SSLC MODEL EXAMINATION , MARCH - 2022

ME 127   ANSWER KEY - MATHEMATICS – EM

Qn no.	Key	Score	
	PART - I **Questions from 1 to 10 carries 1 score each**		
	(A)		
1	6 , 10 , 14	1	1
2	D	1	1
3	$(0 , 1)$	1	1
4	$\dfrac{1}{2}$	1	1
5	1 : 4	1	1
6	3	1	1
	(B)		
7	$\dfrac{3}{4}$	1	1
8	36	1	1
9	$(3 , 1)$	1	1
10	4	1	1
	PART - II **Questions from 11 to 18 carries 2 score each**		
	(A)		
11	$7 \times$ 4th term = 84 4th term = $\dfrac{84}{7}$ = 12	1 1	2
12	(a) $\dfrac{3}{9}$ (b) 3	1 1	2
13	$\sin 40^{0} = \dfrac{BC}{20}$ $BC = 20 \times 0.64 = 12.8\ cm$	1 1	2
14	$\left(x + \dfrac{1}{2}\right)\left(x - \dfrac{1}{2}\right)$	2	2

SARATH A S , VMC GHSS WANDOOR , MALAPPURAM

15	24 , 25 , 26 , 27 , 28 , 30 , 32 , 33 , 36 , 38	1	2
	Median score $= \dfrac{28 + 30}{2} = 29$	1	

	(B)		
16	First term $= 2 + 4 = 6$	1	2
	Common difference $= 4$	1	
17	Radius of the incircle $\times \dfrac{42}{2} = 84$	1	2
	Radius of the incircle $= \dfrac{84}{21} = 4 \ cm$	1	
18	$(x - 0)^2 + (y - 0)^2 = 5^2$ or $x^2 + y^2 = 25$	2	2

<center>**PART - III**</center>
<center>**Questions from 19 to 25 carries 4 score each**</center>

	(A)		
19	Construction	4	4
20	Length + Breadth $= 30$	1	
	If the length is taken as $15 + x \ cm$ then breadth $= 15 - x \ cm$	1	
	$(15 + x)(15 - x) = 189$		4
	$x = \sqrt{36} = 6$	1	
	Length $= 21 \ cm.$, Breadth $= 9 \ cm$	1	
21	(a) $5 \ cm$	1	
	(b) Construction	3	4
22	(a) $(2 + 4 - 0 \ , \ 8 + 2 - 0) = (6 , 10)$	2	
	(b) $(\dfrac{2 + 4}{2} \ , \ \dfrac{8 + 2}{2}) = (3 , 5)$	2	4
23	(a) Diameter of the sphere $= 6 \ cm$	1	
	Volume of the sphere $= \dfrac{4}{3} \times \pi \times 3^3 = 36 \pi \ cubic.cm$	2	
	(b) Volume of the hemisphere $= 18 \pi \ cubic.cm$	1	4

	(B)		
24	(a) Total number of pairs $=$ $10 \times 3 = 30$	1	
	Number of favourable results $=$ $5 \times 2 = 10$	1	
	Probability of both being odd $=$ $\dfrac{10}{30}$ or $\dfrac{1}{3}$	1	4
	(b) $1 - \dfrac{10}{30}$ or $\dfrac{2}{3}$	1	
25	(a) 50^{0}	1	
	(b) $BC = 2 \times 7 \times \sin 50^{0}$	1	4
	$= 2 \times 7 \times 0.76 = 10.64 \; cm$	2	

<div align="center">

PART - IV
Questions from 26 to 32 carries 6 score each

(A)

</div>

26	(a) Coordinates of B $=$ $(9 , 2)$	1	
	Coordinates of D $=$ $(1 , 8)$	1	
	(b) $\sqrt{(9-1)^{2} + (8-2)^{2}} = 10$	2	6
	(c) $\left(\dfrac{1+9}{2} , \dfrac{8+2}{2}\right) = (5 , 5)$	2	
27	(a) $\angle ACB = 70^{0}$	1	
	$\angle ADB = 110^{0}$	1	6
	(b) Construction	4	
28	(a) $10\sqrt{2} \; cm$	1	
	(b)		6
	Height of the tower $=$ $10\sqrt{3} \; m$	5	
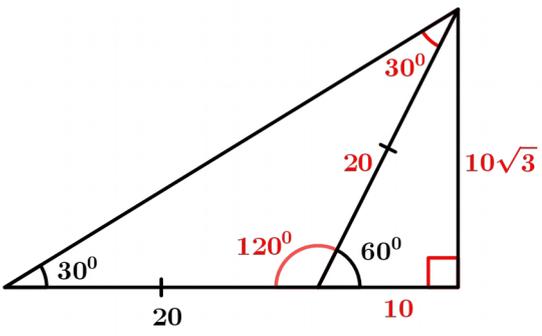
29	(a) Slant height of the cone $=30\ cm$	1	
	Radius of the cone $=\dfrac{120}{360}\times 30=10\ cm$	1	6
	(b) $\pi\times 10\times 30=300\,\pi\ sq.cm$	2	
	(c) $\dfrac{240}{360}\times 30=20\ cm$	2	

<div align="center">(B)</div>

30	(a) $\dfrac{10\times 11}{2}=55$	2	
	(b) $\dfrac{n\times(n+1)}{2}=300$	1	
	$n^2+n-600=0$	1	6
	$n=\dfrac{-1\pm\sqrt{1^2-4\times 1\times(-600)}}{2\times 1}$	1	
	$n=24$	1	
31	(a) $2^2-5\times 2+6=0$	2	
	(b) $(x-2)(x-3)$	2	6
	(c) $2\ ,\ 3$	2	
32	(a)		
	(i) 18	1	
	(ii) $\dfrac{700+710}{2}=705$	2	6
	(b) The daily wages between 700 and 800 are in arithmetic sequence	1	
	$705+5\times 10=755$	2	

<div align="center">

PART - V
Questions from 33 to 35 carries 8 score each

</div>

33	(a) $3n+1$	2	
	(b) 20th term $=3\times 20+1=61$	1	
	Smallest three digit number in the sequence $=3\times 33+1=100$	1	

<div align="center">SARATH A S , VMC GHSS WANDOOR , MALAPPURAM</div>

	(c) $3 \times \dfrac{20 \times 21}{2} + 1 \times 20 = 650$		2	
	Sum of the first 20 terms of the arithmetic sequence with algebraic form $3n + 2 = 650 + 20 = 670$			8
			1	
	Difference between the sums $= 20$		1	
34	(a)			
	(i) 90^0		1	
	(ii) POQB is cyclic .		1	
	$\angle OQB = \angle OPB = 90^0$ (opposite angles are supplementary)		1	8
	(iii) 130^0		1	
	(b) Construction .		4	
35	(a) Construction .		3	
	(b) $\dfrac{5-2}{3-1} = \dfrac{3}{2}$		2	
	(c) $\dfrac{y-2}{21-1} = \dfrac{3}{2}$		1	8
	$y - 2 = 30$		1	
	$y = 32$		1	