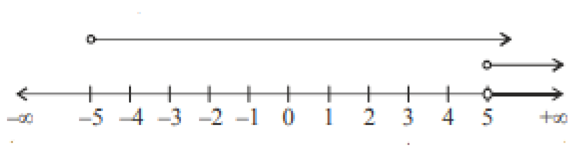
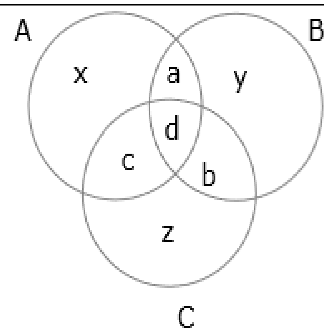
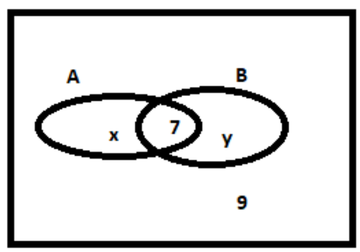
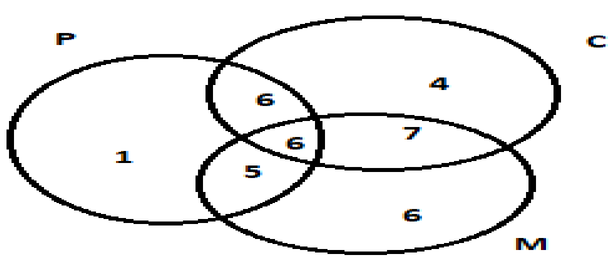
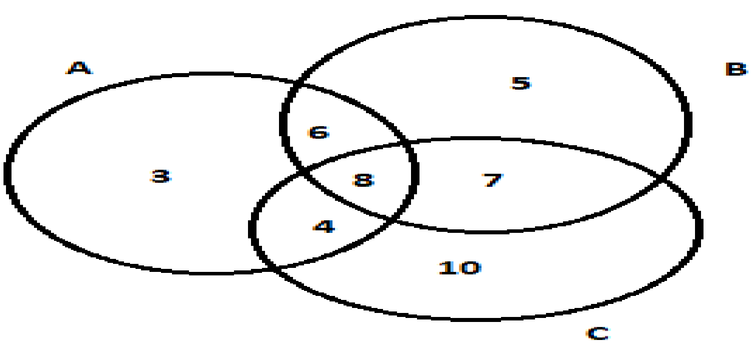
INDIAN SCHOOL MUSCAT

NAME OF THE EXAMINATION	FIRST PERIODIC TEST	CLASS: XI
DATE OF EXAMINATION		SUBJECT: MATHEMATICS
TYPE: THEORY	MARKING SCHEME	SET- **A,B & C**

SET	Q.NO	VALUE POINTS	MARK
A	1	B – (A∪C) or B∩ (A∪C)'	1
A	2	FALSE	1
A	3	x<y $\Rightarrow \frac{x}{b} > \frac{y}{b}$	1
A	4	$x\in[\frac{9}{2}, \infty)$	1
A	5	-2x >6 $\Rightarrow x < -3$ ∴solution set is $(-\infty, -3)$	$\frac{1}{2}$ $\frac{1}{2}$
A	6	Let C = the set of people who like cricket and T = the set of people who like tennis. n (C ∪ T) = 56, n (C) = 40 n (C ∩ T) = 10 n (C ∪ T) = n (C) + n (T) – n (C ∩T) 65 = 40 + n (T) – 10 n (T) = 35, no of people like Tennis. Number of like tennis only and not cricket = 35 - 10 = 25	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$
A	7	3x - 2x >-12 + 7 ⇒x > -5 ---------------------------------(i) -x + 2x > 11- 6 ⇒x > 5 -------(ii) Hence, solution set of the in equations are real numbers, x greater than 5	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$

		 $x \in (5, \infty)$	$\frac{1}{2}$
A	8	U = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}, A = {1, 2, 3, 5}, B = {2, 4, 6, 7} and C = {2, 3, 4, 8} $B \cup C = \{2,3,4,6,7,8\} \Rightarrow (B \cup C)' = \{1,5,9\}$ $C - A = \{4,8\} \Rightarrow (C - A)' = \{1, 2, 3, 5, 6, 7, 9, 10\}$	$\frac{1}{2}+\frac{1}{2}$ $\frac{1}{2}+\frac{1}{2}$
A	9	 $x + a + c + d = 4000$ $y + a + d + b = 2000$ $z + b + c + d = 1000$ $a + d = 500, b + d = 300, C + d = 400\ d = 200$ On Solving $a = 300, b = 100, c = 200$ (i) $x = 4000 - 300 - 200 - 200 = 3300$ (ii) $y = 2000 - 300 - 200 - 100 = 1400$ (iii) $z = 1000 - 100 - 200 - 200 = 500$ None of these $= 10{,}000 - (3300 + 1400 + 500 + 300 + 100 + 200 + 200)$ $= 10{,}000 - 6000$ $= 4000$ x- newspaper A only ,y – newspaper B only ,z- newspaper C only	$\frac{1}{2}+\frac{1}{2}$ $\frac{1}{2}+\frac{1}{2}$ $\frac{1}{2}+\frac{1}{2}$
A	10	**Ans.** Let x litres of 30% acid sol. Is required to be added. $30\%x + 12\%$ of $600 > 15\%$ of $(x+600)$ and $30\%x + 12\%$ of $600 < 18\%$ of $(x+600)$ $\frac{30x}{100} + \frac{12}{100}(600) > \frac{15}{100}(x+600)$ $\frac{30x}{100} + \frac{12}{100}(600) < \frac{18}{100}(x+600)$ $x > 120$ and $x < 300$ i.e. $120 < x < 300$.	1 1 1

A	11	Let C be the set of students in chemistry class and P be the set of students in physics class. n (C) = 20, n (P) = 30 (i) $C \cap P = \phi$ $n(C \cup P) = n(C) + n(P)$ $= 20 + 30$ $= 50$ (ii) $n(C \cap P) = 10$ $n(C \cup P) = n(C) + n(P) - n(C \cap P)$ $= 20 + 30 - 10$ $= 40$	1 1 1
		End of the Marking Scheme –Set A	
B	4	A∩(B∪C)	1
B	5	$(-\infty, -3]$	1
B	7	$n(A \cup B) = x + 7 + y = 21$ $x + y = 14$ $n(A' \cap B') = 9 = n[(A \cup B)']$  $n(A \cap B)' = x + y + 9 = 14 + 9 = 23$	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$
B	11	 (1) The total number of students – 1+4+6+5+7+6+6 = 35 (2) How many took Maths but not Chemistry- 5 + 6 = 11 (3) How many took exactly one of the three subjects – 1+ 4+ 6 = 11	$\frac{1}{2}+\frac{1}{2}$ $\frac{1}{2}+\frac{1}{2}$ $\frac{1}{2}+\frac{1}{2}$

		End of the Marking Scheme –Set B	
C	2	$(A - B) \cup (B - A)$ or $A \Delta B$	1
C	4	$\{-4, -3, -2, -1, 0, 1, 2, 3, 4\}$	1
C	5	(a) $\frac{x}{b} < \frac{y}{b}$	1
C	8	U = {1,2,3,4,5,6,7,8,9},A = {2,4,6,8},B = {2,3,5,7} (AUB)' = {1,9}, A' ={1,3,5,7,9} ,B' = {1,4,6,8,9} A' ∩ B' = {1,9} =(AUB) ' (A∩B) ' = {1,3,4,5,6,7,8,9} , A' ∪ B' ={1,3,4,5,6,7,8,9} ∴(A∩B) ' = A' ∪ B'	$\frac{1}{2}+\frac{1}{2}$ $\frac{1}{2}+\frac{1}{2}$
C	10	Let C be the set of students in chemistry class and P be the set of students in physics class. n (C) = **30**, n (P) = **40** (i) $C \cap P = \phi$ $n(C \cup P) = n(C) + n(P)$ $= 30 + 40$ $= 70$ (ii) $n(C \cap P) = 10$ $n(C \cup P) = n(C) + n(P) - n(C \cap P)$ $= 30 + 40 - 10$ $= 60$	1 1 1
C	11	(i)No of people surveyed in all = 43 (ii) No of people like product C only =10 (iii) No of people like exactly two products = 6 + 4 +7 = 17 	$\frac{1}{2}+\frac{1}{2}$ $\frac{1}{2}+\frac{1}{2}$ $\frac{1}{2}+\frac{1}{2}$
		End of the Marking Scheme –Set C	