SSLC EXAMINATION , MARCH- 2024

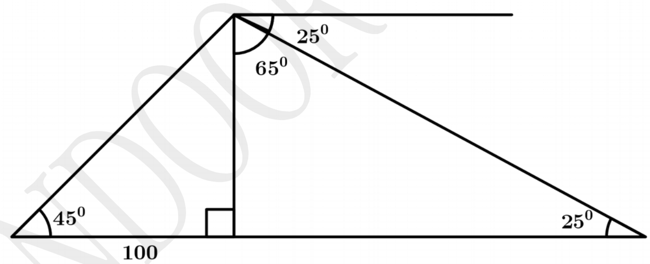
MATHEMATICS – ANSWER KEY

S1931

Qn no.	Key	Score	
	Each questions from 1 to 4 carries 2 scores.		
1	a) P is inside the circle. b) Q is outside the circle.	1 1	2
2	12.0 , 12.5 , 12.6 , 12.9 , 13.4 , 13.7 , 14.1 Median = 12.9	1 1	2
3	a) 4 , 8 , 12 , . . . b) 4	1 1	2
4	$\frac{5 \times 2}{5 \times 5} = \frac{10}{25} = \frac{2}{5}$	2	2
	Each questions from 5 to 10 carries 3 scores.		
5	For drawing tha axes and marking the points. Perpendicular distance = 3	2 1	3
6	a) $x + 10$ b) $x^2 + 10x = 144$ Age of Renuka = 8 , Age of Ajay = 18	1 1 1	3
7	For drawing the rectangle By extend the length by breadth and drawing the semicircle. For completing the square.	1 1 1	3
8	Slope of the line joining the points (3,5) and (6,7) $= \frac{2}{3}$ Slope of the line joining the points (6,7) and (9,9) $= \frac{2}{3}$ Since the slopes are equal , (3,5) , (6,7) and (9,9) are on the same line . **OR** $(3 , 5) , (3 + 3 , 5 + 2) , (3 + 6 , 5 + 4)$ Since the change in y coordinates is proportional to the chane in x co-ordinates , (3,5) , (6,7) and (9,9) are on the same line .	1 1 1 2 1	3

	OR $d_1 = \sqrt{(6-3)^2 + (7-5)^2} = \sqrt{13}$ $d_2 = \sqrt{(9-6)^2 + (9-7)^2} = \sqrt{13}$ $d_3 = \sqrt{(9-3)^2 + (9-5)^2} = \sqrt{52}$ $d_3 = d_1 + d_2$		
9	**a) 4** **b) 5** **c) 1**	**1** **1** **1**	**3**
10	**a)** $360^0 - (110^0 + 100^0) = 150^0$ **b)** $\angle A = 180^0 - 100^0 = 80^0$, $\angle B = 180^0 - 110^0 = 70^0$, $\angle B = 180^0 - 150^0 = 30^0$	**1** **2**	**3**
Each questions from 11 to 21 carries 4 scores.			
11	**a)** $\frac{12}{50} = \frac{6}{25}$ **b)** $\frac{8}{50} = \frac{4}{25}$ **c)** $\frac{4}{50} = \frac{2}{25}$	**1** **1** **1** **2**	**4**
12	**a) 2** **b) Drawing a circle of radius 2.5 cm and mark a point 6 cm away from the centre of the circle.** **For drawing the perpendicular bisector of this distance .** **For drawing the tangents .**	**1** **1** **1** **1**	**4**
13	**a) No (Each term of this sequence leaves remainder 2 on division by the common difference)** **b) 144 leaves remainder 0 on division by the common difference .** **c) Perfect squares do not leave remainder 2 on division by 6 .** **OR** **Adding 2 to the multiples of 6 are not perfect squares .** **OR** **Multiples of 6 are also multiples of 3 . Perfect squares do not leave remainder 2 on division by 6 .**	**1** **1** **2**	**4**

14	a) Coordinates of P $= \left(\frac{2+8}{2}, \frac{3+5}{2}\right) = (5, 4)$	1	4
	Coordinates of Q $= \left(\frac{8+4}{2}, \frac{5+7}{2}\right) = (6, 6)$	1	
	b) $PQ = \sqrt{5}$	2	
15	a) Slant height $= 15\ cm$	1	4
	b) Base radius $= \frac{120}{360} \times 15 = 5\ cm$	2	
	b) Curved surface area $= \pi \times 5 \times 15 = 75\pi\ sq.cm$	1	
16	$QR = 9 \times \sin 49^0 = 9 \times 0.75 = 6.75\ cm$	2	4
	$PQ = 9 \times \cos 49^0 = 9 \times 0.66 = 5.94\ cm$	2	
17	a) Coordinates of D $= (-4, 0)$	1	4
	b) $BG = 2\sqrt{3}\ cm$	1	
	c) Coordinates of B $= (2, 2\sqrt{3})$	1	
	Coordinates of E $= (-2, -2\sqrt{3})$	1	
18	If the number is taken as $= x$, $x^2 = x + 12$	1	4
	$(x-4)(x+3) = 0$	1	
	$x = 4$ OR $x = -3$	2	
	OR		
	$x^2 = x + 12$	1	
	$x = \frac{1 \pm \sqrt{49}}{2}$	2	
	$x = 4$ OR $x = -3$	1	
19	a) If $x^2 - 5x + 6 = (x-a)(x-b)$		4
	$a = 2$, $b = 3$	2	
	$x^2 - 5x + 6 = (x-2)(x-3)$	1	
	b) Solutions $= 2, 3$	1	
	OR		
	Any other correct method		
20	a) $5 : 3$	1	4
	b) $25 : 9$	1	
	c) $36\ sq.cm$	2	

21	$\angle ADP = \frac{110^0}{2} = 55^0$ $\angle PAD = \frac{80^0}{2} = 40^0$ $\angle APD = 180^0 - (55^0 + 40^0) = 85^0$	1 1 2	4
Each questions from 22 to 29 carries 5 scores.			
22	**For drawing the triangle in the given measures .** **For drawing the bisectors of the angles .** **For drawing the incircle.** **For measuring the radius of the circle . (1.6 cm)**	1 1 2 1	5
23	**For drawing the frequency table .** **a) Median = Age of the 17^{th} worker** $d = \frac{40 - 30}{10} = 1$ **Age of the 10^{th} worker** $= \frac{30 + 31}{2} = 30.5$ **b) Median age** $= 30.5 + 7 \times 1 = 37.5$	1 1 1 1 1	5
24	**a)**  **For recognising the angles of the smaller triangles are** 45^0, 45^0 **and** 90^0 **b) Height of the tower = 100 m** **c) For recognising the angles of the larger triangles are** 90^0, 25^0, 65^0 **Distance of the car from the tower** $= 100 \times \tan 65^0 = 214\ m$ **OR** $= \frac{100}{\tan 25^0}\ m$	1 1 1 1 1	5
25	a) $d = \frac{61 - 26}{8 - 3} = 7$ b) $f = 26 - 2 \times 7 = 12$	1 1	

	c) $7n + 5$ d) $15 \times 61 = 915$	2 1	5
26	a) $a = \frac{80}{4} = 20\ cm$ Lateral surface area $= 2 \times 20 \times 26 = 1040\ sq.cm$ b) $h = \sqrt{26^2 - 10^2} = 24\ cm$ Volume of the vessel $= \frac{1}{3} \times 20^2 \times 24 = 3200\ cubic.cm.$ $= \frac{3200}{1000} = 3.2\ litres$	1 1 2 1 1	5
27	a) 55^0 b) 90^0 c) 125^0 d) $360^0 - (55^0 + 125^0 + 125^0) = 55^0$ OR For recognising ABDC is an isosceles trapezium and $\angle ABD = 55^0$	1 1 1 1 1	5
28	a) $2 \times 3 - 4 - 2 = 6 - 6 = 0$ b) $y = 0$, $2x - 0 - 2 = 0$ Coordinates of the points where the line cuts the x axis $= (1, 0)$ $x = 0$, $2 \times 0 - y - 2 = 0$ Coordinates of the points where the line cuts the y axis $= (0, -2)$	1 1 1 1 1	5
29	a) Second term $= 6$, Third term $= 12$ b) 2 , 4 , 8 , 16 , . . . c) 4 d) 81	1 1 1 1 1	5