CLASS XI
CHAPTER-1
SETS
01 MARK TYPE QUESTIONS

Q. NO	QUESTION	MARK
1.	If ϕ is the empty set, then find the value of $n\left\{P\left[P\left(P(\phi)\right)\right]\right\}$.	1
2.	Let A and B be two sets containing 4 and 2 elements respectively. Then find the number of students of the set $A \times B$ each having at least 3 elements.	1
3.	{ x:x is a circle in the plane} _____.	1
4.	See the given diagram and then find out the youth who does the job but not educated See the given diagram and then find out See the given diagram and find out the youth who does the job but not educated i. 5 ii. 4 iii. 6 iv. 7	1
5.	The number of elements in the power set P(S) of the set S $\left[[\phi],1,[2,3]\right]$ is --------- i. 4 ii. 8 iii. 2 iv. None of these	1
6.	If A = [(-3,5), B = (0,6)], then find A-B.	1
7.	List all the elements of the set, A= $\left\{x:x \in Z, \dfrac{-1}{2} < x < \dfrac{11}{2}\right\}$.	1
8.	Let A = $\left\{(x,y): y = e^x, x \in R\right\}$ B = $\left\{(x,y): y = e^{-x}, x \in R\right\}$ then (i) $A \cap B = \phi$ (ii) $A \cap B \neq \phi$ (iii) $A \cup B = R^2$	1
9.	If $X_n = \left\{z = x = iy : |z|^2 \leq \dfrac{1}{n}\right\}$ for all integers $n \geq 1$. Then, $\bigcap\limits_{n=1}^{\infty} X_n$ is _____.	1
10.	Universal set U, for the sets A and B has 40 elements. If n(A)=25 and n(B)=20, then least value of $n(A \cap B)$ is_____.	1
11.	let in a group of 400 people, 250 speak Spanish and 200 and can speak English. How many can speak both Spanish and English	1

	a)35 b)55 c)90 d)50	
12.	In a city 20% of the population travels by car, 50% travels by bus and 10% travels by both car and bus. Then, persons travelling by car or bus is a)80% b)40% c)60% d)70%	1
13.	In a school there are 20 teachers who teach mathematics or physics. Of these 12 teach mathematics and 4 teach both physics and mathematics. How many teach physics? Then number teachers teaching physics is a)4 b)16 c)12 d)8	1
14.	In a survey of 425 persons, it was found that 115 watch sports channel, 160 watch discovery channel and 80 watch both sports and discovery channels. How many do not watch any of the channels, then number of persons who do not watch any channels is a)195 b)230 c)80 d)115	1
15.	A survey shows that 63% of the people watch a news channel whereas 76% watch another channel. If x% of the people watch both channel then a)x=35 b)x=63 c)39≤x≤63 d)x=39	1
16.	In a class of 25 students, 12 have taken mathematics,8 have taken mathematics but not biology. Find the no. Of students who have taken both mathematics and biology and the no. of those who have taken biology but not mathematics each student has taken either mathematics or biology or both. (a) 4 (b) 2 (c) 1 (d) 3	1

17.	Write the set in roster form: A = {x | x is a positive integer less than 10 and 2x − 1 is an odd number}.
	    (a) {1, 2,3,4,5} (b) {1, 2,3,4,5,6,7,8,9}
	    (c) {1, 2,3,4} (d) {1, 2,3}
		1

18.	A student of class 11th collected a set of squares named as M, a set of parallelogram asQ, a set of rectangle named as R and a set of rhombus named as S. He using the set theory made the following: 1. S is subset of M 2.R is subset of Q 3.M is subset of S 4. S is subset of Q 5. M is subset of R 6. S is subset of R Which of the following are correct: (a) (1),(3),(6),(5) (b) (3),(2)(5) (c) (3),(2),(5),(4) (d) (6), (4), (2)	1

19.	Write the set in roster form: A = {x : x is an integer and −3 ≤ x < 7}.
	    (a) {-2, -1,0, 1,2,3,4,5,6,7}
	    (b) {-3, -2, -1, 0,1,2,3,4,5,6,7}
		1

	(c) {-3, -2, -1, 0,1,2,3,4,5,6} (d) None	
20.	In a class of 50 students, 10 did not opt for math, 15 did not opt for science and 2 did not opt for either. How many students of the class opted for both mathematics and science? (a) 24 (b) 25 (c) 26 (d) 27	1
21.	Let A and B be two sets in the same universal set. Then $A - B =$ a) $A \cap B$ b) $A' \cap B$ c) $A \cap B'$ d) None of these	1
22.	The number of subsets of a set containing n elements is – a) n b) $2^n - 1$ c) n^2 d) 2^n	1
23.	Which of the following statement is false: a) $A - B = A \cap B'$ b) $A - B = A - (A \cap B)$ c) $A - B = A - B'$ d) $A - B = (A \cup B) - B$	1
24.	Let $A = \{x: x \in R, x \geq 4\}$ and $B = \{x \in R: x < 5\}$. Then $A \cap B$ is – a) $(4,5]$ b) $(4,5)$ c) $[4,5)$ d) $[4,5]$	1
25.	Let U be the universal set containing 700 elements. If A, B are subsets of U such that $n(A) = 200, n(B) = 300$ and $n(A \cup B) = 100$, then $n(A' \cap B') =$ a) 400 b) 600 c) 300 d) None of these	1
26.	If $A = \{1,2,3,4,5\}$, then the number of proper subsets of A are – a) 120 b) 30 c) 31 d) 32	1
27.	For two sets $A \cup B = A$ iff a) $B \subseteq A$ b) $A \subseteq B$ c) $A \neq B$ d) $A = B$	1
28.	If A and B are two disjoint sets, then $n(A \cup B) =$ a) $n(A) + n(B)$ b) $n(A) + n(B) - n(A \cap B)$ c) $n(A) + n(B) + n(A \cap B)$ d) $n(A) - n(B)$	1
29.	Two finite sets have m and n elements. The number of elements in the power set of first set is 48 more than the total number of elements in power set of second set. Then the values of m and n are – a) 7,6 b) 6,3 c) 6,4 d) 7,4 e) 3,7	1
30.	If $A = \{x: x$ is a $multiple$ of $3\}$ and, $B = \{x: x$ is $multiple$ of $5\}$, then $A - B =$ a) $A \cap B$ b) $A \cap \bar{B}$ c) $\bar{A} \cap \bar{B}$ d) $\overline{A \cap B}$	1
31.	Which of the following diagrams is the correct diagrammaticrepresentation of the sets of Integers (Z), Rational numbers(Q) and Irrational numbers (I)?	1

(a)

(b)

(c)

(d)

32.	Let F_1 be the set of all parallelograms, F_2 be the set of all rectangles, F_3 be the set of all rhombuses and F_4 be the set of all squares. Then which of the following is false (a) $F_2 \subseteq F_1$ (b) $F_4 = F_2 \cap F_3$ (c) $F_1 = F_2 \cup F_3 \cup F_4$ (d) $F_4 = F_1 \cap F_2 \cap F_3$	1
33.	For any two sets A and B, $A \cap (A \cup B)' =$ (a) ϕ (b) A (c) B (d) $A \cap B$	1
34.	For any two sets A and B, $(A - B) \cup (B - A) =$ (a) $(A - B) \cup A$ (b) $(B - A) \cup B$ (c) $(A \cup B) - (A \cap B)$ (d) $(A \cup B) \cap (A \cap B)$	1
35.	In a survey of 700 students in a college, 180 were listed as reading Times of India, 275 as reading The Telegraph and 95 were listed as both reading both newspapers.how many students were reading neither Times of India nor The Telegraph (a) 320 (b) 340 (c) 360 (d) 245	1
36.	Let $A = \{x : x = 3n, n \in N\}, B = \{x : x = 5n, n \in N\}$, then $\overline{A \cap B} =$	1

	(a) $\{x : x = 15n, n \in N\}$ (b) $\{x : x = 3n \text{ or } x = 5n, n \in N\}$ (c) $N - \{x : x = 15n, n \in N\}$ (d) $N - \{x : x = 3n \text{ or } x = 5n, n \in N\}$	
37.	Let A and B are two sets and U be the universal sets such that n(A) = 25, n(B) = 28 and n(U) = 50 then least value of $n(A \cap B)$ is (a) 0 (b) 3 (c) 25 (d) 22	1
38.	If $A = \left\{(x, y) : y = \frac{1}{x}, 0 \neq x \in R\right\}$, $B = \{(x, y) : y = x, x \in R\}$, then (a) $n(A \cap B) = n(A)$ (b) $n(A \cap B) = 0$ (c) $n(A \cap B) = 1$ (d) $n(A \cap B) = n(A)$	1
39.	**Assertion(A):** Out of all students in science stream 89% students took mathematics and 98% took computer science as elective subjects, then number of students who study both subject lies between 87% to 89% **Reason(R):** $n(A) + n(B) - n(A \cap B) \leq 100$ and $n(A \cap B) \leq \min(n(A), n(B))$ (a) Both A and R are true and R is correct explanation of A (b) Both A and R are true but R is not correct explanation of A (c) A is true R is false (d)) R is true A is false	1
40.	**Assertion(A):** $A - (A \cap B) = A - B$ **Reason(R)) :** $A - B = A \cap B'$	1
41.	Describe the following set in the Roster form $\{x : x$ is positive integer and a divisor of 15$\}$ a) $\{0,1,3,5,15\}$ b) $\{1,3,6,15\}$ c) $\{1,3,5,15\}$ d) null set	1

42.	Which of the following sets is empty set?
	     a) A=$\{x : x^2 -4= 0$ and x is Natural number $\}$
	     b) B= $\{x : x$ is an even prime number$\}$
	     c) C = $\{x : 7 < x < 8, x \in$ N$\}$
	     d) D = $\{x : x^2= 49$, and x is an odd integer$\}$
		1

43.	Find which of the following sets is finite?
	     a) A= $\{ x : x \in$ Z and x^2 is even.$\}$
	     b) B= $\{ x : x \in$ Z and $x > -10\}$
	     c) C= $\{ x : x \in$ Z and x is an multiple of 7$\}$
	     d) D= $\{ x : x \in$ Z and x is the root of 36$\}$
		1

44.	Which of the following sets are equal?
	     A= $\{ x : x$ is a letter in the word "REAP"$\}$
	     B= $\{ x : x$ is a letter in the word " PAPER"$\}$
	     C= $\{ x : x$ is a letter in the word "ROPE"$\}$
	   a) A=B =C, b) A=B, c) B=C , d) none are equal
		1

45.	What is the total number of proper subsets of a set consisting of n elements? a) 2n, b) 2n−1 , c) 2n− 1, d) $2^n - 1$.	1

46.	Write A = {1,4,9,16,25} in set builder form.
	     (a) A = $\{x : x \text{ is a prime number}\}$
	     (b) A = $\{x : x \text{ is the cube of a natural number}\}$
	     (c) A = $\{x : x = n^2 \text{ and } n < 6, n \epsilon N\}$
	     (c) A = $\{x : x = n^2 \text{ is an even natural number}\}$
		1

47.	No. of elements in the power set P(A) of a set A is equal to: (a) n (b) 2n (c) 2^n (d) n^2	1
48.	Let U = {1,2,3,4,5,6,7,8,9,10}, P{1,2,5}, Q{6,7} then P ∩ Q' is: (a) P (b) Q (c) Q' (d) None	1

49.	If A, B and C are three sets, then A×(B ∪ C) is equal to:
	     (a) $(A \times B) \cup (A \times C)$ (b) $(A \cup B) \times (A \cup C)$
	     (c) $(A \times B) \cap (A \times C)$ (d) None of these
		1

50.	Which of the following is an example of null set?
	     (a) $\{x : x^2\}$ (b) $\{x : x \text{ is a even prime number}\}$
	     (c) $\{x : x < 5 \text{ and } x > 6\}$ (d) None of these
		1

51.	If A, B, C be three sets such that A ∪ B = B ∩ A and B ∩ A= A ∩ C then, (a) B = C (b) A = B = C (c) A = C (d) A = B	1

52.	Given the sets A = {1,3,5}, B = {2,4,6} and C= {0,2,4,6,8} which is the following may be considered as universal set for all the three sets A, B and C?
	     (a) {0,1,2,3,4,5,6} (b) {2,4,6,8,10}
	     (c) {1,2,3,4,5,6,7,8} (d) {0,1,2,3,4,5,6,7,8,9,10}
		1

53.	Which of the following is correct for A-B? (a) A ∩ C (b) $A' \cap B$ (c) A ∩ B' (d) $A' \cap B'$	1
54.	If A = {1,2,3,4,5},then the number of proper subsets of A is: (a) 31 (b) 38 (c) 48 (d) 54	1

55.	If A and B are finite sets, then which one of the following is the correct equation?
	     (a) n(A - B) = n(A) - n($A \cap B$)(b) n(A - B) = n(A) - n(B)
	     (c) n(A - B) = n(B) - n($A \cap B$)(d) n(A - B) = n(B) - n($A \cup B$)
		1

ANSWERS:

Q. NO	ANSWER	MARKS
1.	N=4	1
2.	219	1
3.	$\not\subset$	1
4.	4	1
5.	8	1
6.	[-3,6]	1
7.	All the elements are as shown A={0,1,2,3,4,5}.	1
8.	$A \cap B = \phi$	1
9.	A single ton set	1
10.	5	1
11.	d	1
12.	c	1
13.	c	1
14.	b	1
15.	c	1
16.	A	1
17.	B	1
18.	B	1
19.	C	1
20.	D	1
21.	C	1
22.	D	1
23.	C	1
24.	C	1
25.	C	1
26.	C	1
27.	A	1
28.	A	1
29.	C	1
30.	B	1
31.	(a)	1
32.	(c)	1
33.	(a)	1
34.	(c)	1
35.	(b)	1
36.	(c)	1
37.	(b)	1
38.	(c)	1
39.	(a)	1
40.	(b)	1
41.	c	1

42.	c	1
43.	d	1
44.	b	1
45.	d	1
46.	c	
47.	c	
48.	d	
49.	a	
50.	c	
51.	a	
52.	d	
53.	c	
54.	a	
55.	a	