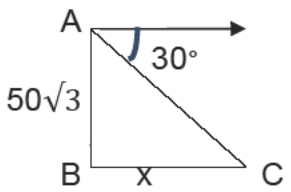
S.S.L.C PUBLIC EXAMS- MAY -2022
ANSWER KEY
SUBJECT: MATHEMATICS MEDIUM : ENGLISH

Part-I			$(14 \times 1 = 14)$
Q.NO.	**KEY ANSWERS**		**MARKS ALLOTED**
1	d	(3,-2)	1
2	b	2	1
3	d	7nd	1
4	b	5	1
5	b	$16x^2$	1
6	b	1	1
7	d	$5\sqrt{2}$ cm	1
8	b	4 cm	1
9	c	9	1
10	b	1	1
11	b	43.92 m	1
12	a	$4\pi r^2$sq.units	1
13	b(or)c	3 (or) 4	1
14	b	1	1

Part-II **[Q.NO.28- COMPULSORY]**			$(10 \times 2 = 20)$
Q.NO.	**KEY ANSWERS**	**MARKS ALLOTED**	
15	A={1,2,3} , B={2,3,5,7} AXB = {(1,2),(1,3),(1,5),(1,7),(2,2),(2 3) (2,5),(2,7), (3,2),(3,3),(3,5),(3,7)} BXA= {(2,1),(2,2) (2,3),(3,1),(3,2),(3,3),(5,1),(5,2) (5,3),(7,),(7,2),(7,3)}	1 1	2
16	i) Set builder form R = {(x, y)/y=x-2,x∈P, y∈Q} ii) Roster form R = {(5,3),(6,4),(7,5)}	1 1	2

17	$13824 = 2^9 \times 3^3$ $a = 9;\ b=3$	1 1	2
18	$n = \frac{l-a}{d} + 1\ (or)\ t_n = a + (n-1)d$ $n = 15$	1 1	2
19	$8p^2 + 13p + 5 = 0$ $8p+5=0;\ p+1=0$ Excluded Values=$\frac{-5}{8}$மற்றும் -1	1 1 1	2
20	$\frac{BD}{DC} = \frac{AB}{AC}(OR)\frac{4}{3} = \frac{6}{AC}$ AC = $\frac{9}{2}$ =4.5 cm	1 1	2
21	Area of$\Delta PQR = \frac{1}{2}\{\begin{matrix} x_1 & x_2 & x_3 & x_1 \\ y_1 & y_2 & y_3 & y_1 \end{matrix}\}$ Sq.units **(or)** $= \frac{1}{2}\{\begin{matrix} -1.5 & 6 & -3 & -1.5 \\ 3 & -2 & 4 & 3 \end{matrix}\}$ $= 0$ Sq.units ∴ The given points P,Q, R are collinear.	1 1	2
22	Slope of p , $m_1 = \frac{2}{3}$ Slope of q , $m_2 = \frac{2}{3}$ $m_1=m_2$, p is parallel to q	1 1	2
23	$y-y_1 = m(x-x_1)$ $5x+4y-3=0$	1 1	2
24	 tan 30° =$\frac{AB}{BC}$ (OR) $tan30^\circ = \frac{50\sqrt{3}}{x}$ Distance = 150 m	 1 1	2
25	Surface area of a sphere = $4\pi r^2$ Sq.units Ratio of Surface area = 9:16	1 1	2
26	Volume of a cone $= \frac{1}{3}\pi r^2 h$ cu.units $V_1 : V_2 = \frac{1}{3}\pi r^2 h_1 : \frac{1}{3}\pi r^2 h_2 = 3600 : 5040$ $h_1 : h_2 = 5:7$	1 1	2

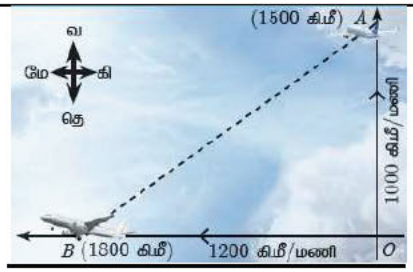
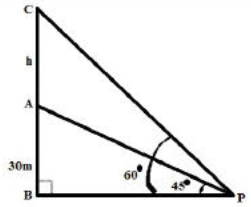
27	S={HH,HT,TH,TT} $(or)\ n(s) = 4$ P(A)= $\frac{2}{4} = \frac{1}{2}$	1 1	2
28	$P + Q = \frac{x+y}{x+y}$ $P - Q = \frac{x-y}{x+y}$ $\frac{1}{P^2-Q^2} = \frac{1}{(P+Q)(P-Q)} = \frac{x+y}{x-y}$	1 1	2

Part-III $(10 \times 5 = 50)$

(Q.NO.42 COMPULSORY)

Q.NO.	KEY ANSWERS	MARKS ALLOTED	
29	B-C ={3 5,7} AX(B-C) = {(1,3),(1,5),(1,7),(2,3),(2,5),(2,7), (3,3),(3,5),(3,7),(4,3),(4,5),(4,7), (5,3),(5,5),(5,7),(6,3),(6,5),(6,7), (7,3),(7,5),(7,7)} AXB = { (1,2),(1,3),(1,5),(1,7),(2,2)(2 3),(2,5),(2,7), (3,2),(3,3),(3,5),(3,7),(4,2),(4,3),(4,5),(4,7), (5,2),(5 3) (5,5) (5,7),(6,2),(6,3),(6,5),(6,7), (7,2) (7,3 ,(7,5),(7,7) } AXC = { (1,2),(2,2),(3,2),(4,2),(5,2),(6,2),(7,2) } (AXB) - (AXC) ={(1,3),(1,5),(1,7),(2,3),(2,5),(2,7), (3,3),(3,5),(3,7),(4,3),(4,5),(4,7), (5,3),(5,5),(5,7),(6,3),(6,5),(6,7), (7,3),(7,5),(7,7) } AX(B-C) = (AXB) –(AXC) Verified	**1** **1** **1** **1** **1**	**5**
30	$t_n = a + (n-1)d$ $x = a + (l-1)d$ $y = a + (m-1)d$ $z = a + (n-1)d$ (i) $x(m-n) + y(n-l) + z(l-m)$ $= a(0) + d(0) = 0$ (ii) $x - y = (l-m)d$ $y - z = (m-n)d$ $z - x = (n-l)d$ $(x-y)n + (y-z)l + (z-x)m = 0$	**1** **1** **1** **1** **1**	**5**
31	$t_n = a + (n-1)d$ $a + 5d : a + 7d = 7:9$ a = 2d $t_9 : t_{13}$ = a+8d : a+12d = 5:7	**1** **1** **1** **1** **1**	**5**

32	$6x^2-5x+3$ $6x^2$ | $36x^4 - 60x^3 + 61x^2 - mx + n$ $36x^4$ (-) $12x^2-5x$ | $-60x^3 + 61x^2$ $-60x^3 + 25x^2$ (+) (-) $12x^2-10x+3$ | $36x^2 - mx + n$ $36x^2-30x+9$ 0 m =30 n=9	**1** **1** **1** **1** **1**	**5**
33	$a = pq;\ b = -(p+q)^2;\ c = (p+q)^2$ $x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$ $= \frac{-[-(p+q)^2] \pm \sqrt{[-(p+q)^2]^2 - 4(pq)(p+q)^2}}{2pq}$ $x = \frac{p+q}{q},\ \frac{p+q}{p}$	**1** **1** **1** **2**	**5**
34	$\alpha+\beta = \frac{-a}{7};\ \alpha\beta = \frac{2}{7}$ $(\alpha-\beta)^2 = (\alpha+\beta)^2 - 4\alpha\beta$ $a^2 = 225$ $a = 15,\ a = -15$	**1** **1** **2** **1**	**5**
35	Statement Figure Given , To prove , Construction Proof **Note :- If No figure then only marks allotted for statement**	**1** **1** **1** **2**	**5**

36	 Distance travel by first aeroplaneOA = 1500 km Distance travel by Second aeroplane OB = 1800 km In right angled triangle OAB $AB^2 = OA^2 + OB^2 = 1500^2 + 1800^2$ $AB = 300\sqrt{61}$kms	1 1 1 2	**5**
37	mid point of ABP $(\frac{1}{2}, \frac{-}{2})$ mid point of BCQ $(\frac{11}{2}, \frac{4}{2})$ mid point of CDR $(\frac{-1}{2}, \frac{11}{2})$ mid point of ADS $(\frac{-1}{2}, \frac{4}{2})$ Slope of PQ $= \frac{7}{10}$ Slope of RS $= \frac{7}{10}$ Slope of QR $= \frac{-7}{12}$ S ope of PS $= \frac{-7}{12}$ PQ , RS are parallel and QR , PS are parallel PQRSis a Parallelogram **Note : Mid point and Slope formula may be alloted marks**	2 2 1	**5**
38	 In right angled triangleABP $tan45^\circ = \frac{AB}{BP} \Rightarrow BP = 30m$ In right angled triangle CBP $tan60^\circ = \frac{BC}{BP} \Rightarrow BP = \frac{30+h}{\sqrt{3}}m$ $\frac{30+h}{\sqrt{3}} = 30$ Height of the tower$h = 21.96\ m$	1 1 1 1 1	**5**

39	Volume = $\frac{\pi h}{3}(R^2 + r^2 + Rr)$cu.units $= \frac{1}{3} \times \frac{22}{7} \times 16\,(20^2 + 8^2 + 20 \times 8)$ $= 10459.43$cu.cm $= 10.459$ litres Total cost of milk= Rs. **418 . 36**	**1** **1** **1** **1** **1**	**5**
40	volume of a cylinder $= \pi r^2 h$ cu.unit volume of a cone $= \frac{1}{3} \times \pi r^2 h$ cu.unit volume of the model $= \pi r^2 h + 2\left(\frac{1}{3} \times \pi r^2 h\right)$ $= 56.57 + 9.42$ volume of the model = **66** cu.cm	**1** **1** **2** **1**	**5**
41	$n(S) = 50$ $P(A) = \frac{28}{50}$ $P(B) = \frac{30}{50}$ $P(A \cap B) = \frac{18}{50}$ $i)\ P(A \cap \overline{B}) = \frac{10}{50} = \frac{1}{5}$ $ii)\ P(\overline{A} \cap B) = \frac{12}{50} = \frac{6}{25}$ $iii)\ P[(A \cap \overline{B}) \cup (\overline{A} \cap B)] = \frac{11}{25}$ **Note :- If answered (i) and (ii) correctly then to be given five marks**	**2** **1** **1** **1**	**5**
42	$a = b + 5$ $\frac{x}{a} + \frac{y}{b} = 1$ $b^2 - 11b + 30 = 0$ $b = 5, b = 6$ Equation of the straight lines $x + 2y - 10 = 0$ **and** $6x + 11y - 66 = 0$	**1** **1** **1** **1** **1**	**5**

Part-IV $(2 \times 8 = 16)$

Q.NO.	KEY ANSWERS	MARKS ALLOTED	
43.a)	Rough Diagram	1	
	Drawing a line segment	1	
	Drawing circle	3	
	Marking Altitude	1	8
	Construction of ΔABC	2	
	(or)		
b)	Rough Diagram	1	
	Drawing first circ e	2	
	Drawing the Second circle	3	
	Drawing the Two Tangents	1	8
	Length of tangent = 4 cm	1	
44.a)	x axis , y axis,	1	
	Scale	1	
	$y = x^2 - 4x + 3$(Any 5 points)		

X	-1	0	1	2	3	4	5
Y	8	3	0	-7	0	3	8

	Plot the points and Draw the parabola	2	8
	$y = 2x - 6$		

x	1	2	3	4	5
y	–4	2	0	2	4

	Drawing s raight line	1	
	Solution : $x = 3\,, 3$	1	
	(Or)		
b)	x axis , y axis,	1	
	Scale	1	
	$y = x^2 - 4x + 4$(Any 5 points)		

X	–1	0	1	2	3	4	5
y	9	4	1	0	1	4	9

	Plot the points and Draw the parabola	2	8
	Nature of Solution : The roots are Real and Equal.	1	

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