Arithmetic (questions 7,8,9, 13, 16, 19, 20 , 23, 25, 28, 30, 34, 46, 47)  4.3 Primes and Greatest Common Divisors, The Euclidean Algorithm, |
| 10 | 19 | 4.3 gcds as Linear Combinations, BÉZOUT’S THEOREM ( questions 1,4, 6,14,17, 20, 24, 27, 30, 33, 35, 40)  4.4 Solving Congruences , The Chinese Remainder Theorem, |
| 20 | 4.4 Fermat’s Little Theorem( Questions 1,5, 10, 12, 20, 24, 31,34,39)  6.1 The Basics of Counting 1-40(all even numbered questions ), 44, 47, 49, 53, 59  6.2 The Pigeonhole Principle (1-20 (odd questions ) , 23, 24, 35, 44 ) |