DM Quiz Unit 2

***** Required

* This form will record your name, please fill your name.

1. Roll No. *

2. Name *

3. Class *

- ◯ SE First shift
- ◯ SE Second Shift

4. A function is said to be _____ if and only if f(a) = f(b) implies that a = b for all a and b in the domain of f. *
(1 Point)

- ◯ One-to-many
- ◯ One-to-one
- ◯ Many-to-many
- ◯ Many-to-one

5. The binary relation {(1,1), (2,1), (2,2), (2,3), (2,4), (3,1), (3,2)} on the set {1, 2, 3} is _____ *
(1 Point)

- ◯ reflective, symmetric and transitive
- ◯ irreflexive, symmetric and transitive
- ◯ neither reflective, nor irreflexive but transitive
- ◯ irreflexive and antisymmetric

6. Consider the relation: R' (x, y) if and only if x, y>0 over the set of non-zero rational numbers,then R' is _____ *
(1 Point)

- ◯ not equivalence relation
- ◯ an equivalence relation
- ◯ transitive and asymmetry relation
- ◯ reflexive and antisymmetric relation
- ◯ Option 2

7. 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? *
(1 Point)

- ◯ {(a,b) | a >= b and a, b belong to {1, 2, 3}}
- ◯ {(a,b) | a > b and a, b belong to {1, 2, 3}}
- ◯ {(a,b) | a <= b and a, b belong to {1, 2, 3}}
- ◯ {(a,b) | a = b and a, b belong to {1, 2, 3}}

8. Let A and B be two non-empty relations on a set S. Which of the following statements is false? *
(1 Point)

- ◯ A and B are transitive ⇒ A∩B is transitive
- ◯ A and B are symmetric ⇒ A∪B is symmetric
- ◯ A and B are transitive ⇒ A∪B is not transitive
- ◯ A and B are reflexive ⇒ A∩B is reflexive

9. Determine the characteristics of the relation aRb if a2 = b2. *
(2 Points)

- ◯ ransitive and symmetric
- ◯ Reflexive and asymmetry
- ◯ Trichotomy, antisymmetry, and irreflexive
- ◯ Symmetric, Reflexive, and transitive
- ◯ Option 2

10. The transitive closure of the relation {(0,1), (1,2), (2,2), (3,4), (5,3), (5,4)} on the set {1, 2, 3, 4, 5} is *
(2 Points)

- ◯ {(0,1), (1,2), (2,2), (3,4)}
- ◯ {(0,0), (1,1), (2,2), (3,3), (4,4), (5,5)}
- ◯ {(0,1), (1,1), (2,2), (5,3), (5,4)}
- ◯ {(0,1), (0,2), (1,2), (2,2), (3,4), (5,3), (5,4)}

11. Amongst the properties {reflexivity, symmetry, antisymmetry, transitivity} the relation R= {(a,b) ∈ N2 | a!= b} satisfies _____ property. *
(2 Points)

- ◯ symmetry
- ◯ transitivity
- ◯ antisymmetry
- ◯ reflexivity

12. Let a set S = {2, 4, 8, 16, 32} and <= be the partial order defined by S <= R if a divides b. Number of edges in the Hasse diagram of is _____ *
(2 Points)

- ◯ 6
- ◯ 5
- ◯ 9
- ◯ 4

13. Suppose a relation R = {(3, 3), (5, 5), (5, 3), (5, 5), (6, 6)} on S = {3, 5, 6}. Here R is known as _____ *
(2 Points)

- ◯ equivalence relation
- ◯ reflexive relation
- ◯ symmetric relation
- ◯ transitive relation

14. A directed graph or digraph can have directed cycle in which _____ *
(1 Point)

- ◯ starting node and ending node are different
- ◯ starting node and ending node are same
- ◯ minimum four vertices can be there
- ◯ ending node does not exist

15. An undirected graph has 8 vertices labelled 1, 2, …,8 and 31 edges. Vertices 1, 3, 5, 7 have degree 8 and vertices 2, 4, 6, 8 have degree 7. What is the degree of vertex 8? *
(1 Point)

- ◯ 15
- ◯ 8
- ◯ 5
- ◯ 23

16. What is the maximum number of edges in a bipartite graph on 14 vertices? * (2 Points)

- ◯ 78
- ◯ 15
- ◯ 214
- ◯ 49

17. Which of the following relation is a partial order as well as an equivalence relation? * (1 Point)

- ◯ equal to(=)
- ◯ less than(<)
- ◯ greater than(>)
- ◯ not equal to(!=)