**United College of Engineering and Research, Allahabad**

**Department of Computer Science & Engineering**

**B.Tech CSE- IV Semester**

**Quiz-1**

**Course Name:** Discrete Structure and Theory of Logic **AKTU Course Code:**KCS-303

**Time: 20 Minutes Max. Marks: 10**

* **All Questions are compulsory.**
* **All Questions carry one mark.**

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| **Q. No.** | **Questions** | **CO** |
| **1** | Power set of empty set has exactly \_\_\_\_\_\_\_\_\_ subset. (A) One (B) Two (C) Zero (D) Three | **CO1** |
| **2** | What is the Cardinality of the Power set of the set {0, 1, 2}? a) 8 b) 6 c) 7 d) 9 | **CO1** |
| **3** | Two sets are called disjoint if there \_\_\_\_\_\_\_\_\_\_\_\_\_ is the empty set. a) Union b) Difference c) Intersection d) Complement | **CO1** |
| **4** | The binary relation {(1,1), (2,1), (2,2), (2,3), (2,4), (3,1), (3,2)} on the set {1, 2, 3} is \_\_\_\_\_\_\_\_\_\_ a) reflective, symmetric and transitive b) irreflexive, symmetric and transitive c) neither reflective, nor irreflexive but transitive d) irreflexive and antisymmetric | **CO1** |
| **5** | Let S be a set of n>0 elements. Let be the number Br of binary relations on S and let Bf be the number of functions from S to S. The expression for Br and Bf, in terms of n should be \_\_\_\_\_\_\_\_\_\_\_\_ a) n2 and 2(n+1)2 b) n3 and n(n+1) c) n and n(n+6) d) 2(n\*n) and nn | **CO1** |
| **6** | Consider the binary relation, A = {(a,b) | b = a – 1 and a, b belong to {1, 2, 3}}. The reflexive transitive closure of A is? a) {(a,b) | a >= b and a, b belong to {1, 2, 3}} b) {(a,b) | a > b and a, b belong to {1, 2, 3}} c) {(a,b) | a <= b and a, b belong to {1, 2, 3}} d) {(a,b) | a = b and a, b belong to {1, 2, 3}} | **CO1** |
| **7** | Let A and B be two non-empty relations on a set S. Which of the following statements is false? a) A and B are transitive ⇒ A∩B is transitive b) A and B are symmetric ⇒ A∪B is symmetric c) A and B are transitive ⇒ A∪B is not transitive d) A and B are reflexive ⇒ A∩B is reflexive | **CO1** |
| **8** | The inverse of function f(x) = x3 + 2 is \_\_\_\_\_\_\_\_\_\_\_\_ a) f-1(y) = (y – 2)1/2 b) f-1(y) = (y – 2)1/3 c) f-1(y) = (y)1/3 d) f-1(y) = (y – 2)L | **CO1** |
| **9** | The function f(x) = x3 is bijection from R to R. Is it True or False? a) True b) False | **CO1** |
| **10** | Let f and g be the function from the set of integers to itself, defined by f(x) = 2x + 1 and g(x) = 3x + 4. Then the composition of f and g is \_\_\_\_\_\_\_\_\_\_\_\_ a) 6x + 9 b) 6x + 7 c) 6x + 6 d) 6x + 8 | **CO1** |

Answer

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| 1-A | 2-A | 3-C | 4-C | 5-D | 6-A | 7- C | 8-B | 9-A | 10-A |