



S.S. Divine School



Pre – Primary , Primary, Secondary & Higher Secondary
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Std: 11th (E.M)

Date: / /2022

Subject: MATHS (050)

Roll No:

Time: 1 hour

Max. Marks:25

Section-A

Answer the following questions very briefly. (Each carries 1 mark)

(1)

If $A = \{1, 2\}$, $B = \{1, 2, 3\}$ and $C = \{2, 3, 5\}$

then find $A \times (B - C)$

(2)

If $A = \{p, \{q, r\}\}$ then $n[P(A)] = \underline{\hspace{2cm}}$

(A) 4 (B) 8 (C) 16 (D) 32

(3)

Write $A = \left\{ \frac{1}{2}, \frac{2}{5}, \frac{3}{10}, \frac{4}{17}, \frac{5}{26} \right\}$ in a set builder form.

(4)

Range of function $f: \mathbb{R} \rightarrow \mathbb{R}, f(x) = [x]$ is _____

(A) $\{-1, 0, 1\}$ (B) \mathbb{Z} (C) \mathbb{R} (D) \mathbb{R}^+

(5)

Write set $\{x \in \mathbb{R} \mid |x-1| \leq 2\}$ in an interval form

Section-B

Answer the following questions (Each carries 2 marks)

(1)

Prove : $A \subset B \Leftrightarrow A - B = \phi$

(2)

Find domain and range of $f(x) = \sqrt{9-x^2}$

(3)

If $n(A) = m$, $n(M) = n$ and no. of subsets of A is more than 56 then the no of subsets of B. Find m and n.

Section-C

Answer the following questions as directed (Each carries 3 marks)

(1)

Let $f = \{(1, 1) (2, 3) (0, -1), (-1, -3)\}$ be a linear function from Z into Z. find $f(x)$.

(2)

Let A and B be sets. If $A \cap X = B \cap X \neq \phi$ and $A \cup X = B \cup X$ for some set X. Show that $A = B$.

(3)

Let $A = \{1, 2, 3, \dots, 14\}$ Define a relation R from A to A by $R = \{(x, y) : 3x - y = 0 \text{ where } xy \in A\}$. where $x, y \in A$ write down its domain codomain and range.

Section -D

Answer the following question as directed. (Each carry 5 marks)

(1)

In a survey of 60 people it was found that 25 people read newspaper H, 26 read newspaper T, 26 read newspaper I, 9 read both H and I, 11 read both H and T, 8 read both T and I, 3 read all three newspaper find.

- (i) The number of people who read at least one of the newspaper.
- (ii) The number of people who read exactly one newspaper.

OR

(1)

In a survey of 100 persons it was found that 28 read magazine A, 30 read magazine B, 42 read magazine C, 8 read A and B, 10 read A and C, 5 read B and C and 3 read all the three magazines Find.

- (i) How many read none of three magazines ?
- (ii) How many read magazine C only ?