PRE-PLE MOCK ASSEME-ASSESSMENT MTC GUIDE 2023 (SET 1)

QN	SOLUTION	M	PROFESSIONAL ADVISE
1.	$\begin{array}{r} 3\ 2 \\ \times\ 4 \\ \hline 1\ 2\ 8 \end{array}$ $2\times4 = 8$ $3\times4 = 12$	B_2	Award B_2 at 128
2.	DXCIV = $\begin{array}{\|c\|c\|c\|} \hline D & XC & IV \\ \hline 500 & 90 & 4 \\ \hline \end{array}$ ∴ DXCIV = 594	B_2	Award B_2 at 594
3.	$\frac{2}{3} - \frac{1}{2}$ (LCM = 6) $\frac{2}{3}\times\frac{2}{6} - \frac{1}{2}\times\frac{3}{6}$ / $\frac{2\times2-1\times3}{6}$ $\frac{4-3}{6}$ $\frac{1}{6}$	m1 A1	Award m1 for correct working. Award A1 for $\frac{1}{6}$
4.	$\begin{array}{r} 0\ t\ \vert\ h\ th \\ 7.9\ \vert\ 8\ 4 \\ +0.1\ \vert\ \ \ \ \\ \hline 8.0\ \vert\ 0\ 0 \end{array}$ ∴ 7.984 ≈ 8.0	m1 A1	Award m1 for correct working. Award A1 for 8.0 Reject 8
5	$6-2r > 4$ $6-6-2r > 4-6$ $-2r > -2$ $\frac{-2r}{-2} < \frac{-2}{-2}$ $r < 1$	m1 A1	Award m1 for collecting like terms. (Advise chn to reverse the inequality sign at the right step as shown) Award A1 for $r < 1$ OR $1 > r$
6.	$-3 - {}^{+}6$ $-3 - (^{+}6)$ $-3 - 6$ -9	m1 A1	Award m1 for simplifying the integer signs Award A1 for −9
7.	$\begin{array}{r} 1:35\text{p.m} \\ -2\ 15 \\ \hline 1335\text{hrs} \\ -2\ 15 \\ \hline 11:20\text{a.m} \end{array}$ $\begin{array}{r} 1200\text{hrs} \\ +1\ 35 \\ \hline 1335\text{hrs} \end{array}$	m1 A1	Award m1 for correct working. Award A1 for 11:20a.m or 11 20 hours

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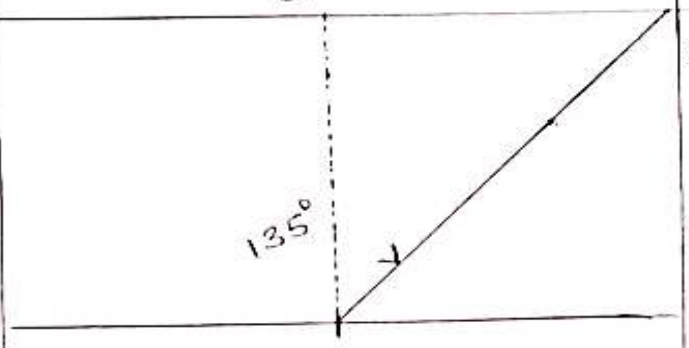
8.	highest No = HCF 2 | 12 | 18 3 | 6 | 9 | 2 | 3 HCF = 2 × 3 6	m1 A1	Award m1 for correct working or method. Award A1 for 6 as the highest divisor.
9.		C1 C1	Award C1 for the correct arc leading to 135° Award C1 for 135° indicated correctly.
10.	CX 1775042 (100-1) + 99 99 CX 1775141 ∴ The last note reading is CX 1775141	m1 A1	Award m1 for correct method Award A1 for CX 1775141 as the last note reading.
11.	2 | 1 | 0 1 | 0 | 3 five $(1\times5^2)+(0\times5^1)+(3\times5^0)$ $1\times5\times5+0\times5+3\times1$ $25+0+3$ 28_{ten}	m1 A1	Award m1 for correct method Award A1 for 28_{ten} Accept 28 or 28_{10}
12.	Q' or $P-Q$	B_2	Award B_2 for Q' or $P-Q$ Reject Set Q complement Accept correct description using symbols.

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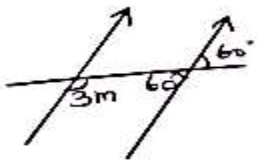
13	$2(l+w)$ = perimeter $2(8dm + h dm) = 24dm$ $16dm + 2h\,dm = 24dm$ $16dm - 16dm + 2h\,dm = 24dm - 16dm$ $2h\,dm = 8dm$ $\frac{2}{2}h\,dm = \frac{8}{2}dm$ $h = 4$	m1 A1	Award m1 for correct formation of the equation. Award A1 for the value of h as 4.
14.	$5k - 1(3k - 1)$ $5k - 3k + 1$ $2k + 1$	m1 A1	m1 for correct removing of the brackets. A1 for $2k + 1$
15	Penalty $\frac{2\frac{5}{8}}{100} \times$ Sh. 400,000 $(\frac{21}{8} \div \frac{100}{1})$ x Sh. 400,000 $\frac{21}{8} \times \frac{1}{100} \times$ Sh. $400{,}000^{5000}$ $21 \times$ Sh. 500 Sh. 10,500 Salary after the penalty Sh. $400{,}000^{399}$ $-$ Sh. 10,500 Sh. 389,500	 B1 B1	Award B1 for Sh. 10,500 Award B1 for Sh. 389,500
16.	 $3m + 60° = 180°$ $3m + 60° - 60° = 180° - 60°$ $3m = 120°$ $\frac{3m}{3} = \frac{120°}{3}$ $m = 40°$	m1 A1	Award m1 for correct formation of the equation. Award A1 for 40° as the value of m.

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17	$\left(\frac{42 \text{ cups}}{6 \text{ cups}}\right)$ pictures 7 pictures	m_1 A_1	
18.	1 dozen = 12 books ~~$\frac{1}{2}$ dozen = $\frac{1}{2} \times 12$ books~~ ~~6 books~~ Selling price for all the books Sh. 700 × 12 Sh. 1200 Sh. 8,400 Profit Sh. 8400 − Sh. 6000 Sh. 2,400	 B_1 B_1	Award B_1 for the selling price as Sh. 8400 Award B_1 for the total profit as Sh. 2,400
19.	Total distance $\frac{1}{2}C + D$ $\frac{1}{2}\pi D + D$ $\frac{1}{2} \times \frac{22}{7} \times 14\text{cm} + 14\text{cm}$ $\frac{1}{1} \times \frac{22}{7} \times 14\text{cm} + 14\text{cm}$ 22cm + 14cm 36cm 22cm +14cm 36cm	 m_1 A_1	Award m_1 for correct method Award A_1 for 36cm.
20.	Distance in cm 1m = 100cm 3.6m = $\frac{36}{10} \times 100\text{cm}$ ∴ 3.6m = 360cm No of nails = $\frac{\text{Distance}}{\text{Intervals}} + 1$ $\frac{360\text{cm}}{30\text{cm}} + 1$ 12 + 1 13 nails	 m_1 A_1	Award m_1 for the correct method Award A_1 for 13 nails.

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21. a)	4, 0, 5 405 450 504 540 ∴ The 3-digit numerals are; 405, 450, 504 and 540.	B_1 B_1	Award B_1 for 405 and 450. Award B_1 for 504 and 540.
b)	Sum 540 +405 945	m_1 A_1	m_1 for correct working A_1 for 945
22. a)	$2K + 12 + 31 = 53$ $2K + 43 = 53$ $2K + 43 - 43 = 53 - 43$ $2K = 10$ $\frac{2K}{2} = \frac{10}{2}$ $K = 5$ Volleyball $(2K + K + 12)$ pupils $(3K + 12)$ pupils $(3 \times 5 + 12)$ pupils $(15 + 12)$ pupils 27 pupils	m_1 A_1 B_1	Award m_1 for correct formation of the equation. Award A_1 for $K = 5$. Award B_1 for 27
b)	Pupils in the class 27 + 31 + 2 27 + 33 60 pupils ∴ 60 pupils are in the class.	 m_1 A_1	Award m_1 for correct working Award A_1 for 60.

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23. a)	Sugar: Sh. 5800 x 2 = Sh. 11,600 Beans: Sh. 3200 x 3 = Sh. 9600 Milk: Sh. 180 x 15 kg / 1 kg = Sh. 180 x 15 = Sh. 2,700 Total Expenditure Sh. 11600 Sh. 9600 + Sh. 2700 Sh. 23,900	B1 B1 B1 B1	B1 for Sh. 11600 B1 for Sh. 9600 B1 for Sh. 2700 B1 for Sh. 23,900
b)	Change = Income − Expenditure Sh. 25,000 − Sh. 23900 Sh. 1,100	M1 A1	Award m1 for correct ~~Sut~~ method. (subtraction) Award A1 for Sh. 1,100
24. a)	Jane: 3 → 3/9 x Sh. 270,000 = 3 x Sh. 30,000 = Sh. 90,000 Joan: 4 → 4/9 x Sh. 270,000 = 4 x Sh. 30,000 = Sh. 120,000 Jolly: 2 → 2/9 x Sh. 270,000 = Sh. 30,000 x 2 = Sh. 60,000 Total ratio: 3+4+2 = 9	B1 B1 B1 B1	B1 for total ratio. B1 for Sh. 90,000 got by Jane. B1 for Sh. 120,000 got by Joan. B1 for Sh. 60,000 got by Jolly.
b)	Sh. 120,000 − Sh. 90,000 Sh. 30,000 ∴ Joan got Sh. 30,000 more than Jane	B1	Award B1 for Sh. 30,000
25. a)	2 + 3 + 1 + 4 pupils 5 + 5 pupils 10 pupils	B1	Award B1 for 10 pupils.

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b)	$\frac{\text{Sum of data}}{\text{No of pupils}} = \text{mean}$		Award m1 for correct method.
	$\frac{(80\times2)+(k\times3)+(75\times1)+(70\times4)}{10} = 80.5$	m1	
	$\frac{160+3k+95+280}{10} = 80.5$		Award m1 for the final collecting of like terms.
	$\frac{(3k+535)}{10}\times10 = 80.5\times10$		
	$3k+535 = \frac{805}{10}\times10$		
	$3k+535 = 805$		
	$3k+535-535 = 805-535$	m1	
	$3k = 270$		
	$\frac{3k}{3} = \frac{270}{3}$		Award A1 for 90
	$k = 90$	A1	
	∴ Three pupils scored 90.		
26 a)	Distance from Iganga to Jinja S x T 90km/hr x 2hrs 180 km	B1	Award B1 for 180km
	Distance from Jinja to Mukono S x T 50km/hr x 3hrs 150km	B1	Award B1 for 150km
	Total distance 180 km +150 km 330 km	B1	Award B1 for 330km.

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b)	Ans = $\frac{\text{Total distance}}{\text{Total time}}$ $S\frac{1}{2}$ $\frac{11}{2}$ $\frac{330\text{ km}}{2\text{hrs} + 3\text{hrs} + \frac{1}{2}\text{hr}}$ $\frac{330\text{ km}}{5\frac{1}{2}\text{ hrs}}$ $330\text{km} \div \frac{11}{2}\text{ hrs}$ $\overset{30}{\cancel{330}}\text{ km} \times \frac{2}{\overset{1}{\cancel{11}}\text{ hrs}}$ $30\text{km} \times \frac{2}{\text{hr}}$ $60\frac{\text{km}}{\text{hr}}$	M1 A1	Award m1 for correct substitution in the formula. Award A1 for $60\frac{\text{km}}{\text{hr}}$
27.	Consider the eggs she carried in the first trip be Y.		Award m1 for correct formation of the equation
	1st trip: Y; 2nd trip: Y − 3; 3rd trip: Y − 6; Total: 36 15; 15 − 3 = 12; 15 − 6 = 9		Award m1 for final collection of like terms.
	$Y + Y - 3 + Y - 6 = 36$ $Y + Y + Y - 3 - 6 = 36$ $3Y - 9 = 36$ $3Y - 9 + 9 = 36 + 9$ $3Y = 45$ $\frac{3Y}{3} = \frac{45}{3}$ $Y = 15$	m1 m1 A1	Award A1 for the value of the un-known.
	Eggs carried in the last 2 trips 12 +9 21 eggs	m1 A1	Award m1 for correct working Award A1 for 21 eggs.

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28. a)	$\frac{0.21 \times 0.4}{0.07 \times 0.12}$ $\left(\frac{21}{100} \times \frac{4}{10}\right) \div \left(\frac{7}{100} \times \frac{12}{100}\right)$ $\frac{\cancel{21}^{3}}{\cancel{100}} \times \frac{\cancel{4}}{\cancel{10}} \times \frac{\cancel{100}}{\cancel{7}_{1}} \times \frac{\cancel{100}}{\cancel{12}_{3}}$ $\frac{\cancel{3}^{1}}{1} \times \frac{1}{1} \times \frac{10}{1} \times \frac{1}{\cancel{3}_{1}}$ $\frac{1 \times 1 \times 10 \times 1}{1 \times 1 \times 1 \times 1}$ $\frac{10}{1} = 10$	m1 m1 A1	Award m1 converting the fractions into common fractions Award m1 dividing Award A1 for 10.
b)	$\frac{2}{3} - \frac{1}{4} + \frac{1}{3}$ $\frac{2}{3} + \frac{1}{3} - \frac{1}{4}$ $\frac{2+1}{3} - \frac{1}{4}$ $\frac{3}{3} - \frac{1}{4}$ $\frac{\frac{3}{3} \times 12^{4} - \frac{1}{\cancel{4}} \times \cancel{12}^{3}}{12}$ $\frac{12 - 3}{12}$ $\frac{9}{12} = \frac{3}{4}$	m1 A1	Award m1 for correct working Award A1 for $\frac{3}{4}$
29. a)	$180°(n-2)$ = Int. $\angle$ sum $180°(n-2) = 720°$ $\frac{\cancel{180°}(n-2)}{\cancel{180°}} = \frac{\overset{24}{\cancel{720°}}}{\cancel{180°}}$ $n - 2 = 4$ $n - 2 + 2 = 4 + 2$ $n = 6$ ∴ The polygon has 6 sides	m1 m1 A1	Award m1 for correct working Award m1 for division Award A1 for 6 sides
b)	Ext. $\angle = \frac{360°}{\text{Sides}}$ $\frac{\overset{60}{\cancel{360°}}}{\cancel{6}_{1}}$ ∴ Ext $\angle = 60°$	m1 A1	m1 for correct method / working. A1 for 60°
c)	Regular hexagon	B1	B1 for regular hexagon.

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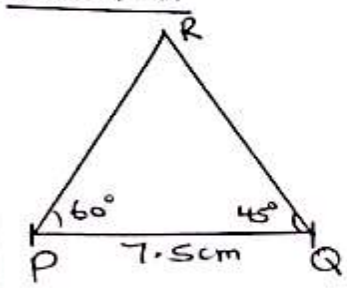
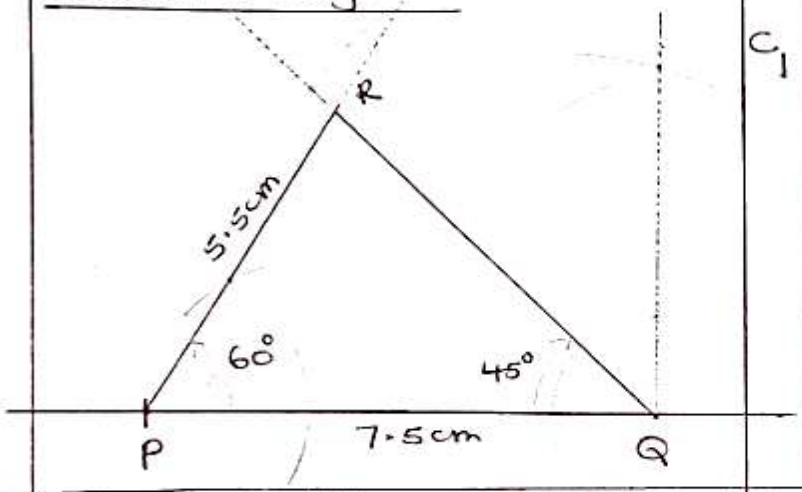
30. a)	Sketch  Accurate diagram  	S_1 L_1 C_1 C_1	Award S_1 for detailed sketch. Award L_1 for 7.5cm Award C_1 for 45° Award C_1 for 60°
b)	PR = $5.5^{+0.1}_{-0.1}$ cm	B_1	Award B_1 for 5.5cm, 5.4cm, 5.6cm correctly measured.
31.	πD = Perimeter $\frac{22}{7}D = 880cm$ $\frac{22}{7}D \times 7 = 880cm \times 7$ $22D = 880cm \times 7$ $\frac{22}{22}D = \frac{880cm}{22} \times 7$ $D = 40cm \times 7$ $D = 280cm$ Radius $\frac{D}{2}$ $\frac{280cm}{2}$ 140cm	m_1 A_1	Award m_1 for correct working. Award A_1 for 280cm or 140cm (radius or diameter) M_1 for correct working
	Area = πr^2 $\frac{22}{7} \times 140cm \times 140cm$ $440cm \times 140cm$ $61600 cm^2$ $\therefore$ The area of the room is $61600cm^2$	m_1 A_1	A_1 for $61600cm^2$.

QN		
32.		B_1 for 3 B_1 for 0 B_1 for −3 B_1 for −2 B_2 for correct plotting of the coordinates.

x	0	1	2	-2	-3	-4
y	2	3	4	0	-1	-2

$y = x + 2$ | $y = x + 2$ | $x + 2 = y$

$y = 1 + 2$ | $y = -2 + 2$ | $x + 2 = -1$

$y = 3$ | $y = 0$ | $x + 2 - 2 = -1 - 2$

$x = -3$

$y = x + 2$

$y = -4 + 2$

$y = -2$