



S.S. Divine School



Pre – Primary , Primary, Secondary & Higher Secondary

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Std: 11th (E.M)

Date:27/07/2022

Subject: MATHS (050)

Roll No:

Time: 1 hour

Max. Marks:24

Section-A

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

(1)

$$A \cap A^c = \underline{\hspace{2cm}}$$

- (A) \cup (B) ϕ (C) A (D) A^c

(2)

$$A = \{ x/x < 5 \text{ and } x > 7, x \in \mathbb{Z} \} \text{ is } \underline{\hspace{2cm}}$$

- (A) Infinite set (B) Singleton set (C) Empty set (D) None

(3)

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

(4)

For two sets X and Y $n(X) = 17$, $n(Y) = 23$, and $n(X \cup Y) = 38$ then find $n(X \cap Y)$

(5)

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

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

Section-B

Answer the following questions (Each carries 2 marks)

(1)

If $A = \{a, e, i, o, u\}$ and $B = \{a, i, k, u\}$ then find $A - B$ and $B - A$.

(2)

If $\cup = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$, $A = \{1, 2, 3, 4\}$, $B = \{2, 4, 6, 8\}$
 $C = \{3, 4, 5, 6\}$ then find $(A \cup B)'$ and $(B - C)'$

(3)

If $\cup = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$ $A = \{2, 4, 6, 8\}$ and $B = \{2, 3, 5, 7\}$ verify that
 $(A \cap B)' = A' \cup B'$ and $(A \cup B)' = A' \cap B'$

Section-C

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

(1)

If $A = \{3, 5, 7, 9, 11\}$, $B = \{7, 9, 11, 13, 15\}$, $C = \{11, 13, 15\}$
then find $(A \cap B) \cap C$, $A \cap (B \cup C)$ and $A \cup (B \cap C)$

(2)

Prove that: $A \subset B \Leftrightarrow A \cup B = B \Leftrightarrow A \cap B = A \Leftrightarrow A - B = \phi$

(3)

In a class of 35 students, 17 have taken Mathematics, 10 have taken Mathematics but not Biology. Find the number of students who have taken both subjects and the number of students who have taken Biology but not Mathematics?

Section -D

Answer the following question as directed. (Each carry 4 marks)

(1)

A college awarded 38 medals in football, 15 in Basketball and 20 to Cricket. If these medals went to a total of 58 men and only 2 men got medals in all three sports. How many received medals in exactly two of the three sports?

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?

BEST OF LUCK