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Questions:

Multiple Choice Question

1. If n(A x B) = 6 and A = {1,3} then n(B) is
   (a) 1 (b) 2 (c) 3 (d) 6
2. A = {a, b, p}, B = {2, 3}, C = {p, q, r, s} then n[(A U C) x B] is
   (a) 8 (b) 20 (c) 12 (d) 16
3. If A = {1, 2}, B = {1, 2, 3, 4}, C = {5, 6} and D = {5, 6, 7, 8} then state which of the following statement is true..
   (a) (A x C) ⊂ (B x D) (b) (B x D) ⊂ (A x C) (c) (A x B) ⊂ (A x D) (d) (D x A) ⊂ (B x A)
4. If there are 1024 relations from a set A = {1, 2, 3, 4, 5} to a set B, then the number of elements in B is
   (a) 3 (b) 2 (c) 4 (d) 8
5. The range of the relation R = {(x, x^2) |x is a prime number less than 13} is
   (a) {2,3,5,7} (b) {2,3,5,7,11} (c) {4,9,25,49,121} (d) {1,4,9,25,49,121}
6. If the ordered pairs (a + 2, 4) and (5, 2a + b) are equal then (a, b) is
   (a) (2,-2) (b) (5,1) (c) (2,3) (d) (3,-2)
7. Let n(A) = m and n(B) = n then the total number of non-empty relations that can be defined from A to B is
   (a) m^n (b) n^m (c) 2^{mn}-1 (d) 2^{mn}
8. If {(a, 8),(6, b)}represents an identity function, then the value of a and b are respectively
   (a) (8,6) (b) (8,8) (c) (6,8) (d) (6,6)
9. Let A = {1, 2, 3, 4} and B = {4, 8, 9, 10}. A function f: A ⟶ B given by f = {(1, 4), (2, 8), (3, 9), (4,10)} is a
   (a) Many-one function (b) Identity function (c) One-to-one function (d) Into function
10. If f(x) = $2x^2$ and g(x) = $\frac{1}{3x}$, then f o g is
    (a) $\frac{3}{2x^2}$ (b) $\frac{2}{3x^2}$ (c) $\frac{2}{9x^2}$ (d) $\frac{1}{6x^2}$
11. If f: A ⟶ B is a bijective function and if n(B) = 7, then n(A) is equal to
    (a) 7 (b) 49 (c) 1 (d) 14
12. Let f and g be two functions given by
    f = {(0,1), (2,0), (3,-4), (4,2), (5,7)}
    g = {(0,2), (1,0), (2,4), (-4,2), (7,0)} then the range of f o g is
    (a) {0,2,3,4,5} (b) {−4,1,0,2,7} (c) {1,2,3,4,5} (d) {0,1,2}
13. Let f(x) = $\sqrt{1+x^2}$ then
    (a) f(xy) = f(x).f(y) (b) f(xy) ≥ f(x).f(y) (c) f(xy) ≤ f(x).f(y) (d) None of these
14. If g = {(1,1), (2,3), (3,5), (4,7)} is a function given by g(x) = αx + β then the values of α and β are
    (a) (-1,2) (b) (2,-1) (c) (-1,-2) (d) (1,2)
15. f(x) = $(x + 1)^3 - (x - 1)^3$ represents a function which is
    (a) linear (b) cubic (c) reciprocal (d) quadratic

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