Seven Stars International School Bani

Class - 11th (Com)

Subject - Maths

Time: 1 hour M.M - 30

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Section A (10 × 1 = 10)

MCQ

Q.1 If $A = \{1, 2, 3, 4, 5\}$, then which of the following is not true?

a) $0 \notin A$ (b) $3 \in A$ (c) $\{3\} \in A$ (d) $\{3\} \subset A$

Q.2 Number of proper subset of a set containing 4 elements is

a) 4^2 (b) $4^2 - 1$ (c) 2^4 (d) $2^4 - 1$

Q.3 Two finite sets A and B are such that $A \subset B$, then which of the following is not correct?

a) $A \cup B = B$ (b) $A \cap B = A$ (c) $A - B = \phi$ (d) $B - A = \phi$

Q.4 On real axis if $A = [1, 5]$ and $B = [3, 9]$, then $A - B$ is

a) $(5, 9)$ (b) $(1, 3)$ (c) $[5, 9)$ (d) $[1, 3)$

Q.5 Given $R = \{(x-y) : x, y \in Z, y = x - 3\}$, then which ordered pair belongs to R?

a) $(1, 4)$ (b) $(0, 3)$ (c) $(5, 2)$ (d) $(-4, 1)$

Q.6 If $A = \{a, b\}$ and $B = \{x, y, z\}$, then the number of relations from B to A is

a) 8 (b) 16 (c) 32 (d) 64

Q.7 Which of the following relations is a function?

(a) $R = \{(4,6), (3,9), (-11,6), (3,11)\}$ (b) $R = \{(1,2), (2,4), (2,6), (3,5)\}$

(c) $R = \{(2,1), (4,3), (6,5), (8,7), (10,9)\}$ (d) $R = \{(0,1), (1,3), (2,4), (3,1), (3,5)\}$

Q.8 The domain of the function f defined by $f(x) = \frac{x^2 + 2x + 1}{x^2 - x - 6}$ is

a) $R - [3, -2]$ (b) $R - \{3, 2\}$ (c) $R - \{3, -2\}$ (d) $R - (-3, 2)$

Q.9 The domain and range of the real function f defined by $f(x) = \frac{x-2}{2-x}$

a) Domain $= R - \{2\}$, Range $\{-1\}$ (b) Domain $R - \{-2\}$, Range $= \{-1\}$

(c) Domain $= R - \{-2\}$, Range $= \{1\}$ (d) Domain $= R - \{2\}$, Range $= \{1\}$

Q.10 Let A and B be two finite sets. Then the number of functions from A to B is

(a) $n(A) \cdot n(B)$ (b) $2^{n(A) \times n(B)}$ (c) $\{n(A)\}^{n(B)}$ (d) $\{n(B)\}^{n(A)}$

Section B (5×8=40)

Q.11. Let $A = \{1,2,3,4,5\}$. Put the correct symbol in each of the following:
(i) $\{3,4\}$ ___ A (ii) $\{3\}$ ___ A (iii) $\{2,4,5\}$ ___ A (iv) ϕ ___ A

Q.12: If $L = \{1,2,3,4\}$, $M = \{3,4,5,6\}$ and $N = \{1,3,5\}$, then verify that $L-(M \cup N) = (L-M) \cap (L-N)$.

Q.13: If $n(A-B) = 10$, $n(B-A) = 8$ and $n(A \cap B) = 2$. find
i) $n(A \cup B)$ (ii) $n(A)$

Q.14 If the ordered pair $(x-1, y+3)$ and $(2, x+4)$ are equal, find x and y.

Q.15 Find the domain of the following functions: $f(x) = \frac{x^2+2x+1}{x^2-8x+12}$

Section C (3×2=6)

Q.16 Find the domain and Range of the functions: $f(x) = \frac{1}{\sqrt{9-x^2}}$

Q.17 If A and B are two sets and U is the universal set such that $n(U) = 700$, $n(A) = 290$, $n(B) = 240$ and $n(A \cap B) = 110$, then find $n(A' \cap B')$

Section D (1×4=4)

Q.18 If $A = \{1,2,3\}$, $B = \{1,2,3,4\}$ and $R = \{(x,y) : (x,y) \in A \times B, y = x+1\}$

Then, (i) find $A \times B$
(ii) Write R in roster form
(iii) write domain and Range of R
(iv) Represent R by an arrow diagram.

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