RELATION DPP-1

1. A relation from P to Q is
   (a) A universal set of $P \times Q$ (b) $P \times Q$
   (c) An equivalent set of $P \times Q$ (d) A subset of $P \times Q$

2. Let A = {a, b, c} and B = {1, 2}. Consider a relation R defined from set A to set B. Then R is equal to set
   (a) A   (b) B   (c) $A \times B$ (d) $B \times A$

3. Let n(A) = n. Then the number of all relations on A is
   (a) 2^n (b) $2^{(n)!}$ (c) 2^{n^2} (d) None of these

4. The relation R defined on the set A = {1, 2, 3, 4, 5} by
   R = {(x, y) : $|x^2 - y^2| < 16$} is given by
   (a) {(1, 1), (2, 1), (3, 1), (4, 1), (2, 3)}
   (b) {(2, 2), (3, 2), (4, 2), (2, 4)}
   (c) {(3, 3), (3, 4), (5, 4), (4, 3), (3, 1)}
   (d) None of these

5. A relation R is defined from {2, 3, 4, 5} to {3, 6, 7, 10} by $xRy \Leftrightarrow x$ is relatively prime to y. Then domain of R is
   (a) {2, 3, 5}   (b) {3, 5}
   (c) {2, 3, 4}   (d) {2, 3, 4, 5}

6. Let R be a relation on N defined by $x + 2y = 8$. The domain of R is
   (a) {2, 4, 8}   (b) {2, 4, 6, 8}
   (c) {2, 4, 6}   (d) {1, 2, 3, 4}

7. If $R = \{(x,y)|\ x, y \in Z, x^2 + y^2 \le 4\}$ is a relation in Z, then domain of R is
   (a) {0, 1, 2}   (b) {0, - 1, - 2}
   (c) {- 2, - 1, 0, 1, 2}   (d) None of these

8. If A is the set of even natural numbers less than 8 and B is the set of prime numbers less than 7, then the number of relations from A to B is
   (a) 2^9 (b) 9^2 (c) 3^2 (d) 2^{9-1}

9. Given two finite sets A and B such that n(a) = 2, n(b) = 3. Then total number of relations from A to B is
   (a) 4   (b) 8   (c) 64   (d) None of these

10. The relation R defined on the set of natural numbers as {(a, b) : a differs from b by 3}, is given by
    (a) {(1, 4, (2, 5), (3, 6),.....}   (b) {(4, 1), (5, 2), (6, 3),.....}
    (c) {(1, 3), (2, 6), (3, 9),..}   (d) None of these

11. Let A = {1, 2, 3}, B = {1, 3, 5}. A relation $R : A \to B$ is defined by R = {(1, 3), (1, 5), (2, 1)}. Then R^{-1} is defined by
    (a) {(1,2), (3,1), (1,3), (1,5)}   (b) {(1, 2), (3, 1), (2, 1)}
    (c) {(1, 2), (5, 1), (3, 1)}   (d) None of these

Answers

1)d 2 c 3 c 4 d 5d 6 c 7 c 8 a9c 10b 11c