DIRECTORATE OF GOVERNMENT EXAMINATIONS, CHENNAI-6
SSLC PUBLIC EXAMS MARCH / APRIL - 2025
KEY ANSWER FOR MATHEMATICS (ENGLISH MEDIUM)
MARKING SCHEME – KEY ANSWERS

MAXIMUM MARKS:100

GENERAL INSTRUCTIONS

1. If a student has given any answer which is different from one given in this marking scheme, but arrives with correct answer, should be given full credit with appropriate distribution.

2. In section I, award 1 mark for the correct option code and the corresponding answer. If one of them (Option or Answer) is wrong then award ZERO mark only.

3. In Section II, Section III, Section IV if the solution is correct then award full mark directly. The Stage mark is essential only if the part of the solution is incorrect.

4. If the formula is written correctly and there is a mistake in certain steps then mark should be awarded for the formula. Full marks should be awarded if the formula is incorrect, the steps are correctly written and the answer is correct. Marks should not be deducted for wrongly written formula

PART-I

Answer all Questions   **14×1=14**

Q.No	Option Code	Key Answer	Marks Allotted
1.	(c)	{4,9,25,49,121}	1
2.	(a)	m^n	1
3.	(c)	$0 \leq r < b$	1
4.	(a)	0	1
5.	(b)	5	1
6.	(d)	Row matrix	1
7.	(b)	Point of Contact	1
8.	(d)	7x-3y=0	1
9.	(b)	1	1
10.	(d)	60°	1
11.	(d)	136π cm^2	1
12.	(a)	$\frac{4}{3}\pi$	1
13.	(a)	P(A)>1	1
14.	(d)	$\frac{4}{5}$	1

PART – II

Answer any Ten Questions
Q.No : 28 is Compulsory   **10×2=20**

Q. NO	ANSWERS	Step Marks	Total Marks
15	A = {1,2,3}, B = {2,3,5,7}	1	
	A × B = {(1,2)(1,3)(1,5)(1,7)(2,2)(2,3) (2,5)(2,7)(3,2)(3,3)(3,5)(3,7)}	1	2
16	fog = 2(x^2-2)+1 (or) 2x^2-3	1	
	gof = (2x+1)^2 2 (or) 4x^2+4x-1	1	2

17	a=bq+r (or) 532 = 21(25) + 7	1	
	Number of completed rows $= 25$ Number of remaining flower pots $= 7$	1	2
	Note:- Full marks should be awarded even if answers are given in alternative methods.		
18	$\dfrac{x^3}{x-y} - \dfrac{y^3}{x-y}$ (or) $\dfrac{x^3-y^3}{x-y}$	1	2
	$= x^2 + xy + y^2$	1	
19	AB = $\begin{pmatrix} 5 & 3 \\ 5 & 9 \end{pmatrix}$	1	2
	BA = $\begin{pmatrix} 4 & 2 \\ 5 & 10 \end{pmatrix}$ AB $\neq$ BA	1	
20	$\dfrac{AB}{AC} = \dfrac{BD}{DC}$	1	2
	AC = $\dfrac{9}{2}$ cm (or) 4.5 cm	1	
21	Slope, m = $\dfrac{y_2 - y_1}{x_2 - x_1}$	1	2
	a = $\dfrac{17}{2}$ (or) 8.5	1	
22	$m_1 = \dfrac{1}{2}, \quad m_2 = -2$	1	2
	$m_1 \times m_2 = -1$ (or) Two straight lines are perpendicular	1	
23	$\tan\theta = \dfrac{Opp\,.Side}{Adj\,.Side}$ (or) $\dfrac{1}{\sqrt{3}} = \dfrac{50\sqrt{3}}{x}$	1	2
	x = 150 m	1	
24	Volume of the Sphere $= \dfrac{4}{3}\pi r^3$	1	2
	$V_1 : V_2 = \dfrac{4}{3}\pi(4)^3 : \dfrac{4}{3}\pi(7)^3 = 64 : 343$	1	
25	C.S.A of frustum of a cone = $\pi[R + r]l$	1	2
	$25\,\pi$ (or) $\dfrac{550}{7}$ (or) 78.57 Sq.cm	1	
26	Range = L – S	1	2
	Range = 28 – 18 = 10	1	

Q.NO		Step Marks	Total Marks
27	n(S) = 200	1	2
	$P(A) = \dfrac{n(A)}{n(S)} = \dfrac{80}{200}$ (or) $\dfrac{2}{5}$	1	
28	$\sqrt{2}$, $2\sqrt{2}$, $3\sqrt{2}$, $4\sqrt{2}$, $5\sqrt{2}$…(or) $t_2 - t_1 = t_3 - t_2 = \sqrt{2}$ (or) Given Sequence is an A.P	1	2
	Common difference $d = \sqrt{2}$	1	
	Note: One mark should be awarded if the formula is correct		

PART – III

Answer any Ten Questions
Q.No : 42 is Compulsory   **10×5=50**

Q.NO	ANSWERS	Step Marks	Total Marks
29	A = {1,2,3,4,5,6,7} B = {2,3,5,7} C = {2}	1	
	A∩B = {2,3,5,7}	1	
	(A∩B) × C = {(2,2)(3,2)(5,2)(7,2)}	1	5
	A × C = {(1,2)(2,2)(3,2)(4,2)(5,2)(6,2)(7,2)} B × C = {(2,2)(3,2)(5,2)(7,2)}	1	
	(A × C) ∩ (B × C) = {(2,2)(3,2)(5,2)(7,2)}	1	

30	) = f 4 1, f(6) = 2, f(10) = 4, f(12) = 5	1	
	(i) S t of Or re Pairs $f=\{(2,0)(4,1)(6,2)(10,4)(12,5)\}$	1	
	(ii) Table		

x	2	4	6	10	12
f(x)	0	1	2	4	5

(iii) A ar ow di gram

(iv) a graph

		1	5
		1	
		1	

31	$113400 = 2^3 \times 3^4 \times 5^2 \times 7^1$	1	
	$p_1 = 2, p_2 = 3, p_3 = 5, p_4 = 7$	2	5
	$x_1 = 3, x_2 = 4, x_3 = 2, x_4 = 1$	2	

32	$\sum n^2 = \frac{n(n+1)(2n+1)}{6}$	1	
	$6^2 + 7^2 + 8^2 + \cdots + 21^2$		
	$= (1^2 + 2^2 + 3^2 + \cdots + 21^2) - (1^2 + 2^2 + 3^2 + \cdots + 5^2)$	1	
	$= \frac{21 \times 22 \times 43}{6} - \frac{5 \times 6 \times 11}{6}$	1	5
	$= 3311 - 55$	1	
	$= 3256$	1	

33	$AB = \begin{pmatrix} 0 & 9 \\ 5 & -4 \end{pmatrix}$	1	
	$(AB)^T = \begin{pmatrix} 0 & 5 \\ 9 & -4 \end{pmatrix}$	1	
	$B^T = \begin{pmatrix} 2 & -1 & 0 \\ -1 & -4 & 2 \end{pmatrix}$	1	5
	$A^T = \begin{pmatrix} 1 & 2 \\ 2 & -1 \\ 1 & 1 \end{pmatrix}$	1	
	$B^T A^T = \begin{pmatrix} 0 & 5 \\ 9 & -4 \end{pmatrix}$	1	
34	Statement	2	
	Diagram	1	
	Given, To Prove, Construction, Proof	2	5
	Note:- If the diagram is not drawn, marks should be awarded only for the statement.		
35	Area of the quadrilateral $= \frac{1}{2}\left\{ \begin{matrix} x_1 \\ y_1 \end{matrix} \diagdown \begin{matrix} x_2 \\ y_2 \end{matrix} \diagdown \begin{matrix} x_3 \\ y_3 \end{matrix} \diagdown \begin{matrix} x_4 \\ y_4 \end{matrix} \diagdown \begin{matrix} x_1 \\ y_1 \end{matrix} \right\}$	1	
	$\frac{1}{2}\left\{ \begin{matrix} -4 & -3 & 3 & 2 & -4 \\ -2 & k & -2 & 3 & -2 \end{matrix} \right\} = 28$	2	
	$-7k = 35$	1	5
	$k = -5$	1	
	Note:- Full marks should be awarded even if answers are given in alternative methods		
36	$a + b = 7 \Rightarrow b = 7 - a$	1	
	$\frac{x}{a} + \frac{y}{b} = 1$	1	
	$\frac{x}{a} + \frac{y}{7-a} = 1$		
	The line passes through the point $(-3, 8)$,		5
	$a^2 + 4a - 21 = 0$		
	$a = -7$ (or) $a = 3$	1	
	$b = 4$	1	
	$\frac{x}{3} + \frac{y}{4} = 1$ (or) $4x + 3y - 12 = 0$	1	
37	$= \frac{(\sin A + \cos A)(\sin^2 A - \sin A \cos A + \cos^2 A)}{(\sin A + \cos A)} + \frac{(\sin A - \cos A)(\sin^2 A + \sin A \cos A + \cos^2 A)}{(\sin A - \cos A)}$	2	
	$= 1 - \sin A \cos A + 1 + \sin A \cos A$	2	5
	$= 2$	1	

	Note: Two marks should be given, if only the following formulae are written without any answers. $$a^3 + b^3 = (a + b)(a^2 - ab + b^2)$$ $$a^3 - b^3 = (a - b)(a^2 + ab + b^2)$$		
38	Volume of the model $= \pi r^2 H + 2 \times \dfrac{1}{3}\pi r^2 h$ $= \dfrac{22}{7} \times \left(\dfrac{3}{2}\right)^2 \times 8 + 2 \times \dfrac{1}{3} \times \dfrac{22}{7} \times \left(\dfrac{3}{2}\right)^2 \times 2$ $= 21\pi \text{ cm}^3$ (or) 66 cm^3 Note: 1. If the height of the cylinder alone is found, then one mark should be awarded 2. Full marks should be awarded even if answers are given in alternative methods	2 2 1	5
39	Volume of Sphere$=\dfrac{4}{3}\pi r^3$ Number of small metal spheres $= \dfrac{Volume\ of\ Big\ Sphere}{Volume\ of\ Small\ Sph}$ $= \dfrac{\frac{4}{3}\pi \times 16 \times 16 \times 16}{\frac{4}{3}\pi \times 2 \times 2 \times 2}$ =512	1 1 2 1	5
40	$\bar{x} = \dfrac{\sum x}{n}$ C.V $= \dfrac{\sigma}{\bar{x}} \times 100\%$ Sathya : $\bar{x} = 92$, C.V = 5 % Vidhya : $\bar{x} = 96$, C.V = 2.5 % Vidhya s performance is more consistent.	1 1 1 1 1	5
41	n(S) = 26 i) P(A) = $\dfrac{6}{26}$ (or) $\dfrac{3}{13}$ ii) P(B) = $\dfrac{13}{26}$ (or) $\dfrac{1}{2}$ iii) P(C) = $\dfrac{20}{26}$ (or) $\dfrac{10}{13}$ iv) P(D) = $\dfrac{12}{26}$ (or) $\dfrac{6}{13}$	1 1 1 1 1	5
42	$(x^2 - 2x + 1) + (x^2 - 4x + 4) + (x^2 - 6x + 9) = 0$ $3x^2 - 12x + 14 = 0$ $\Delta = b^2 - 4ac$ $\Delta = (-12)^2 - 4(3)(14) = 144 - 168$ $\Delta = -24 < 0$ The given equation will have no real roots.	2 1 1 1	5

Answer all Questions   2×8=16

Q.NO	ANSWERS	Step Marks	Total Marks
43 (a)	Rough Diagram	1	8
	Drawing a line segment	1	
	Drawing Circle	3	
	Drawing the angle bisector	1	
	Drawing triangle ABC	2	
(OR)			
43(b)	Rough Diagram	1	8
	Drawing first circle	2	
	Drawing a line segment of 11 cm from the centre	2	
	Drawing Second Circle	2	
	Drawing the two tangents	1	

44 (a)

X axis , Y axis   — 1

Scale   — 1

$y = x^2 - 9x + 20$ (at least any **5** points)

x	−1	0	1	2	3	4	5	6
y	30	20	12	6	2	0	0	2

— 3

Plot the points and draw the parabola.   — 2

The roots are real and unequal.   — 1

Total Marks — 8

(OR)

44 (b)

X-axis, Y-axis   — 1

Scale   — 1

Time X	1hr (or) 60 min	2hrs (or) 120 min	3hrs (or) 180 min	4hrs (or) 240 min	5hrs (or) 300 min	6hrs (or) 360 min
Distance(km) Y	50	100	150	200	250	300

(Or)

Distance(km) X	50	100	150	200	250	300
Time Y	1hr (or) 60 min	2hrs (or) 120 min	3hrs (or) 180 min	4hrs (or) 240 min	5hrs (or) 300 min	6hrs (or) 360 min

— 2

Plot the points and Draw the Straight line   — 1

i) 50 (or) $\frac{5}{6}$ (or) $\frac{1}{50}$ (or) $\frac{6}{5}$ — 1

ii) 75 km   — 1

iii) 6 hrs (or)   360 mins   — 1

Total Marks — 8