

Q.1	Which set amor	ng the following is not ach	ievable?				
	(a) Honest persons						
	(b) Prime numbers up to 100						
	(c) Even numbers up to 100						
	(d) Letters form	ning the word SCHOOL					
Q.2	Which of the fo	llowing does not constitut	e a set of letters from the v	vord "PRINCIPAL"?			
	(a) {P,R,I,N,C,A,	L}	(b) {C,A,P,I,N,R,L	}			
	(c) {P,R,I,N,C,I,F	?,A,L}	(d) {L,N,I,P,C,A,R	}			
Q.3	Express the sol	ution set of equation x ² -3x	x+2=0 in roster form.				
	(a) {1,3}	(b) {2,4}	(c) {1,4}	(d) {1,2}			
Q.4	Express the set	$\frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{3}{5}, \frac{5}{6}$ using set-build	er form.				
	(a) {x: $x = \frac{n}{n+1} w$	here n is a natural numbe	er less than 6}				
	(b) {x: $x = \frac{n+1}{n+2} w$	(b) {x: $x = \frac{n+1}{n+2}$ where n is a natural number less than 6}					
	(c) {x: $x = \frac{n+1}{n} w$	here n is a natural numbe	er less than 6}				
	(d) $\{x: x = \frac{n}{n+1} w$	here n is a natural numbe	er less than 5}				
Q.5	Write the set in	tegers, {x : x is an integer	and x ² -9=0} in roster form	l.			
	(a) {3}	(b) {-3}	(c) {3,-3}	(d) {9,3}			
Q.6	Express the set	${x:x is a natural number}$	and $x^2-9=0$ in roster form	1.			
	(a) {3}	(b) {-3}	(c) {3,-3}	(d) {9,3}			
Q.7	Let $A = \{1, 2, 3,$	4, 5}. Insert appropriate s	symbol in 2 A.				
	(a) =	(b) <	(c) ∈	(d) ∉			
Q.8	Let $X = \{1, 2, 3,$	4, 5, 6}. Insert appropriate	e symbol in 9 X.				
	(a) =	(b) <	(c) ∈	(d) ∉			
Q.9	Which of the fo	llowing is not a member o	f the set {x : x is a vowel in	English alphabet}?			
	(a) e	(b) b	(c) I	(d) o			
Q.10	How many elen	ients is in this set {x : x is	a letter of word TRIGONON	AETRY}?			
	(a) 8	(b) 7	(c) 9	(d) 10			
Q.11	Find the solutio	In set of the equation $x^2 + 3$	3x+2=0 in roster form?				
	(a) {-1, 2}	(b) {-1, -2}	(c) {1, -2}	(d) {1, 2}			
Q.12	Which of the fol form?	llowing correctly represer	nts the set {x: x is a positive	e integer and $x^3 < 50$ in roster			
	(a) {0,1,2,3,4,5}	(b) {-1,1,2,3}	(c) {1,2,3}	(d) {0,1,2,3}			
Q.13	Which of the fol form?	llowing is the accurate rep	presentation of the set A =	{1, 3, 5, 7} in set builder			
	(a) $\{x: x = 2n w\}$	(a) $\{y: y = 2n \text{ where } n \in \mathbb{N}\}$ (b) $\{y: y = n^2 - 1 \text{ where } n \in \mathbb{N}\}$					
	(c) $\{x: x = 2n + 2n$	1 where $n \in N$	(d) $\{x: x = 2n-1\}$	where $n \in N$			
0.14	Which stateme	nt is accurate for the set A	$= \{1.2.3.5.7.10\}$	······································			
•	(a) 0 ∈ A	(b) 2 ∈ A	(c) 3 ∉ A	(d) 5 ∉ A			

Q.15	Which of the following is not an example of a set?(a) The collection of all whole numbers less than 200							
	(b) The collection of a	ll boys in your class	200					
	(c) The collection of ta	lented actors in Hollywood	1					
	(d) The collection of a	ll books written by Chetan	Bhagat					
Q.16	Identify the one that is	different						
	(a) Null set	(b) Void set	(c) Infinite set	(d) Empty set				
Q.17	Which symbol represe	ents the empty set in the fol	lowing options?					
	(a) ()	(b) []	(c) { }	(d) < >				
Q.18	Which one of the follo	wing represents an empty s	set?					
	(a) Prime numbers up to 10							
	(b) Even numbers up	to 10						
	(c) Prime numbers div	visible by 2						
0.40	(d) Prime numbers div	visible by 3	1.					
Q.19	Determine the count o	f points shared by parallel	lines.					
0.20	(a) Inree points	(b) One point	(c) I wo point	(d) No point				
Q.20	Is the set $\{x : x \text{ is a nat}$	ural number $x < 5$ and $x > 7$	an empty set?					
0.21	(a) True Which one of the follow	wing is a null sot?	(D) raise					
Q.21	(a) $\{x : x \in a \text{ patternal } n\}$	while is a null set: y = 4						
	(a) $\{x : x \text{ is a natural if}$ (b) $\{x : x \text{ is a rational r}$	$\frac{1110e1}{2110} \text{ and } x^2 - 4$						
	(c) $\{x : x \text{ is a rational r} $	me number 2						
	(c) {x : x is an even prime number} (d) {x : x is name of the day of week}							
0.22	The cardinality of an empty set is							
	(a) zero	(b) one	(c) two	(d) any				
0.23	Determine the solution to set $\{x : x \text{ is a natural number and } 2x+1=2\}$.							
C C	(a) {1}	(b) {2}	(c) $\{1/2\}$	(d) { }				
Q.24	What is the term for a	set that contains no elemen	nts?					
-	(a) Equivalent Set	(b) Empty Set	(c) Equal Set	(d) Infinite Set				
Q.25	Which one of the follo	wing is a set with no eleme	nts?					
	(a) The set of dogs wit	h six legs	(b) The set of books in t	he library				
	(c) The set of boys in a	a school	(d) The set of a square w	with 4 sides				
Q.26	The null set is its own	subset.						
	(a) True		(b) False					
Q.27	Which set among the f	ollowing is finite?						
	(a) {1,2,3,4,	}	(b) {4,7,9}					
0.00	(c) {1,4,9,16,	}	(d) {1,8,27,}					
Q.28	A finite set can contair	i a number o	f elements.					
	(a) Unly zero		(b) only one					
0.20	(C) At least one The set is considered i	nfinita whon it has	(d) zero or more but not infinite					
Q.29	(a) 7 ero	(h) one	(c) finite	d) infinite				
0 30	Which set among the f	ollowing is considered infu	nite?	(u) minite				
Q.50	(a) Set of days of week		(b) Set of points on a lin	e				
	(c) Set of months in a	vear	(d) Set of prime number	rs less than 99				
0.31	The set comprising the	e letters of the English alph	abet is					
.	(a) Empty set	(b) singleton set	(c) finite set	(d) infinite set				
Q.32	Which set from the fol	lowing is considered finite	?					
-	(a) Set of natural num	bers	(b) Set of whole number	rs				
	(c) Set of even number	rs	(d) Set of even prime nu	ımber				

Q.33	Which set is classified as	s a singleton set?					
	(a) Set of odd prime nur	nbers	(b) Set of even prime nu	mbers			
	(c) Set of odd numbers		(d) Set of prime number	S			
Q.34	Is the Set $\{x : x \text{ is a natural number and } 2x+1=0\}$ is a finite set?						
	(a) True		(b) False				
Q.35	The set comprising the solutions of a quadratic equation is a finite set.						
	(a) True	(b) False					
Q.36	Finite set en	npty set.					
	(a) is same as	(b) is an	(c) is not	(d) may or may not			
Q.37	Which set from the follo	wing is considered infinit	e?				
	(a) A set of girls in a coll	ege	(b) A set of players in a d	cricket team			
	(c) A set of points in a Li	ne	(d) A set of edges in a sq	luare			
Q.38	Which statement among	the following is accurate	?				
	(a) A finite set has an inf	finite number of elements					
	(b) An empty set is a fin	ite set					
	(c) An empty set is neith	er finite nor infinite					
	(d) An infinite set has a	countable number of elem	ients				
Q.39	Which set from the optio	ons is considered finite?					
	(a) Set of points in a line	2	(b) Set of natural number	ers			
	(c) Set of mothers in a fa	imily	(d) Set of prime number	S			
Q.40	Are the following two sets equal?						
	(a) {1,2,3} and {2,3,4}		(b) {1,3,5} and {1,3,5,7}				
	(c) $\{3,4,7\}$ and $\{7,4,3\}$ (d) $\{1,2,7\}$ and $\{2,7,1,4\}$						
Q.41	Consider set A as the set	of prime numbers less th	an 6, and set B as the set o	of prime factors of 30.			
	Sets A and B are	' '					
0.40	(a) Infinite	(b) Empty	(c) Singleton	(d) Equal			
Q.42	$A = \{0\}$ and $B = \{\}$. Are set	ets A and B are equal?					
0.42	(a) True (b) Faise						
Q.45	"I OVAL " Are the sets equal?						
	(a) True	uai:	(h) False				
0.44	Which sets are identical	7	(b) I dise				
V	$X = \{x: x-4=0 \text{ and } x \text{ is a natural number}\}$						
	$Y = \{x: x^2 = 16 \text{ and } x \text{ is a natural number}\}$						
	$Z = \{x: x > 4 \text{ and } x < 16, x\}$	is a natural number}					
	(a) X and Y	(b) Y and Z	(c) X and Z	(d) X, Y and Z			
Q.45	Which sets among the fo	llowing are identical?					
•	X={x: x is letter of word LIFE},						
	$Y = \{x: x \text{ is letter of the word WIFE}\},$						
	Z={x: x is letter of the w	ord FILE}					
	(a) X and Y	(b) Y and Z	(c) X and Z	(d) X, Y and Z			
Q.46	Which sets from the foll	owing are identical?					
	(a) {a, b, c, d} and {d, c, b), a}	(b) {4,8,12,16} and {8,12	2,16,18}			
	(c) {x : x is a multiple of	10} and {10,20,30}	(d) {2,4,6,8} and {x : x is	an even number}			
Q.47	Among the following set	s, which ones are identica	l?				
	X= {1,-1},	Y={-1,1},	$Z = \{x : x \text{ is root of } x^2 - 1 =$	0 and x is an integer}			
	(a) X and Y	(b) Y and Z	(c) X and Z	(d) X, Y and Z			
Q.48	Equal sets have the	number of elements.					
	(a) Must have same		(b) May have same				
	(c) Can't have same (d) shouldn't have different						
Q.49	If two sets have an equa	l number of elements, the	n they				
	(a) Are equal	(b) Are not equal	(c) May be equal	(d) Are finite			

Q.50	If $A = \{0\}$, $B = \{x: x \text{ is a } r\}$	ion-negative root of x^2+2x	x=0}, C= {x: x>10 and x<	5},			
	$D = \{x: x^2 = 36\} \text{ then sele}$	ct the correct option.					
	(a) A=C	(b) $A=D$	(c) $B=C$	(d) $A=B$			
Q.51	If $A = \{1, 2, 3\}$ and $B = \{x \}$	\in R: x ³ -6x ² +11x-6=0} ar	e sets A and B equaicalent	?			
	(a) True		(b) False				
Q.52	If $A = \{1,2\}$ and $B = \{x \in F\}$	$x^2-3x+2=0$ what is the	relationship between sets	s A and B?			
	(a) "A" and "B" are only	equivalent sets and not ec	lual				
	(b) "A" and "B" are equa	1					
	(c) "A" and "B" are not E	quivalent					
	(d) "A" and "B" are infin	ite sets					
Q.53	Which of the following s	tatements are accurate?					
	(a) Equal and Equivalen	t sets are actually the sam	e				
	(b) Equivalent sets have	a different number of ele	ments				
	(c) Equal sets have the s	ame elements					
	(d) Two null sets are no	t equal					
Q.54	If all elements of set X be	elong to set Y, then	·				
	(a) $X \subset Y$	(b) $Y \subset X$	(c) $X = Y$	(d) $X \neq Y$			
Q.55	If set A is identical to set	: B, then					
	(a) $A \subset B$		(b) $B \subset A$				
	(c) $A \subset B$ and $B \subset A$		(d) neither $A \subset B$ nor $B \subset B$	= A			
Q.56	Consider X= {1, 2, 3}, Y=	= {}, Z= {1, 2, 3}, which of	the following statements i	is accurate?			
	(a) $X \subset Y$		(b) Only $Y \subset X$ and $Y \subset Z$	•			
	(c) $Z \subset Y$ (d) $Y \subset X$ and $Y \subset Z$ and $X \subset Z$						
Q.57	Consider $A = \{2, 3, 5\}$ and	$d B = \{3, 5, 7\}$. Which of the	following statements is c	orrect?			
	(a) $A \subset B$	(b) $B \subset A$	(c) $A = B$	(d) A⊂A			
Q.58	Consider the set X to be	the set of rational number	rs. Which of the following	sets is a superset of			
	X?						
	(a) Set of real numbers		(b) Set of natural numbe	ers			
	(c) Set of whole number	S	(d) Set of integers				
Q.59	Consider the set X as the	e set of rational numbers.	Which of the following set	s is not included in X			
	as a subset?						
	(a) Set of real numbers		(b) Set of natural numbe	ers			
	(c) Set of whole number	S	(d) Set of integers				
Q.60	Consider $A = \{1, 3\}, B =$	$\{1, 5, 9\}, C = \{1, 3, 5, 7, 9\}$. Then				
	(a) $A \subset B$	(b) $B \subset A$	(c) $C \subset B$ and $A \subset C$	(d) $B \subset C$ and $A \subset C$			
Q.61	If an element $x \in A$ and	$A \subset B$ then $x \in B$ is this stat	tement true.				
0.60	(a) Irue		(b) Faise				
Q.62	If X is an element of set A	A and A is a subset of B, th	en X is also a subset of B.				
0.60	(a) Irue		(b) False				
Q.63	Consider $A = \{1, 2, \{3, 4\}$	$\{, 5\}$. Which of the following (1) (2) (2)	ig statements is correct?				
0.44	(a) $\{3, 4\} \subset A$	$(D) \{3, 4\} \in A$	(C) $\{\{3, 4\}\} \subset A$	(a) {1, 2, 5} \subset A			
Q.64	which of the following is	s a set?					
	(a) Collection of rich persons in a city (b) Collection of poor persons in a city						
0.65	(c) collection of smart persons in a city (d) collection of graduates in a city						
Q.65	The roster form to the so $(-)$	$et A = \{x \mid x \in \mathbb{N}, x^2 - 9 = 0\}$	/} IS				
0.00	$(a) \{-3, 3\}$	(D) {3}	$(c) \{-3\}$	(u) {9}			
Q.66	which of the following is	s a finite set?		< 105)			
	(a) $A = \{X \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < \{x \mid X \in K, 1 < X < X < \{x \mid X \in K, 1 < X < X < \{x \mid X \in K, 1 < X < X < \{x \mid X \in K, 1 < X < X < X < \{x \mid X \in K, 1 < X < X < X < X < X < X < X < X < X <$	< >}	(u) $B = \{X \mid X \in \mathbb{N}, 1 < X < (d) D = \{x \mid x \in \mathbb{N} \mid x \in \mathbb{N} \}$	< 10°}			
0.67	$\{(U) \cup = \{X \mid X \in L, X > 3\}$	$a + \Lambda = (1 \ 2 \ 2) \ D = (2 \ 4)$	$(u) U = \{x \mid x \in \mathbb{N}, x \text{ is an} \\ (u) U = \{x \mid x \in \mathbb{N}, x \in \mathbb{N}\} $	even number}			
Q.07	following is TDUE?	$a \iota A = \{1, 2, 3\}, B = \{2, 4\}$	$\bigcup_{j, \mathcal{L}} - \{x \mid x \in \mathbb{N}, x < 3\}$	ien which of the			
	$\frac{10110W111g}{S} IS IKUE?$	(b) $\mathbf{P} = \mathbf{C}$	$(a) \mathbf{P} = \mathbf{C}$				
	(a) A = b	$(\mathbf{D}) \mathbf{B} = \mathbf{C}$	(C) B ~ L	$(u) A \sim B$			

Q.68	For set $A = \{a, b, c\}$ w	hich of the following is TR	UE?			
	(a) $a \in A$	(b) a ∈ A	(c) $\{b\} \in A$	(d) $\phi \in A$		
Q.69	The number of subse	ts of set $A = \{a, b, 1\}$ is				
	(a) 2	(b) 4	(c) 6	(d) 8		
Q.70	If $x \ge -3$, then the val	ues of 3x – 2 are given by				
	(a) (7,∞)	(b) [−11, ∞)	(c) (-∞, 7]	(d) (-∞, -11]		
Q.71	If $3x + 8 \le 4$, then the	e set of all possible value o	f x is.			
	(a) $(-\infty, \frac{4}{-1}]$	(b) $\left[-\frac{4}{2},\infty\right)$	(c) $(-\infty, -\frac{4}{-}]$	(d) $[\frac{4}{3},\infty)$		
0 72	$\frac{1}{3}$		3^3	(1) (3)		
Q.72	If $x \leq 2$, then the sma	llest interval containing al	I possible value of $\frac{2}{2}$			
	(a) (−∞, −1)	(b) (−∞, 5)	(c) $\left(-\infty,\frac{5}{2}\right]$	(d) $\left(-\infty,-\frac{7}{2}\right]$		
Q.73	If $-3 < x \le 5$, then the	e largest integral value of ⁷	$\frac{7-x}{2}$ is.			
	(a) 5	(b) 1	(c) 4	(d) -2		
Q.74	Which among the foll	lowing is not a member of	the power set of {2, 3}?			
c	(a) Φ	(b) {2}	(c) {{2,3}}	(d) {2,3}		
0.75	If a set A contains 3 e	lements, determine the nu	mber of elements in the r	ower set of set A.		
L	(a) 1	(h) 2	(c) 8	(d) 27		
0.76	If set $A = \{1, 2, 3\}$, wh	nich of the following staten	nents is inaccurate?	(4) 27		
Q., C	(a) $\Phi \in A$	(h) $\Phi \in P(A)$	(c) $\Phi \subset A$	(d) $\Phi \subset P(A)$		
0.77	If set $X = \{2, 3, 5, 7\}$ t	then the cardinality of the	nower set $P(X)$ is	(u) + - I (II)		
Q.77	(a) 8	(h) 16	(c) 32	 (d) 64		
0.78	(a) o	(0) 10 are in the new or set $P(\Lambda)$	when $\Lambda = \omega^2$	(u) 04		
Q.70	(a) 1	(h) 2	when $A = \psi$:	(d)		
0.70	(d) I If $A = (a, b, a)$ then the	$(U) \Delta$	(c) c	(u) 4		
Q.79	$\prod A = \{a, b, c\} \ \text{then th}$	e power set r (A) is {{a}, {i	J}, {L}, {d, D}, {D, L}, {d, L}, { (b) Ealaa	[d, D, C}}.		
0.00	(a) find If $V = (1, 2)$ then $D(V)$	-(m(1)(2)(12))	(D) Palse			
Q.00	$\prod \Lambda = \{1, 2\} \text{ unerr } \Gamma(\Lambda)$	$- \{\Psi, \{1\}, \{2\}, \{1,2\}\}.$	(h) Falsa			
0.01	(d) IIue	in the nerver set of (0	(D) raise			
Q.01	(a) 1024		1, 2,, 0} IS	(4) 120		
0.02	(a) 1024	(D) 4096	(C) 512	(d) 128		
Q.82	If a set $A = \{x: x s a p\}$	rime number less than 4} t	then $n[P(P(A))]$ is			
0.00	(a) 8	(b) 16	(C) 32	(d) 64		
Q.83	If set $A = \{\Phi\}$ then the	power set P(A) is				
	(a) {Φ}	(b) {{ Φ }}	(c) {Φ, {Φ}}	(d) Φ		
Q.84	A set that serves as a	superset for all fundamen	tal sets of that particular i	type is called?		
	(a) Power set	(b) Universal set	(c) Empty set	(d) Singleton set		
Q.85	What is the universal	set for integers among the	e following options?			
	(a) Natural numbers	(b) Whole numbers	(c) Rational numbers	(d) Prime numbers		
Q.86	Consider sets $A = \{1, $	2}, B = $\{2, 4\}, C = \{4, 5, 6\}$. Which of the following c	ould be regarded as the		
	universal set for sets	A, B, C?				
	(a) {1,6,7,8,9}	(b) {1,2,3,4}	(c) {2,4,5,6}	(d) {1,2,3,4,5,6}		
Q.87	What among the follo	owing can be considered a	universal set for the equil	ateral triangle?		
	(a) Set of isosceles triangles		(b) Set of right triangles			
	(c) Set of acute triang	gles	(d) Set of obtuse trian	gles		
Q.88	What is recognized as the universal set for squares among the following?					
	(a) Set of Rhombus		(b) Set of Parallelogra	m		
	(c) Set of Rectangle		(d) Set of Trapezium	(d) Set of Trapezium		
Q.89	What is the universal	set for {a, p} among the fo	ollowing?			
	(a) Set of vowels		(b) Set of consonants			
	(c) Set of letters of Er	nglish alphabet	(d) Set of numbers			

Q.92

(a) True

- Q.90 What is regarded as the universal set for the set of multiples of 4 among the following?
 (a) Set of multiple of 16
 (b) Set of multiple of 12
 (c) Set of multiple of 2
 (d) Set of multiple of 8
- **Q.91** Let $U = \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9\}$. Which of the following is not included as a subset of the universal set?

(a) {1,2} (b) {0,1,2,3,4,5,6,7,8,9} (c) {2,3,5,7} (d) {1,2,3,4,5,6,7,8,9,10}

- The set {a, b, e, i, o, u, v, z} serves as the universal set for a collection of vowels.
 - (b) False
- Q.93 The set of prime numbers serves as the universal set for odd numbers.(a) True(b) False
- Q.94 Is set A a subset of set B in the provided Venn diagram? (a) True (b) False



Q.95 Does set A belong to the subset of set U in the provided Venn diagram?(a) True(b) False



Q.96Which of the following statement is true?
(a) A is subset of B
(c) U is subset of A and B(b) B is subset of A
(d) A and B are subsets of U



Q.97 If the given Venn diagram has n(A) = 10, n(B) = 20, and the intersection (c) is 5, determine the values of a and b.

(a) a = 10 and b = 15(b) a = 5 and b = 15(c) a = 15 and b = 10(d) a = 15 and b = 5(d) a = 15 and b = 5(e) a = 15 and b = 5(f) a = 15 and b = 5

Q.98Out of a population of 100 individuals, 40 prefer tea, 30 prefer coffee, and 10 enjoy both
beverages. How many individuals exclusively favor tea?
(a) 10(b) 20(c) 30(d) 40



Q.99 In a population of 100 individuals, 40 have a preference for tea, and 30 have a preference for coffee. Among them, 10 individuals like both beverages. How many individuals exclusively favor coffee?
 (a) 10
 (b) 20
 (c) 30
 (d) 40



(d) Set of natural numbers

(d) A∩B

- Q.100If $A = \{1, 2, 3\}$ and $B = \{3, 4, 5, 6\}$ determine the union of A and B (AUB).
(a) $\{1, 2, 3\}$ (b) $\{3\}$ (c) $\{1, 2, 3, 4, 5, 6\}$ (d) $\{\}$ Q.101Consider A as the set of odd numbers and B as the set of even numbers. Determine the
intersection of A and B (A \cap B).
(a) Set of prime numbers(a) Set of prime numbers(b) Set of real numbers
 - (a) Set of prime numbers(c) Empty set
- **Q.102** If $A = \{a, e, i, o, u\}$ and $B = \{a, e, u\}$ then find the union of A and B (AUB). (a) A (b) B (c) Φ
- Q.103If A = {a, e, i, o, u} and B = {a, e, u}, determine the intersection of A and B (A \cap B).(a) A(b) B(c) Φ (d) A \cup B
- Q.104Given A = $\{1, 2, 3\}$ and B = $\{3, 4, 5, 6\}$, calculate the intersection of A and B (A \cap B).(a) $\{1, 2, 3\}$ (b) $\{\}$ (c) $\{1, 2, 3, 4, 5, 6\}$ (d) $\{3\}$
- Q.105In the provided Venn diagram, determine the union of sets A and B (A \cup B).(a) a(b) b(c) a + c(d) a + b + c



Q.106In the provided Venn diagram, identify the intersection of sets A and B (A \cap B).(a) a(b) b(c) c(d) a + b + c



Q.107 In the provided Venn diagram, locate the union of sets A and B (A∪B).
(a) {1, 2, 3} (b) {2, 4} (c) {3} (d) {2, 3, 4}
Q.108 In the provided Venn diagram, determine the intersection of sets A and B

(a) $\{1,2,3\}$ (b) $\{2,4\}$ (c) $\{3\}$ (d) $\{2,3,4\}$



- Q.109If $A = \{1, 2, 3, 4, 5\}$ then find the number of elements in the power set of A
(a) 30(b) 32(c) 16(d) 64Q.110If P (A) = P (B) then
(a) $A \subset B$ (b) $A \supset B$ (c) A = B(d) All are trueQ.111If n (A) = 3, n (B) = 6 and $A \subseteq B$, then the number of elements in $A \cup B$ are
- (a) 6 (b) 7 (c) 5 (d) 3

Q.112	If A = $\{1, 2, 3, 4\}$, B = $\{5, 6, 7\}$ then A Δ B is						
	(a) {1, 2, 3, 4, 5, 6, 7}	(b) {1, 2, 3, 4}	(c) {1, 2, 3, 4, 5}	(d) {1, 2, 3}			
Q.113	2.113 If A, B are non-empty sets then $(A - B) \cup (B - A)$ equals.						
	(a) $(A \cup B) - B$	(b) A – (A \cap B)	$(c) (A \cup B) - (A \cap B)$	$(d) (A \cup B) \cup (A \cap B)$			
Q.114	Let A = {1, 2, 3, 4, 5} an	d B = {4, 5, 6, 7, 8, 9} then	number of subsets of A \cap	B is			
	(a) 2	(b) 4	(c) 8	(d) 16			
Q.115	If A and B are any two r	on-empty sets and A is p	roper subset of B. If n (A) =	= 5, then minimum			
	possible value of n (A Δ I	3) is					
Q.112 If $A = \{1, 2, (a), \{1, 2, 3, (a), \{1, 2, 3, (a), (A \cup B), $	(a) 2	(b) 1	(c) 0	(d) 3			
Q.116	Let Z be the set of all int	tegers and					
	$A = \{(a, b) : (-1, -3), $	1, 3), (1, -3), (1, 3), (2, 4)	, (4, 2), (4, -2), (4, -1), (0,	-1)}			
	$B = \{(a, b) : a > b, a, b \in Z\}$, then $n(A \cap B)$ is equal to						
	(a) 1	(b) 6	(c) 3	(d) 8			
Q.117	If A and B are any two s	ets then $A \cup (A \cap B)$ is eq	ual to				
	(a) A	(b) A ^c	(c) B	(d) B ^c			



- 1. If $A' \cup B = U$, then show that $A \subset B$.
- 2. In a club with 300 members, 120 of them drink tea, and 80 drink tea but not coffee. Assuming each member consumes at least one beverage, find...
 - (a) How many people drink coffee?
 - (b) How many people drink coffee without drinking tea?
- 3. In a gathering of 450 people, 200 speak only Hindi, and 180 speak only English. Assuming each person speaks at least one language,

- How many can speak English? (a)
- (b) How many can speak Hindi?
- How many can speak both English and Hindi? (c)

Find the real values of x that satisfy the following inequalities.

4.	(x – 3	3)(x-7)(x-12) < 0		
5.	(a)	$\frac{(x+5)(x-9)}{(x-12)} > 0$	(b)	$\frac{(x-9)(x-15)}{(x-12)} \ge 0$
6.	(a)	$\frac{(x-5)(x-9)}{(x-3)(x-7)} \le 0$	(b)	$\frac{(x^2-5)(x^2-4)}{(x-1)} \le 0$
7.	(a)	$\frac{4}{(x-1)} \ge \frac{1}{(2x-1)}$	(b)	$\frac{2}{x-1} \le \frac{3}{2x-3}$
8.	(a)	$\frac{4}{x-1} < \frac{3}{x+5}$	(b)	$\frac{3}{2x-1} \ge \frac{5}{x-1}$
9.	Deter	mine the shared solution for t	he following inequaliti	es.

(a)
$$(x-7)(x-15) < 0, (x-2)(x-8)(x-12) \ge 0$$

(b) $(x-1)(x-5)(x-15) \le 0, (x-3)(x-10) > 0$

1	2	3	4	5	6	7	8	9	10
а	С	d	а	С	а	С	d	b	С
11	12	13	14	15	16	17	18	19	20
b	С	d	b	С	С	С	d	d	а
21	22	23	24	25	26	27	28	29	30
b	а	d	b	а	а	b	d	d	b
31	32	33	34	35	36	37	38	39	40
С	d	b	а	а	d	С	b	С	с
41	42	43	44	45	46	47	48	49	50
d	b	а	а	С	а	d	а	С	d
51	52	53	54	55	56	57	58	59	60
а	b	С	а	С	d	d	а	а	d
61	62	63	64	65	66	67	68	69	70
а	b	а	d	b	b	d	а	d	b
71	72	73	74	75	76	77	78	79	80
С	С	С	С	С	а	b	а	b	а
81	82	83	84	85	86	87	88	89	90
d	b	С	b	С	d	а	С	С	С
91	92	93	94	95	96	97	98	99	100
d	а	b	b	а	d	b	С	d	С
101	102	103	104	105	106	107	108	109	110
С	а	b	d	d	С	d	b	b	С
111	112	113	114	115	116	117			
а	а	С	b	b	b	а			
	1 a 11 b 21 b 31 c 41 d 51 a 61 a 61 a 61 a 61 a 61 a 61 a ft d 91 d 101 c 1111 a	1 2 a c 11 12 b c 21 22 b a 31 32 c d 41 42 d b 51 52 a b 61 62 a b 71 72 c c d b 91 92 d a 101 102 c a 111 112 a a	1 2 3 a c d 11 12 13 b c d 21 22 23 b a d 31 32 33 c d b 41 42 43 d b a 51 52 53 a b c 61 62 63 a b a 71 72 73 c c c 81 82 83 d b c 91 92 93 d a b 101 102 103 c a b 111 112 113	1 2 3 4 a c d a 11 12 13 14 b c d b 21 22 23 24 b a d b 31 32 33 34 c d b a 41 42 43 44 d b a a ft 52 53 54 a b c a 61 62 63 64 a b c a 71 72 73 74 c c c b d b c b g 93 94 b d a b b 91 92 93 94 d a b b 101 102 103 104 c a b d	1 2 3 4 5 a c d a C 11 12 13 14 15 b c d b c 21 22 23 24 25 b a d b a 31 32 33 34 35 c d b a a 41 42 43 44 45 d b a a c 51 52 53 54 55 a b c a c 61 62 63 64 65 a b a d b 71 72 73 74 75 c c c c c 91 92 93 94 95 d a b<	1 2 3 4 5 6 a c d a C a 11 12 13 14 15 16 b c d b c c 21 22 23 24 25 26 b a d b a a 31 32 33 34 35 36 c d b a a d 41 42 43 44 45 46 d b a a c a 51 52 53 54 55 56 a b c a c d 61 62 63 64 65 66 a b a d b b 71 72 73 74 75 76 c c c b c d d 91 92	1 2 3 4 5 6 7 a c d a C a c 11 12 13 14 15 16 17 b c d b c c c 21 22 23 24 25 26 27 b a d b a a b 31 32 33 34 35 36 37 c d b a a d c 41 42 43 44 45 46 47 d b a a c a d c 41 42 43 44 45 46 47 d b a a c a d c 41 42 43 444 45 46 47 d b a a c a d c	1 2 3 4 5 6 7 8 a c d a C a c d 11 12 13 14 15 16 17 18 b c d b c c d d 21 22 23 24 25 26 27 28 b a d b a a b d 31 32 33 34 35 36 37 38 c d b a a d c b 41 42 43 44 45 46 47 48 d b a a c a d a 51 52 53 54 55 56 57 58 a b c a d b a a a a 61 62 63 64 65	1 2 3 4 5 6 7 8 9 a c d a C a c d b 11 12 13 14 15 16 17 18 19 b c d b c c d d 21 22 23 24 25 26 27 28 29 b a d b a a b d d 31 32 33 34 35 36 37 38 39 c d b a a d c b c 41 42 43 44 45 46 47 48 49 d b a a c a d a c 51 52 53 54 55 56 57 58 59 a b c a d b

ANSWER KEY – LEVEL – I

ANSWER KEY – LEVEL – II

- 1. Let $x \in B$ $x \in \phi \cup B$ (:: $\phi \cup B = B$) $x \in (A \cap A') \cup B \{:: \phi = A \cap A'\}$ $x \in (A \cup B) \cap (A' \cup B)$ (distributive law) $x \in (A \cup B) \cap U \{:: A' \cup B = U \text{ given }\}$ $x \in (A \cup B) \{:: A \cap U = A\}$ $B = A \cup B$ $A \subset (A \cup B)$ $A \subset B$ (:: $A \cup B = B$)
- **2.** Let C and T be the set of people drinking coffee and tea respectively.

So, n(T) = 120; $n(C \cup T) = 300$

- (a) n(T C) = 80 $\Rightarrow n(T \cup C) - n(C) = 80$ $\Rightarrow 300 - n(C) = 80$ $\Rightarrow n(C) = 300 - 80$ $\therefore n(C) = 220$
- (b) And, $n(C T) = n(T \cup C) n(T) = 300 120 = 180$ Hence the number of people drinking coffee = 220 Hence the number of people drinking coffee but not tea = 180

- **3.** Let U be the set of all people in the group H&E be the set of all people in the group who speak Hindi and English respectively \therefore n(U) = n(H \cup E) = 450
 - (a) n(H E) = 200 $\Rightarrow n(H \cup E) - n(E) = 200$ $\Rightarrow 450 - n(E) = 200$ $\therefore n(E) = 250$
 - (b) n(E H) = 180 $n(H \cup E) - n(H) = 180$ 450 - n(H) = 180n(H) = 270 (given)
 - (c) $n(H \cup E) = n(H) + n(E) n(H \cap E)$ $\Rightarrow 450 = 270 + 250 - n(H \cap E)$ $\Rightarrow n(H \cap E) = 520 - 450$ $\therefore n(H \cap E) = 70$
- 4. $x \in (-\infty, 3) \cup (7, 12)$
- **5.** (a) $x \in (-5,9) \cup (12, \infty)$
- **6.** (a) x ∈ (3,5] ∪ (7,9]
- 7. (a) $x \in [\frac{3}{7}, \frac{1}{2}] \cup (1, \infty)$
- **8.** (a) $x \in (-\infty, -23) \cup (-5, 1)$
- **9.** (a) $x \in (7,8] \cup [12,15)$

- (b) $x \in [9,12) \cup [15,\infty)$
- (b) $x \in (-\infty, -\sqrt{5}] \cup [-2,1) \cup [2, \sqrt{5}]$
- (b) $x \in (-\infty, 1) \cup (\frac{3}{2}, 3]$
- (b) $x \in (-\infty, \frac{2}{7}] \cup (\frac{1}{2}, 1)$
- (b) $x \in (-\infty, 1] \cup (10, 15]$