**VASAVI COLLEGE OF ENGINEERING(Autonomous) IBRAHIMBAGH, HYDERABAD-500031**

**B.E., III - Semester (2022-23) ASSIGNMENT- 3**

**Subject: DISCRETE STRUCTURES BRANCH: CSE-A**

**Last date of Submission: 25.01.2023 Date: 30.01.2023**

1. **Find the number of derangements of a set with 4 elements**

2. **The subset relation applied to A = P(U), power set of U, where U = { 1,2,3} is a**

1. **Partial order b) Partial and total order**

**c) Total order d) None**

3. **Find the particular solution of the Recurrence Relation**

**an = 8an-2 -16an-4 + (n2 – 2)(-2)n**

4. **The coefficient of x10 in (x3 + x4 +… )**

5. **If (G, \*) is a Group then find the improper subgroups**

6. **Which of the following statements is true? (MULTIPLE ANSWERS POSSIBLE)**

**a) Every Integral Domain is a Field**

**b) Every finite Integral Domain is a Field**

**c) Every Field is an Integral Domain**

**d) Every Field is an Integral Domain**

7. **Find** **The solution of the Recurrence relation 2an = 7an-1 - 3an-2**

8. **The inverse element of the element (a, b) of the Group G,**

**where G = { (a, b)/ a, b R, a ≠0} where \* is the binary operation on G defined by**

**(a, b) \* ( c, d) = (ac, bc +d) is**

**9. The inverse of each element in order of the group G = { 0, 1, 2, 3, 4} under addition modulo 5 as composition is**

**10. Find the Particular Solution of the Recurrence**

**relation an - 3an-1 = 5 (7)n**

**11. For the Ring (Q, \*, o) where a \* b = a+b+7 and a o b = a + b+ (ab)/7, a, b Q . What are the unit element and Multiplicative inverse?**

Details of Batches and corresponding question numbers to be answered.

**CSE-A**

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| **Batch No.** | **Roll numbers(Each Batch contains 12 students)** | **Question numbers** |
| 1 | 1602-21—733-001-010, 301 | 1,3,5,10 |
| 2 | 1602-21—733-011-020,302 | 2,4,6,8 |
| 3 | 1602-21—733-021-030,303 | 3,5,7,11 |
| 4 | 1602-21—733-031-040,304 | 2,4,6,8 |
| 5 | 1602-21—733-041-050,305 | 1,3,5,7 |
| 6 | 1602-21—733-051-061,306 & 307 | 5,7,9,12 |