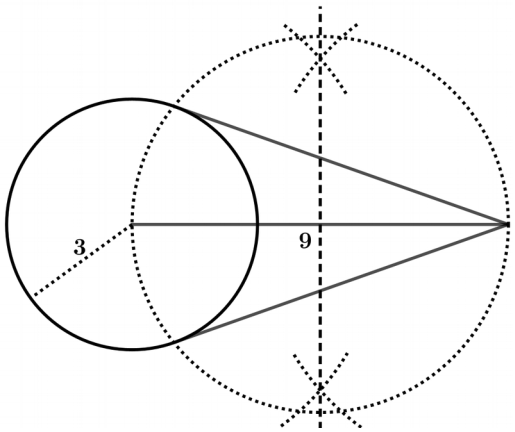
SSLC EXAMINATION , MARCH - 2025

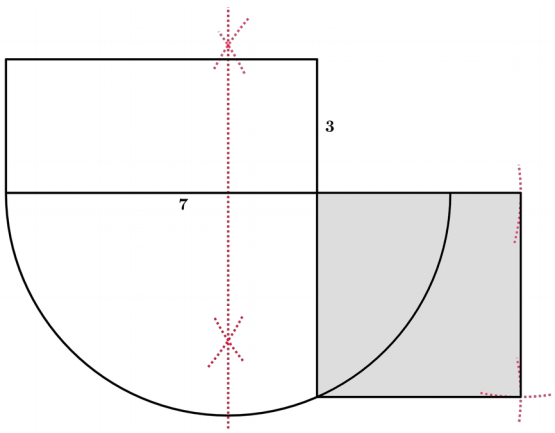
MATHEMATICS EM – ANSWER KEY

S 2031

Qn no.	Key	Score	
	Each questions from 1 to 4 carries 2 scores. (Answer any 3)		
1	a) $\angle AOB = 2 \times 70^0 = 140^0$ b) $\angle ADB = 70^0$	1 1	2
2	a) $d = 8 - 3 = 5$ b) $x_{11} = 3 + 10 \times 5 = 53$	1 1	2
3	a) $\frac{8}{20} = \frac{2}{5}$ b) $\frac{4}{20} = \frac{1}{5}$	1 1	2
4	$2r = \frac{4}{\sin 50^0} = \frac{4}{0.77}\ cm$	2	2
	Each questions from 5 to 10 carries 3 scores. (Answer any 4)		
5	a) $x^2 - 6x = 187$ b) $x^2 - 6x + 3^2 = 187 + 3^2$ ==> $(x-3)^2 = 196$ $x = 14 + 3 = 17$	1 1 1	3
6	a) Slope $= \frac{7-5}{3-2} = \frac{2}{1}$ b) $\frac{y-5}{x-2} = 2$ **OR** $y - 5 = 2(x-2)$ **OR** $2x - y + 1 = 0$	1 2	3
7	a) 2 b) $176 = 6 \times 29 + 2$ 176 is a term of this sequence .	1 1 1	3
8	a) $PB = 8 - 3 = 5\ cm$ b) $10 \times PD = 8 \times 5$ $PD = 4\ cm$	1 1 1	3
9	a) 3 b) $(0\ ,\ 0)\ ,\ (8\ ,\ 0)$	1 2	3
10	For drawing a circle of radius 3 cm and mark a point 9 cm away from its centre. For drawing a large circle using the above line as of diameter. [It is enough to draw two arcs of the above large circle to cut the small circle] For drawing tangents .	1 1 1	3

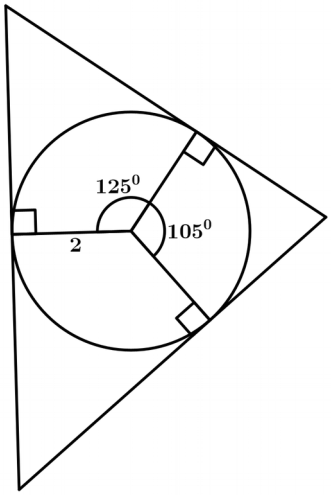


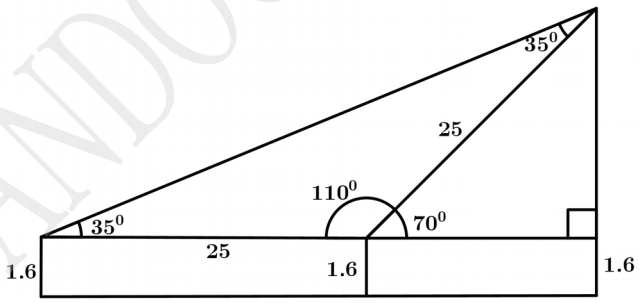
Each questions from 11 to 21 carries 4 scores. (Answer any 8)

11	a) $\frac{20 \times 21}{2} = 210$ b) $5 \times 210 = 1050$ c) $1050 + 20 \times 3 = 1110$ d) $1110 - 20 \times 4 = 1030$	1 1 1 1	4
12	a) Length $= x + 5$ Diagonal $= x + 10$ b) $(x+5)^2 + x^2 = (x+10)^2$ ==> $x^2 - 10x = 75$ $x^2 - 10x + 5^2 = 75 + 5^2$ ==> $(x-5)^2 = 100$ $x = 10 + 5 = 15$ ==> Breadth = 15 m , Length = 20 m	1 1 1 1	4
13	a) Midpoint $= \left(\frac{3+8}{2}, \frac{2+7}{2}\right) = \left(\frac{11}{2}, \frac{9}{2}\right)$ b) $x = 3 + \frac{2}{5} \times (8-3) = 5$ $y = 2 + \frac{2}{5} \times (7-2) = 4$ ==> Coordinates of P $= (5, 4)$	2 1 1	4
14	For drawing the rectangle . For drawing the semicircle / circle . For drawing the side of the square perpendicular to the diameter . For Completing the square . 	1 1 1 1	4

15	a) $\sin 50^0 = \frac{h}{8}$ $h = 8 \times 0.77 \ cm$ b) Area $= \frac{1}{2} \times 10 \times 8 \times 0.77 = 30.8 \ sq.cm$	1 1 2	4
16	a) $AB = \lvert 5 - 1 \rvert = 4$ b) Coordinates of the midpoint of AB $= \left(\frac{1+5}{2} , \frac{3+3}{2} \right) = (3 , 3)$ c) Coordinates of C $= (3 , 3 + 2\sqrt{3})$	1 1 2	4
17	a) Ratio of radii $= 3 : 2$ b) Ratio of volumes $= 3^3 : 2^3 = 27 : 8$ c) Volume of the second hemisphere $= 108 \times \frac{8}{27} = 32 \ cubic.cm$	1 2 1	4
18	a) Total number of beads $= 16 \times \frac{3}{2} = 24$ b) Probability of getting a blue bead $= \frac{24 - 16}{24} = \frac{8}{24} = \frac{1}{3}$ c) Probability of getting a red bead $= \frac{16 - 4}{24 - 4} = \frac{12}{20} = \frac{3}{5}$	1 1 2	4
19	a) $\angle PBA = 65^0$ b) $\angle AOB = 130^0$ c) $\angle P = 50^0$ d) $\angle ACB = 65^0$	1 1 1 1	4
20	a) $p(3) = 3^2 - 7 \times 3 + 12 = 0$ b) $x - 3$ c) $x^2 - 7x + 12 = (x - 3)(x - 4)$ Solutions $= 3 , 4$	1 1 1 1	4
21	a) Slant height $= \sqrt{\left(\frac{12}{2}\right)^2 + 8^2} = 10 \ m$ b) Lateral surface area of the tent $= 2 \times 12 \times 10 = 240 \ sq.m$ Cost $= 240 \times 340 = 81600 \ Rs$ **OR** Total surface area of the tent $= 12^2 + 2 \times 12 \times 10 = 384 \ sq.m$ Cost $= 384 \times 340 = 130560 \ Rs$	2 1 1	4

Each questions from 22 to 29 carries 5 scores. (Answer any 6)			
22	a) Common difference $= \frac{67-27}{16-6} = 4$ b) First term $= 27 - 5 \times 4 = 7$ OR $67 - 15 \times 4 = 7$ c) Algebraic form of the sequence $= 4n + 7 - 4 = 4n + 3$ d) Sum of the first 31 terms $= 31 \times x_{16} = 31 \times 67 = 2077$ OR 31^{st} term $= 4 \times 31 + 3 = 127$ Sum of the first 31 terms $= \frac{31}{2} \times (7 + 127) = 2077$	1 1 2 1	5
23	a) Coordinates of A $= (2 , 2\sqrt{3})$ b) Radius of the circle $= 4$ c) $(x-0)^2 + (y-0)^2 = 4^2$ ==> $x^2 + y^2 = 16$ d) Coordinates of C $= (-2 , -2\sqrt{3})$	1 1 1 2	5
24	a) Volume of the cone $= \frac{1}{3} \times \pi \times 12^2 \times 18 = 864\pi$ *cubic cm* b) Volume of a sphere $= \frac{4}{3} \times \pi \times 3^2 = 36\pi$ *cubic cm* c) Number of spheres $= \frac{\text{Volume of the cone}}{\text{Volume of a sphere}} = \frac{864\pi}{36\pi} = 24$	1 1 3	5
25	For drawing frequency table a) 25 b) For dividing the 100 rupees between 500 to 600 into 10 equal parts . $[\ \therefore\ d = \frac{600-500}{10} = 10\ ]$ Daily wage of 20^{th} worker $= \frac{500+510}{2} = 505$ *Rs* c) Median wage $= 505 + 5 \times 10 = 555$ *Rs*	1 1 1 1 1	5
26	For drawing a circle of radius 3 cm. For drawing supplementary angles of the angles of the triangle at the centre of the circle For drawing tangents to complete the triangle. For identifying that the radius through a point of a circle is perpendicular to the tangent through that point .	1 2 1 1	5



27	a) $PB = 15 - 12 = 3\ cm$	1	5
	$PC = \frac{12 \times 3}{8} = \frac{36}{8} = 4.5\ cm$ [$\therefore\ PA \times PB = PC \times PD$]	1	
	b) $CD = 8 + 4.5 = 12.5\ cm$ [$\therefore\ PM \times PN = PC \times PD$]	1	
	c) $PM \times PM = 12 \times 3$ ==> $PM = \sqrt{36} = 6\ cm$	1	
	$MN = 6 + 6 = 12\ cm$	1	
28	a) For drawing a rough figure .	1	5
			
	For identifying an isosceles triangle of an angle 35^0	1	
	b) Distance between the boy and the building $= 25 \times \cos 70^0 = 25 \times 0.34\ m$	1	
	$= 8.5\ m$		
	c) In the small right triangle ,		
	Length of the side opposite to 70^0 $= 25 \times \sin 70^0 = 25 \times 0.94\ m$ $= 23.5\ m$	1	
	Height of the building $= 25 \times 0.94 + 1.6\ m$ $= 23.5 + 1.6 = 25.1 m$	1	

29	a) $\sin x \times \frac{1}{\sin x} = 1$	1	5
	b) $\frac{1}{\sin 60^0}$	1	
	c) $\frac{1}{\tan 45^0}$	1	
	d) $\frac{1}{\cos 60^0} - \frac{1}{\sin 30^0}$	1	
	$= 2 - 2 = 0$	1	