

PART - A**I Choose the correct answer and write it with suitable option.**

1. Which of the following is correct? 16 X 1 = 16
 a) $\{7\} \in \{1,2,3,4,5,6,7,8,9,10\}$ b) $7 \in \{1,2,3,4,5,6,7,8,9,10\}$
 c) $\{7\} \in \{1,2,3,4,5,6,7,8,9,10\}$ d) $\{7\} \subseteq \{1,2,3,4,5,6,7,8,9,10\}$
2. If $A = \{x,y,z\}$ then the number of non empty subset of A is
 a) 8 b) 5 c) 6 d) 7
3. If $A \cup B = A \cap B$ then
 a) $A \neq B$ b) $A = B$ c) $A \subset B$ d) $B \subset A$
4. If $B-A$ is B , then $A \cap B$ is
 a) A b) B c) U d) \emptyset
5. Let $A = \{\emptyset\}$ and $B = P(A)$ then $A \cap B$ is
 a) $\{\emptyset\}$ b) $\{\emptyset\}$ c) \emptyset d) $\{0\}$
6. Which of the following is true?
 a) $A-B = A \cap B$ b) $A-B = B-A$ c) $(A \cup B)' = A' \cup B'$ d) $(A \cap B)' = A' \cup B'$
7. If $U = \{x : x \in \mathbb{N} \text{ and } x < 10\}$, $A = \{1,2,3,5,8\}$ and $B = \{2,5,6,7,9\}$ then $n[(A \cup B)']$ is
 a) 1 b) 2 c) 4 d) 8
8. For any three sets A, B and C , $(A-B) \cap (B-C)$ is equal to
 a) A only b) B only c) C only d) \emptyset
9. If n is a natural number then \sqrt{n} is
 a) always a natural number b) always an irrational number
 c) always a rational number d) may be rational or irrational
10. Which one of the following has a terminating decimal expansion?
 a) $\frac{5}{64}$ b) $\frac{8}{9}$ c) $\frac{14}{15}$ d) $\frac{1}{12}$
11. If 80 then $K = ?$
 a) 2 b) 4 c) 8 d) 16
12. $4\sqrt{7} \times 2\sqrt{3}$
 a) $6\sqrt{10}$ b) $8\sqrt{21}$ c) $8\sqrt{10}$ d) $6\sqrt{21}$
13. $\sqrt{27} + \sqrt{12} = \dots$
 a) $\sqrt{39}$ b) $5\sqrt{6}$ c) $5\sqrt{3}$ d) $3\sqrt{5}$

14. An irrational number between 2 and 2.5 is
 a) $\sqrt{11}$ b) $\sqrt{5}$ c) $\sqrt{2.5}$ d) $\sqrt{8}$
15. $0.\overline{34} + 0.\overline{34} = \dots$
 a) $0.\overline{687}$ b) $0.\overline{68}$ c) $0.\overline{68}$ d) $0.6\overline{87}$
16. Which one of the following is an irrational number
 a) $\sqrt{25}$ b) $\sqrt{\frac{9}{4}}$ c) $\frac{7}{11}$ d) π

PART - B

II Answer any 7 questions.

Question number 26 compulsory.

$7 \times 2 = 14$

17. Write the set of letters of the number word INDIA in roster form.
18. If $A = \{4, 5, 6, 7, 8, \}$ find the Cardinal number.
19. If $n(A) = 4$ find $n[(P(A))]$.
20. If $A = \{2, 3\}$ and $B = \{ \}$ find $A \cap B$.
21. If $U = \{a, b, c, d, e, f, g, h\}$, $A = \{b, d, f, h\}$, find $(A \cup B)'$.
22. Write the decimal number 2.176 in $\frac{p}{q}$ form.
23. Find the value of $(49)^{1/2}$.
24. Rationalise the denominator of $\frac{7}{\sqrt{14}}$.
25. Represent the number 0.0000006000 in scientific notation.
26. Simplify : $5\sqrt{3} + 18\sqrt{3} - 2\sqrt{3}$.

PART - C

III Answer any 4 questions. Question No. 32 is compulsory. $4 \times 5 = 20$

27. If $A = \{b, e, f, g\}$ and $B = \{c, e, g, h\}$ check whether $A \cup B = B \cup A$.
28. Verify $(A \cap B)' = A' \cup B'$ using Venn diagram.
29. Find any two rational numbers between $\frac{1}{2}$ and $\frac{2}{3}$.
30. Arrange in ascending order : $\sqrt[3]{2}, \sqrt[3]{4}, \sqrt[3]{3}$.
31. If $\sqrt{2} = 1.414$, find the value of $\frac{8-5\sqrt{2}}{3-2\sqrt{2}}$.
32. In a class, all students take part in either Chess or Kabaddi. 30 students take part in Chess, 35 students take part in both Chess and Kabaddi. Find
 i) The number of students who take part in only music.
 ii) The number of students who take part in only Kabaddi.
 iii) The total number of students in the class.