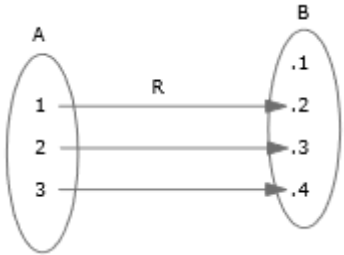
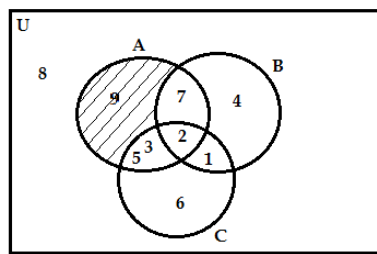




S.NO	MCQ
1	(B) 25
2	(C) $\{(1, 2), (2, 2), (3, 4)\}$
3	(C) $R - \{x   x = (2n+1)\pi/2, n \in \mathbb{Z}\}$
4	(B) (-6, 0)
5	(A) $\emptyset$
6	(D) $x = 2, y = -2$
7	(A) 0.28
8	(C) 80
9	(B) 40
10	(D) $1 + x^2$
	VSA
11	$A - B = [-3, 0]$
12	$A = \{1, 2, 3, 4\}$ $B = \{5, 6, 7\}$ $A \cap B = \emptyset$
13	$\{x : x \in \mathbb{R}, -23 \leq x \leq 5\}$
14	The relation g is defined as $g(x) = \begin{cases} x^2, & 0 \leq x \leq 2 \\ 3x, & 2 \leq x \leq 10 \end{cases}$ It can be observed that for $x = 2, g(x) = 2^2 = 4$ and $g(x) = 3 \times 2 = 6$ . Since, element 2 of the domain of the relation g corresponds to two different images i.e., 4 and 6, this relation is not a function.
15	$\frac{-19\pi}{72}$
16	New S.D. = 4
17	$x \geq 2$
18	$\sin x = \frac{-\sqrt{3}}{2} \Rightarrow \sin x = \sin \frac{4\pi}{3}$ $\Rightarrow x = n\pi + (-1)^n \frac{4\pi}{3}; n \in \mathbb{Z}$
19	$-12x > 30 \Rightarrow x < -2.5$ $\therefore$ The solution set is $\{\dots, -5, -4, -3\}$ .
20	Let the numbers in G.P. be $\frac{a}{d}, a$ and $ad$ . $\therefore a^3 = 27 \Rightarrow a = 3$
	SA
21	(a) Domain = $\mathbb{R} - \{2, 3\}$ OR (b) Domain = $\mathbb{R}$ & Range = $[0, \infty)$
22	$A \times (B \cap C) = \{(1, 4), (2, 4), (3, 4)\}$ $(A \times B) \cap (A \times C) = \{(1, 4), (2, 4), (3, 4)\}$
23	(i) $R = \{(1, 2), (2, 3), (3, 4)\}$

	<p>(ii)</p> 
24	<p>(a) Median = 9 M.D.(M) = 5.27    OR    (b) Mean, <math>\bar{x} = 9</math>    M.D. (<math>\bar{x}</math>) = 2.75</p>
25	<p><math>\tan(A+B) = 1 \Rightarrow A + B = 45^\circ</math></p>
26	<p><math>\sigma^2 = \frac{\sum x^2}{100} - (\bar{x})^2</math> <math>25 = \frac{\sum x^2}{100} - 2500 \Rightarrow \sum x^2 = 252500</math></p>
LA-I	
27	<p>(i) <math>(A \cup B)' = \{6, 8\}</math> <math>A' = \{1, 4, 6, 8\}</math> <math>B' = \{3, 5, 6, 8, 9\}</math> <math>A' \cap B' = \{6, 8\}</math></p> <p>(ii)</p> 
28	<p><math>x = \frac{n\pi}{4}</math> or <math>x = n\pi \pm \frac{\pi}{6}</math>, where <math>n \in \mathbf{Z}</math>.</p>
29	<p>(a) Proof OR (b) <math>\cos \frac{x}{2} = \frac{\sqrt{5}}{5}</math>, <math>\sin \frac{x}{2} = \frac{2\sqrt{5}}{5}</math>, <math>\tan \frac{x}{2} = 2</math></p>
30	<p>Proof</p>
31	<p><math>\frac{A_{12}}{a_{12}} = \frac{7}{16}</math></p>
32	<p>(a) <math>S_n = \frac{n(n+1)^2(n+2)}{12}</math> OR (b) <math>S_n = \frac{80}{81}(10^n - 1) - \frac{8}{9}n</math></p>
33	<p>Proof</p>
34	<p>General solution is <math>\frac{n\pi}{3}</math> OR <math>n\pi \pm \frac{\pi}{3}</math>, <math>n \in \mathbf{Z}</math></p>
35	<p><math>\frac{A_{18}}{a_{18}} = \frac{179}{321}</math></p>
LA-II	
36	<p>(i) 43    (ii) 10    (iii) 17</p>

37	<b>Proof</b>																		
38	<p>(a) Correct mean =40.045 &amp; correct standard deviation =14.995  OR  (b) Mean = 62 ,variance <math>\sigma^2 =201</math> &amp; standard deviation <math>\sigma =\sqrt{201} = 14.18</math></p>																		
39	<p>(a)The required quantity of water to be added is more than 562.5 litres but less than 900 litres  OR</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: left;"> <p><math>x + 2y = 10</math></p> <table border="1" style="margin-left: 20px;"> <tr><td>x</td><td>0</td><td>10</td></tr> <tr><td>y</td><td>5</td><td>0</td></tr> </table> <p><math>x + y = 1</math></p> <table border="1" style="margin-left: 20px;"> <tr><td>x</td><td>0</td><td>1</td></tr> <tr><td>y</td><td>1</td><td>0</td></tr> </table> <p><math>x - y = 0</math></p> <table border="1" style="margin-left: 20px;"> <tr><td>x</td><td>0</td><td>2</td></tr> <tr><td>y</td><td>0</td><td>2</td></tr> </table> </div> <div style="text-align: center;"> </div> </div> <p>(b)</p>	x	0	10	y	5	0	x	0	1	y	1	0	x	0	2	y	0	2
x	0	10																	
y	5	0																	
x	0	1																	
y	1	0																	
x	0	2																	
y	0	2																	
40	<div style="display: flex; justify-content: space-between;"> <div style="width: 60%;"> <p><math>x + a + c + d = 4000</math>  <math>y + a + d + b = 2000</math>  <math>z + b + c + d = 1000</math>  <math>a + d = 500, b + d = 300, c + d = 400, d = 200</math>  On Solving <math>a = 300, b = 100, c = 200</math>  (i) <math>x = 4000 - 300 - 200 - 200 = 3300</math>  (ii) <math>y = 2000 - 300 - 200 - 100 = 1400</math>  (iii) <math>z = 1000 - 100 - 200 - 200 = 500</math>  None of these = <math>10,000 - (3300 + 1400 + 500 + 300 + 100 + 200 + 200)</math>  = <math>10,000 - 6000</math>  = <math>4000</math></p> </div> <div style="width: 35%; text-align: center;"> </div> </div>																		