higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

MATHEMATICAL LITERACY
(First paper)
NQF LEVEL 3

8 November 2023

This marking guideline consists of 9 pages.

Symbol	Explanation
M	Method
CA	Consistent accuracy
A	Accuracy
C	Conversion
S	Simplification
RT/RG/RP	Reading from a table/graph/passage
F	Choosing correct formula
SF	Substitution in formula
SC	Subject change
J	Justification
P	Penalty, e.g. for no units, incorrect rounding off, etc.
R	Rounding off/reason
O	Opinion
MA	Method with accuracy
SR	Square root

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QUESTION 1 [30]

Question	Solution		Explanation	Marks
1.1	1.1.1	$= 10{,}1211 + 54{,}1034$ $= 64{,}2245$ ✓ $\approx 64{,}23$ ✓	1 A Calculation 1 A Answer	(2)
	1.1.2	$= 2\sqrt{25} - 1$ ✓ $= (2 \times 5) - 1$ $= 9$ ✓	1 A Calculation 1 A Answer	(2)
	1.1.3	$= \left(\frac{11}{2} - \frac{14}{5}\right) \times \frac{8}{3}$ ✓ $= \left(\frac{55-28}{10}\right) \times \frac{8}{3}$ ✓ $= \frac{27}{10} \times \frac{8}{3}$ ✓ $= \frac{9}{5} \times \frac{4}{1}$ $= \frac{36}{5}$ ✓ or $7\frac{1}{5}$ or 7,2	1 A LCM Simplification 1 A Calculation 1 A Answer	(3)
1.2	$\therefore$ 2hrs 6min = 126min ✓ $= \frac{21}{126} \times \frac{60}{1}$ ✓ = 10min or 0,17 hrs ✓	$\therefore$ 2hrs 6min = 2.1hrs ✓ $= \frac{21}{2.1}$ ✓ = 10min or 0,17hrs ✓	1 MA Answer 1 A Calculation 1 A Answer	(3)
1.3	Since : $1 = \frac{2}{2} = \frac{5}{5} = \frac{10}{10}$ etc. $\therefore \frac{1}{2} + \frac{2}{5}$ ✓ $= \frac{5+4}{10}$ $= \frac{9}{10}$ ✓ $\therefore \frac{10}{10} - \frac{9}{10} = \frac{1}{10}$ left to spend ✓	$= 1 - \left(\frac{1}{2} + \frac{2}{5}\right)$ ✓ $= 1 - \left(\frac{9}{10}\right)$ ✓ $= \frac{1}{10}$ ✓ [Accept any other acceptable method]	1 MA Answer 1A Calculations 1 A Answers	(3)

Question	Solution		Explanation	Marks
1.4	$\frac{3}{5}\times\frac{2500}{1}$ ✓ $=1500$ $\therefore 2500-1500$ ✓ $=1000$ $\therefore$ There were 1000 males ✓	Males $=\frac{2}{5}$ $=\frac{2}{5}$ ✓ $\times 2500$ ✓ $=1000$	1 MA Answer 1 A Calculation 1 A Answer	(3)
1.5	$2022 := \frac{12}{100}\times\frac{5000}{1}$ ✓ $=600$ $\therefore 5000-600$ $=4400$ ✓ $2023 := \frac{12}{100}\times\frac{4400}{1}$ $=528$ $\therefore$ 4400-528 $=3\ 872$ ✓ $\therefore$ There will be 3872 African elephants	$2022 = 5000\times 88\% = 4400$ ✓ $2023 = 4400\times 88\% = 3872$ ✓ [Accept any relevant method]	1 MA Answer 1 A Calculation 1 A Answer	(3)
1.6	1.6.1	a)30✓ b)200✓ c)10✓	1 A Answer each	(3)
	1.6.2	= 3000 ÷ 25✓ = 120 ✓	1 M 1 A	(2)
1.7	$\frac{20}{100}\times\frac{R700}{1}$ = R140 ✓ $\therefore$ R700 - R140 = R560 ✓	=R700 × 80%✓ =R700 × 0,8 =R560✓	1 MA Answer 1 A Answer	(2)
1.8	A	$\text{Time} = \frac{\text{distance}}{\text{speed}}$ $=\frac{360km}{30km/h}$ ✓ $=12hrs$ ✓	1 SF Answer 1 A Answer	(2)
	B	$\text{Speed} = \frac{\text{distance}}{\text{time}}$ $=\frac{360km}{6hrs}$ ✓ $=60km/h$ ✓	1 SF Answer 1 A Answer	(2)
				[30]

QUESTION 2 [30]

Question	Solution		Explanation	Marks
2.1	2.1.1	E✓, the measure of the inside of a closed 2D shape	1 A Answer	(1)
	2.1.2	D✓, meet at right angles	1 A Answer	(1)
	2.1.3	A✓, has faces, edges and vertices	1 A Answer	(1)
	2.1.4	B✓, a slanted line that goes from corner to corner	1 A Answer	(1)
	2.1.5	F✓, constant distance between the lines	1 A Answer	(1)
2.2	24×2✓ 12×4✓ 16×3✓ 8×6✓		1 A Answer each	(4)
2.3	$92 \div 4$ $= 23\text{cm}$ ✓ $\therefore 23 \times 5$ $= 115\text{cm}$ ✓	$= 92 + (92 \div 4)$ $= 92 + 23$✓ $= 115\text{cm}$✓	1 A Calculation 1 A Answer	(2)
2.4	400km = 40 000cm Scale = 20cm : 40 000cm✓ Scale =1 : 2 000✓		1 MA Answer 1 A	(2)
2.5	2.5.1	5,81 m^2 ✓	1 RT Answer	(1)
	2.5.2	6 windows✓	1 RT Answer	(1)
	2.5.3	No✓, different sizes W1 = 124 × 146 and W3 = 446 × 228✓	1 RT Answer 1 J Answer	(2)
	2.5.4	80,46✓– (7,41 + 5,81 + 10,16 + 5,43 + 6,84 + 11,17)✓ = 33,64 cm^2 ✓	2 M Answer 1 A Answer	(3)

Question	Solution		Explanation	Marks
2.6	2.6.1	$SA = 2[(l \times h) + (l \times w) + (w \times h)]$ $= 2(18\ \text{cm}^2 + 24\ \text{cm}^2 + 12\ \text{cm}^2)$✓ $= 2(54\ \text{cm}^2)$ ✓ $= 108\ \text{cm}^2$✓	1 SF Answer 1 CF Answer 1 A Answer	(3)
	2.6.2	= 108cm^2 × 0,01✓ = 1,08m^2✓	= 108cm^2 ÷ 100✓ = 1,08m^2✓	1 C Answer 1 A answer (2)
2.7	$V = \pi\ \text{r}^2 h$ $= 3.14 \times (2{,}5\ \text{cm})^2 \times 18\ \text{cm}$ ✓ $= 3{,}14 \times 6.26\ \text{cm}^2 \times 18\ \text{cm}$ $= 353{,}25\ \text{cm}^3$ ✓ If each person has 3 full glasses $\therefore V = 353{,}25\ \text{cm}^3 \times 3$ $= 1059{,}75\ \text{cm}^3$ $= 1{,}06\ l$ ✓ $1{,}06 \times 50 = 53\ l$ ✓ $\frac{53}{2} = 27$ bottles ✓		1 SF Answer 2 Calculations 1 A Answer 1 C Answer	(5)
				[30]

QUESTION 3 [30]

Question	Solution		Explanation	Marks
3.1	3.1.1	A = R25 000✓+ R17 500✓ A = R42 500✓	2 M 1 A Answer	(3)
	3.1.2	B = R28 200✓– R(1 200+2 000+3 500+18 000)✓ B = R28 200 – R24 700 B = R3 500✓	2 MA Answer 1 A Answer	(3)
	3.1.3	Lowest = Printing✓ Highest = Wages✓	1 A Answer 1 A Answer	(2)
	3.1.4	A = R42 500 – R28 200✓ A = R14 300✓	1 M 1 A Answer	(2)
	3.1.5	= R42 500✓– (R42 500✓÷ 1,15)✓ = R42 500 – R36 956,52 = R5 543,48✓	3 M Answer 1 A 1 A Answer	(5)

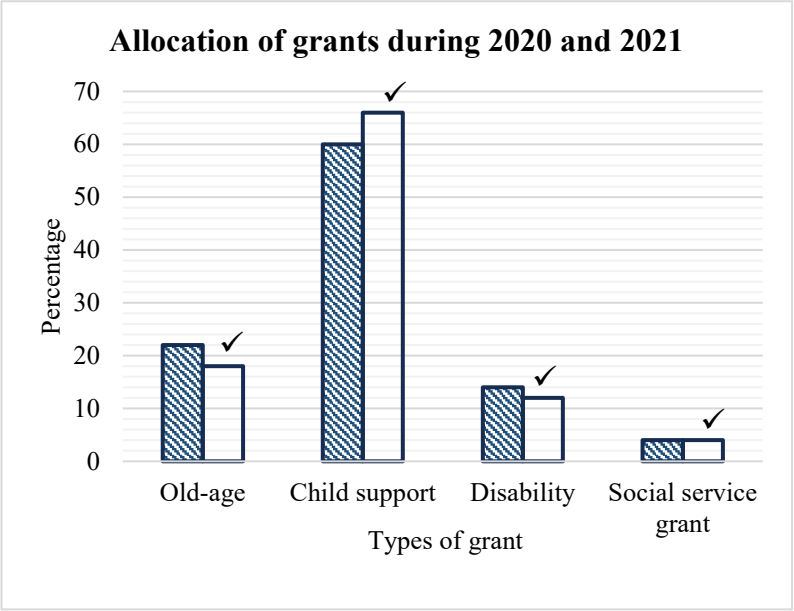
Question	Solution		Explanation	Marks
3.2	3.2.1	= 41 135 – 39 712 = 1 423KWh✓	1 A Answer	(1)
	3.2.2	Ampere charge + charge for KWh used: =(R3,10 × 30) ✓ + (1 423✓× R0,221) ✓ =R93 + R314,483✓ =R407,48✓	2 MA Answer 2 SF Answer 1 A Answer	(5)
	3.2.3	Monthly cost on pre-paid: = 1423 × R0,545✓ = R775,54✓	1 A Calculation 1 A Answer	(2)
3.3	3.3.1	UIF = R15 721,85 × 1% UIF = R15 721,85✓× 0,01✓ UIF = R157,23✓	2 M 1 A Answer	(3)
	3.3.2	Net salary = 16 463,75 − (1 476,10 + 157,22✓ + 627,82 + 652,57 + 210,55 + 175,65)✓ = R16 463,75 − R3 299,91✓ = R13 163,84✓	2 M 1 A 1 A Answer	(4)

QUESTION 4 [30]

Question	Solution		Explanation	Marks
4.1	4.1.1	Number of Stock Items ✓	1 A Answer	(1)
	4.1.2	Cost in rand ✓	1 A Answer	(1)
	4.1.3	$y = 250$✓ x✓ or Cost in rand = R250✓ × Number of Stock Items bought✓	2 A Answer	(2)
	4.1.4	There is a positive direct relationship between the two variables, as both increase in the same proportion.✓✓	2 A Answer	(2)

Question	Solution		Explanation	Marks
	4.1.5	A straight line graph✓✓	2 A Answer	(2)
4.2	4.2.1	$C = 450 + 4(2)$ ✓ $= 450 + 8$ $= R458$ ✓	1 SF Answer 1 A answer	(2)
	4. 2.2	$C = 450 + 4(0,75)$ ✓ $= 450 + 3$ $= R453$ ✓ $R453 \times \frac{90}{100} = R\ 407,70$ ✓	1 SF Answer 1 A Answer 1 A Answer	(3)
	4.2.3	$462 = 450 + 4h$ $4h = 462 - 450$ ✓ $4h = 12$ $h = 3$ ✓	1 SF Answer 1 SC Answer 1 A Answer	(3)
	4.2.4	Number of Hours Spent: 1 | **2**✓ | 5 | **6**✓ Cost in rand: **R454**✓ | R458 | **R470**✓ | R474	4 A Answer	(4)
4.3	4.3.1	Number of bricks: 0 | 20 | 50 Monthly cost: R10 000 ✓ | R10 020✓ | R10 050✓	3 A Answer	(3)
	4.3.2	=R10 000 + R200✓ =R10 200 ✓	1 MA Answer 1 A Answer	(2)
4.4	4.4.1	$= \frac{2}{3} \div \frac{1}{3}$ ✓ $= \frac{2}{3} \times \frac{3}{1}$ $= \frac{6}{3}$ ✓ $= 2$ ✓	1 MA Answer 1 C Answer 1 A Answer	(3)
	4.4.2	$= 1\frac{1}{3} \times 2$ ✓ $= 2\frac{2}{3}$ ✓	1 MA Answer 1 A Answer	(2)
				[30]

QUESTION 5 [30]

Question	Solution		Explanation	Marks
5.1	5.1.1	18,2✓	1 A Answer	(1)
	5.1.2	$= 7\,908\,138 - 5\,662\,911$ ✓ $= 2\,245\,227$ ✓	1 MA Answer 1 A Answer	(2)
	5.1.3	$A = 2\,190\,686 + 7\,908\,138 + 1\,420\,335 + 517\,580$ ✓ $= 12\,036\,739$ ✓ $B: (18,2 + 65,7 + 4,3) + B = 100$ $88,2 + B = 100$ ✓ $B = 100\text{-}88,2$ ✓ $B = 11,8$ ✓	1 MA Answer 1 A Answer 1 M Answer 1 SC Answer 1 A Answer	(2) (3)
	5.1.4		1 A Answer each bar	(4)
5.2	5.2.1	A: number of girls = 3 × number of boys✓ = 3 × 3 = 9✓ B: number of girls = 3 × number of boys✓ 180 = 3 × number of boys number of boys = 60✓	2 MA Answer 2 A Answer	(4)
	5.2.2	=2 550✓ × 3✓ =7 650✓	2 MA Answer 1 A Answer	(3)

Question	Solution		Explanation	Marks
5.3	5.3.1	$= \frac{58+62}{2}$ ✓ $= \frac{120}{2}$ $= 60$ ✓	1 MA Answer 1 A Answer	(2)
	5.3.2	Amanda $= \frac{36+42+48+58+60+61+62+76+86}{9}$ ✓ $= \frac{529}{9}$ $= 58{,}8$ ✓ Abu $\frac{48+48+48+53+58+62+70+72+80+86}{10}$ ✓ $\frac{625}{10} = 62{,}5$ ✓ Difference = $62{,}5 - 58{,}8 = 3{,}7$ ✓	3 MA Answer 1 C Answer 1 A Answer	(5)
	5.3.3	$= 86 - 48$ ✓ $=38$ ✓	1 MA Answer 1 A Answer	(2)
	5.3.4	They both have the same median but Abu's mean is greater than Amanda's mean.✓ And Abu's range is lower than Amanda's range, which means Abu was more consistent.✓ ***Any other suitable reason.***		(2)
				[30]

TOTAL: 150

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