

Date: 16-Jul-2026

9th Sets

Marks: 20

Q.1(A) Choose the correct alternative. (3)

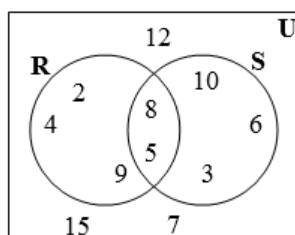
i Which of the following collections is a set ?

- | | |
|--------------------------------|--------------------------------------|
| (A) Colours of the rainbow | (B) Tall trees in the school campus. |
| (C) Rich people in the village | (D) Easy examples in the book |

ii $P = \{1, 2, \dots, 10\}$. What type of set P is ?

- | | |
|----------------|-------------------|
| (A) Null set | (B) Infinite set |
| (C) Finite set | (D) None of these |

iii For the Venn diagram shown below, $(R \cup S)' =$



- | | |
|---------------------|-----------------------------------|
| (A) $\{8, 5\}$ | (B) $\{2, 3, 4, 5, 6, 8, 9, 10\}$ |
| (C) $\{12, 15, 7\}$ | (D) $\{2, 9, 4, 10, 6, 3\}$ |

Q.1(B) Solve the following questions. (3)

i $A = \{x \mid x \text{ is prime number and } 10 < x < 20\}$ and $B = \{11, 13, 17, 19\}$. Here $A = B$. Verify.

ii Is the given set an empty set or not?

$$A = \{x \mid x \in \mathbb{I}, x < 0\}$$

iii Write the following set in set builder form.

$$B = \{5, 10, 15, 20, \dots\}$$

Q.2(A) Complete the following activity. (2)

i Write the following set using listing method and classify into empty or non-empty set.

$$B = \{x \mid x \in \mathbb{N} \text{ and } 2x + 8 = 0\}$$

$$2x + 8 = 0$$

$$\therefore x = \square$$

since, $\square \in \mathbb{N}$

$$\therefore B = \square$$

$\therefore B$ is $\square$ set

Q.2(B) Solve the following questions. (Any three) (6)

i 70 trees were planted by Parth and 90 trees were planted by Pradnya on the occasion of Tree Plantation Week. Out of these 25 trees were planted by both of them together. How many trees were planted by Parth or Pradnya?

ii If $n(A) = 8$, $n(B) = 14$, $n(A \cup B) = 18$, then find $n(A \cap B)$.

iii $U = \{1, 2, 3, 7, 8, 9, 10, 11, 12\}$

$P = \{1, 3, 7, 10\}$, then

i. show the sets U , P and P' by Venn diagram.

ii. Verify $(P')' = P$

iv If $P = \{2, 4, 8, 16\}$, $Q = \{2, 8, 6\}$ then is the statement $Q \subseteq P$ true or false. Justify.

Q.3 Solve the following questions.(Any one) (3)

i For each of the following sets, state with reasons, whether it is a null set or not:

i. $A = \{x | x \in \mathbb{I}, x^2 \text{ is not positive}\}$

ii. $B = \{b | b \in \mathbb{N}, 2b + 1 \text{ is even}\}$

iii. $C = \{c | c \in \mathbb{N}, c \text{ is odd and } c^2 \text{ is even}\}$

ii 240 students in a school were interviewed and their hobbies were noted. 150 students were interested in stamp collection, 80 took delight in reading books, 40 of them do not like either. What is the number of students who liked both stamp collection and reading books?

Q.4 Solve the following questions.(Any one) (3)

i In an exam 35 students cleared General Knowledge paper, 45 students cleared Logical Aptitude paper and 25 cleared both the papers. 5 students failed in both the papers. Find the number of students appeared in the exam.

ii If 50 girls passed in Maths, 60 girls passed in History and 40 girls passed in Maths and History, find the number of girls who passed in either Maths or History.