INDIAN SCHEMA INDIAN SCHOOL AL WADI AL KABIR
Class XI, Mathematics
Topic: Sets, (M.C.Q & DESCRIPTIVE), 16-04-2020

Department of Mathematics

Q.1.	$A \cap A'$ is a						
	A	Null set	**B**	Universal set	**C**	Finite set	**D**	None of these

Q.2.	Roster form of $\{x: x \in Z: x^2 - 3x + 2 = 0\}$ is:						
	A	$\{-2, 1\}$	**B**	$\{1, 2\}$	**C**	$\{2, -1\}$	**D**	$\emptyset$

Q.3.	*Set builder form of* $\{0, 3, 8, 15\}$ is :						
	A	$\{x: x = 3n - 1, n \in N, n \leq 4\}$	**B**	$\{x: x = 2n + 1, n \in N, n \leq 4\}$	**C**	$\{x: x = n^2 - 1, n \in N, n \leq 4\}$	**D**	None of these

Q.4.	$A = \{0, 1\}$, B $= \{x: x \in N, x \leq 2\}, C = \{x: x \in W, x < 2\}, D = \{a, b\}$, then ....and ... are equal sets.						
	A	A and C	**B**	A and B	**C**	B and C	**D**	A and D

Q.5.	$A = \{0, 1, 2\}$, B $= \{x: x \in N, x \leq 4\}, C = \{x: x \in Z, x \leq 2\}, D = \{a, b, c\}$, then ....and ... are equivalent sets.						
	A	A and C	**B**	A and B	**C**	B and C	**D**	A and D

Q.6.	If $A \subset B,$ *which of the following option is always correct*?						
	A	$A \cap B = B$	**B**	$A \cup B = A$	**C**	$A - B = \emptyset$	**D**	$B - A = \emptyset$

Q.7.	Two finite sets have m and n elements. The total number of subsets of the first set is 112 more than the total number of subsets of the second set. The values of m and n are:						
	A	7 and 4	**B**	6 and 3	**C**	10 and 5	**D**	Can't find

Q.8.	$-1 < x \leq 5$ *can write as*:						
	A	(-1, 5)	**B**	$(-1, 5]$	**C**	$[-1, 5]$	**D**	$[-1, 5)$

Q.9.	P $= \{x: |x| = 7, x \in N\}$, Q $= \{x: x \in N: x^2 + 2x + 1 = 0\}$, R $= \{x: x \in Z: x^2 = 9\}$, then ...... is a singleton set.						
	A	P	**B**	Q	**C**	R	**D**	None of these

Q.10	$A = \{x: x = 8^n - 7n - 1, n \in N\}, B = \{x; x = 49n - 49, n \in N\},$ *then* :						
	A	$A \subset B$	**B**	$B \subset A$	**C**	A = B	**D**	$A \cap B = \emptyset$

Q.11	If A= $\left\{\left(x, \frac{1}{x}\right): x \in R - \{0\}\right\}$ *and* $B = \{(x, -x): x \in R\},$ *then*						
	A	$A \cap B = A$	**B**	$A \cup B = A$	**C**	$A \cap B = B$	**D**	$A \cap B = \emptyset$

Q12.	If n(U) = 700, n(A) = 200, n(B) = 300 and n(A∩ B) = 100, $then$ n(A′ ∩ B′) is ...…………..
Q13.	In a group of 400 people, 250 can speak Hindi and 200 can speak English, then the number of people can speak both Hindi and English is ………….
Q14.	If n(U) = 2000, n(A) = 1720 and n(B) = 1450, then the least number of n(A∩ B) is ... ...……
Q15.	If A= {a, b, c}, then the number of proper subsets of A is …………..
Q16.	If n(A∪ B) = 25, n(A) = 12, n(A − B) = 8, $then\ the\ number\ elements\ in\ A ∩ B\ is$ ... ...………
Q17.	Write in set-builder form: i)A= {2, 3, 5, 7, 11, 13} ii) B = {3, 10, 29, 66, 127} iii)C= {1, 4, 9, 16, ... }, iv) D = $\left\{\frac{1}{2},\frac{2}{3},\frac{3}{4},\frac{4}{5},\frac{5}{6}, ...\right\}$
Q18.	Describe the following set in roster form: {x: x is a letter in the word PROPORTION}
Q19.	Let T = {x: $\frac{x+5}{x-7}$ - 5 = $\frac{4x-40}{13-x}$ }, is T a singleton set? Justify your answer.
Q20.	Write the following as interval and also represent it on a number line. i) {x: x ∈ R, -5 ≤ x < 6}
Q21.	Let A = {3, 4, 5} then find the Power set of set A.
Q22.	Two finite sets have m and n elements. The total number of subsets of the first set is 192more than the total number of subsets of the second set. Find the value of m and n.
Q23.	Let U = {1, 2, 3, 4, 5, 6}, A= {2, 3}, B= {3, 4, 5} Find A′ ∩ B′ , A∪ B and hence show that (A∪ B)′= A′ ∩ B′
Q24.	If A= {x: x∈ N, x ≤ 7}, B = {x: x is a prime , x < 8} and C = {x: x∈ N, x is odd and x < 10}, Verify that i) A∪ (B ∩ C) = (A∪ B) ∩ (A ∪ C) ii) A∩ (B ∪ C) = (A ∪ B) ∪ (A ∩ C)
Q25.	Draw appropriate Venn diagram for each of the following; i)(A∪ B)′ ii)A′ ∩ B′ iii) (A∩ B)′ iv) A′ ∪ B′
Q26.	There are 45 students in Biology class and 65 students in Computer Science class. Find the number of students which are either in Biology or in Computer class in the following cases. ii) The two classes meet at the same hour iii) The two classes meet at different hours and 30 students are enrolled in both the subjects.
Q27.	Given: For two finite sets A and B, n(A-B) = 12+x, n(B − A) = 3x and n(A∩ B)= x+1. If n(A) = n(B), find the value of x and hence n(A).
Q28.	Out of 100 boys in a club, 65likes to play cricket, 40like to play Tennis, 55likes to play volleyball, 25 likes to play both cricket and Tennis, 24 likes to play both Tennis and Volleyball, 22 likes to play Volleyball and cricket. All of them like to play at least one of the games. How many boys play i) All the three games ii) Cricket only iii) Tennis only.

Q29.	In a survey of 60 people, it was found that 25 people read newspaper H, 26 read newspaper T, 26 read newspaper Z, 9 read both H & Z, 11 read both H & T, 8 read both T & Z, 3 read all three newspapers. Find
	i) The number of people who read at least one of the newspapers.
	ii) The number of people who read exactly one newspaper
Q30.	In a class of 140 students, 60 play football, 68 play hockey and 75 play cricket, 30 play hockey and cricket, 18 play football and cricket, 42 play football and hockey and 8 play all the three games. Use Venn diagram to find number of students:
	i) who do not play any of the three games.
	ii) who play only cricket
	iii) who play exactly two of the games.

Answers

1	A	2	B	3.	C	4	A
5	D	6	C	7	A	8	B
9	A	10	A	11	D	12	300
13	450	14	1170	15	7	16	4
17	-	18	-	19	-	20	-
21	-	22	8, 6	23	-	24	-
25	-	26	110, 80	27	6, 25	28	11, 29, 2
29	52, 30	30	19, 35, 66				