AKISSHA JOINT MOCK EXAMINATIONS
CORE GUIDE
Uganda Certificate of Education
UCE August 2024
MATHEMATICS 456/1

Item 1	Expected Responses	Score	Comments
(a)(i)	Total number of tomatoes; 9 x 8 = 72 tomatoes	S1 2	Conversion in SSbase ten
	Cost of buying tomatoes; 9 x 2000 = Shs 18000	S1 2	For the cost
	Actual expenditure on tomatoes; $\frac{95}{100} x 18000 = 17100/=$	S1 2 S1	For $95/100$ accept alternative
	Heaps of 4 tomatoes; $72/4 = 18\ heaps$	S1 2	For 17100/=
	Amount earned after selling; 18 x 1200 = Shs 21600/=	S1 S1 2	For 18 For 21600
(a) (ii)	Profits earned from 4 heaps of tomatoes = 21600 – 17100 = Shs 4500	S1 2 S1	For 24
)	Let x represent cost ticket for child Let y represent cost of ticket for adult $3x + y = 17,000$ (i) $x + 2y = 14,000$ (ii)	S1 S1 S1 3	For identifying two variables For expression in terms of x and y
	From equation (i), $x = 14,000 - 2y$ (iii) Subst (iii) into (i) $3(14,000 - 2y) + y = 17,000$ $42,000 - 6y + y = 17,000$ $-5y = -25,000$ $y = 5,000$ $x = 14,000 - 2(5,000)$ $x = 4,000$	S1 S1 S1 S1 S1 1 S1 1	For substitution For value of y
	Amount for 5children and 2adults; 5(4,000) + 2(5,000) = Ugx30,000.	S1 S1 3	For subtraction substitution–amount a family of 7
		Total score=20	

Item 2	Expected Responses	Score	Comments
(a)	Let the number of trips made by bus be x	S1	for identify variable x
	Let the number trips made by minibus be y	S1	for identify variable y
	$y > x$.....(i)	S1	S5, S1 for each correct inequality
	$64x + 16y \leq 400$.....(ii)	S1	
	$x \geq 2$.....(iii)	S1	
	$y \leq 6$.....(iv)	S1	
	$40{,}000y + 90{,}000x \geq 360{,}000$.....(v)	S1	5
	$y > x$ and $y = x$		
	x | 2 | 5		
	y | 2 | 5	S1	For correct table values
	$64x + 16y \leq 400$ and $4x + y = 25$		
	x | 5 | 4		
	y | 5 | 9	S1	
	$40{,}000y + 90{,}000x \geq 360{,}000$		
	$4y + 9x = 36$ and $4y + 9x > 36$		
	x | 0 | 4		
	y | 9 | 0	S1	For correct table values
	Correct choice of scales each axis		
	Plotting and shading correct regions on graph	Graph - 3	
	Minimizing transport costs;	S1 S1 S1S1 S1	
	Points in feasible region:	S1	
	(2,6), (2,5), (3,6), (4,6), (3,5) (4,5), (5,5), (3,4)	S1	Identification of points in the feasible region.
	On testing gives;	S1	
	(2,5) =(90,000x2)+(5 x 40,000)=380,000Ugx	1	
b)	(2, 5)	4	
	Number of students = 64x + 16y	S1	
	= (64 x 2) + (16 x5)	S1	Substitution of (2, 5)
	= 208students	2	
		Total score 20	

Item 3	Expected Responses	Score	comments
(a)	Statistical method could be a frequency distribution table. A frequency table showing weights. P_1 Tally P_1 Length (cm) | x | f | fx | CF 60 – 69 | 64.5 | 4 | 258 | 4 70 – 79 | 74.5 | 4 | 298 | 8 80 – 89 | 84.5 | 7 | 591.5 | 15 90 – 99 P_1 | 94.5 P_1 | 13 P_1 | 1228.5 P_1 | 28 100 – 109 | 104.5 | 18 | 1881 | 46 110 – 119 | 114.5 | 4 | 458 | 50 | | 50 P_1 | 4715 P_1 |	S1 S1 S1 S1 S1 S1	For classes For x values For f values For fx For c.f For Σfx For Σf
(a)	Mean $= \frac{\Sigma fx}{\Sigma f} = \frac{4715}{50}$ A_1 $= 94.3$g A_1 ALTERNATIVE SOLUTION Weight in gms | x | f | fx | cf 60-64 | 62 | 2 | 124 | 2 65-69 | 67 | 2 | 134 | 4 70-74 | 72 | 2 | 144 | 6 75-79 | 77 | 2 | 154 | 8 80-84 | 82 | 3 | 246 | 11 85-89 | 87 | 3 | 261 | 14 90-94 | 92 | 6 | 552 | 20 95-99 | 97 | 8 | 776 | 28 100-104 | 102 | 11 | 1122 | 39 105-109 | 107 | 7 | 740 | 46 110-114 | 112 | 4 | 448 | 50 | | $\sum f = 50$ | $\sum fx = 4700$ | Mean $= \sum \frac{fx}{f} = \frac{4700}{50}$ $= 94$gms Since mean = 94 cabbages weighing below the average weight are 20. And 30 cabbages above average weight. Total Cost $= 50 \times 800 = 40{,}000/=$ A_1A_1	S1 S1 S1 S1 S1 S1 S1 S1 S1 S1 S1 S1 S1	Substitution in formula Labelling and correct scale of axes. For plotting For smooth curve LSocating P_{60}

	SGroup A cabbages sales; 20x1350 A =ugx27, 000 A Group B cabbages sales 30 x 1650 A = ugx 49,500 A Total sales 27,000 + 49500 =ugx 76,500 A A Profits = 76,500 - 40,000 A ugx 36,500 A since profits are Sless than 38,000, goal was not achieved: A A ***See graph at the back page.***	s1 s1 s1 s1 s1 s1 **Total score=20**	

Item 4	Expected Responses	Score	Comments
a)	Week 1 purchases = $\begin{pmatrix} 2 & 3 & 2 \\ 0 & 4 & 3 \end{pmatrix}$ P P Week 2 purchases = $\begin{pmatrix} 3 & 4 & 2 \\ 1 & 5 & 2 \end{pmatrix}$ P P Total purchase $\begin{pmatrix} 2 & 3 & 2 \\ 0 & 4 & 3 \end{pmatrix} + \begin{pmatrix} 3 & 4 & 2 \\ 1 & 5 & 2 \end{pmatrix}$ A $- \begin{pmatrix} 5 & 7 & 4 \\ 1 & 9 & 5 \end{pmatrix}$ A	S1 1 S1 2 S1 2 S1 S1 S1 2	Data analysis Correct 2x 3 matrix Data analysis Correct 2 x 3 matrix For addition of correct matrices For sum
b)	Total picked for sugar; 5 + 1=6kg A Total picked for posho; 7 + 9 = 16kg A Total picked for beans; 4 + 5 = 9kg A Amount paid = (6 10 10) $\begin{pmatrix} 5500 \\ 4000 \\ 2400 \end{pmatrix}$ P A A A A = (6x55000 + 10 x 4000 + 10 x 2400) A =330,000 +64000+ 21600 =Ugx 118600 A	S1 S1 S1 S1 S1 S1 3 S1 S1 S1 S1 S1 S1 8	For strategy used Correct expansion S3 each correct pdt. S1 for 330,000 s1 for 64000, s1 for 21 000 Sum =S 118600.

c)	Goal implies; expenses less than Ugx 100,000 Since total expenses is greater than 100,000 A_1 It means that desired goal was not achieved. A_1	S1 S1 Total score = 20	
		Total score=20	
Item 5	**Expected Responses**	**Score**	**Comment**
i)	Walls of 6 x 6 = 36ft² x 2 A_1 = 72ft² M_1 Other wall (5x6) 2floor (6x5)=60 2 x 30 A_1 = 60ft² M_1 Total area to be tiled 72ft² + 60ft² A_1 =132ft² M_1	S1 S1 S1 S1	For doubling Total area of 2 walls For 60 Sum total
(bi)	1ft= 0.305m 1ft² = (0.305)² = 0.093m² 0.093 x 132 = 12.3 A_1 12.793 m² M_1 Approx ..= 13 sq meters M_1 1box = 1.5m² A_1 No of boxes needed $(\frac{13}{1.5})$ = 8.7boxs $m_1 m_1$ =9boxes m_1 1box costs Ugx32,000 9boxes cost Ugx 32,000 x 9 = Ugx 288,000 m_1 m_1 Amount for labour 1m² x Ugx 9000 13m² = (13 x 9000) m_1 Ugx 117,000 m_1 Total Amount needed (117 + 288,000) m_1 Amount to be borrowed Ugx 405,000/= m_1	S1 S1 S1 S1 S1 S1 S1 S1 S1 S1 S1 S1 S1	For equating ratios For number of boxes For computation For amount For computation For amount For strategy For amount borrowed For strategy For computation For amount paid back

	Amount pay back = $P(1 + \frac{r}{100})^t$ $= 405{,}000\ (1 + \frac{5}{100})$ m1, m1 = Ugx 432,800 m1	S1 S1 S1 **Total score= 20**	For strategy Substitution in formula amount

Item 6	Expected Responses	Score	Comment
(CONT)	W:B = 3:2, B:R=3:2		
(i)	W:B = 9:6, B:R=6:4	s1	for ratio identification
	W:B:R = 9:6:4 A1	s1	Deduction from above
	Quantities: W = $\frac{9}{19} \times 380 = 180$ litres m1	s1	for quantities of different colours
	B = $\frac{6}{19} \times 380 = 120$ litres m1	s1	
	R = $\frac{4}{19} \times 380 = 80$ *litres* m1	s1	
(ii)	Amount needed for 380 litres A = (180 x 2200) + (120 x 2700) +(80x2850) A = Shs (396,000 + 324000 + 228000) m1 m1 m1 A = Shs 948,000 m1	s1	Strategy identified
	Amount needed to make 1 litre of mixture $= \frac{948000}{380}$ A1	s3 s1	S1 x3foreach correct pdt for addition
	= approx. ugx 2495 = 2494.74 m1	01	
	Profit = (3800 x 380) – 948,000 = 144000 – 948,000 = 496,000 m1	01 01	for addition C's
(iii)	% profit = $\frac{496000}{948{,}000} \times 100$ A1 = 52.3% m1	01	for multiplication for subtraction
b)	volume of frustum = $\frac{1}{3}\pi$ [illegible] A1 = [illegible] m1	01	for division
	volume of cylinder = [illegible] A1 = [illegible] π cm³ m1	01	Correct answer
	No of buckets = [illegible] = [illegible] buckets A1 m1	01 **Total score20**	

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(To be fastened together with other answers)

Candidate's Name Hem: 2 Wakissha 456/1 Maths

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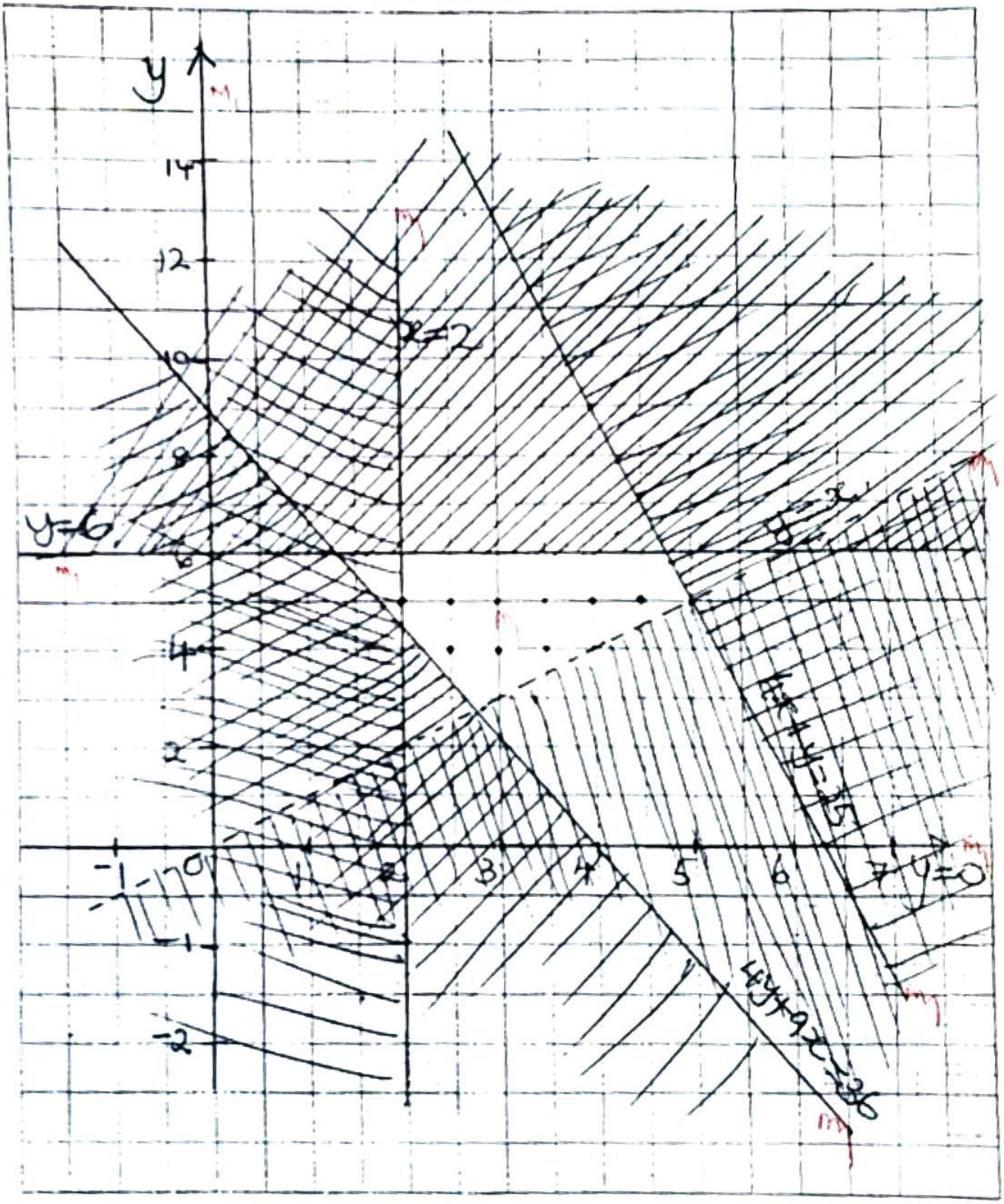

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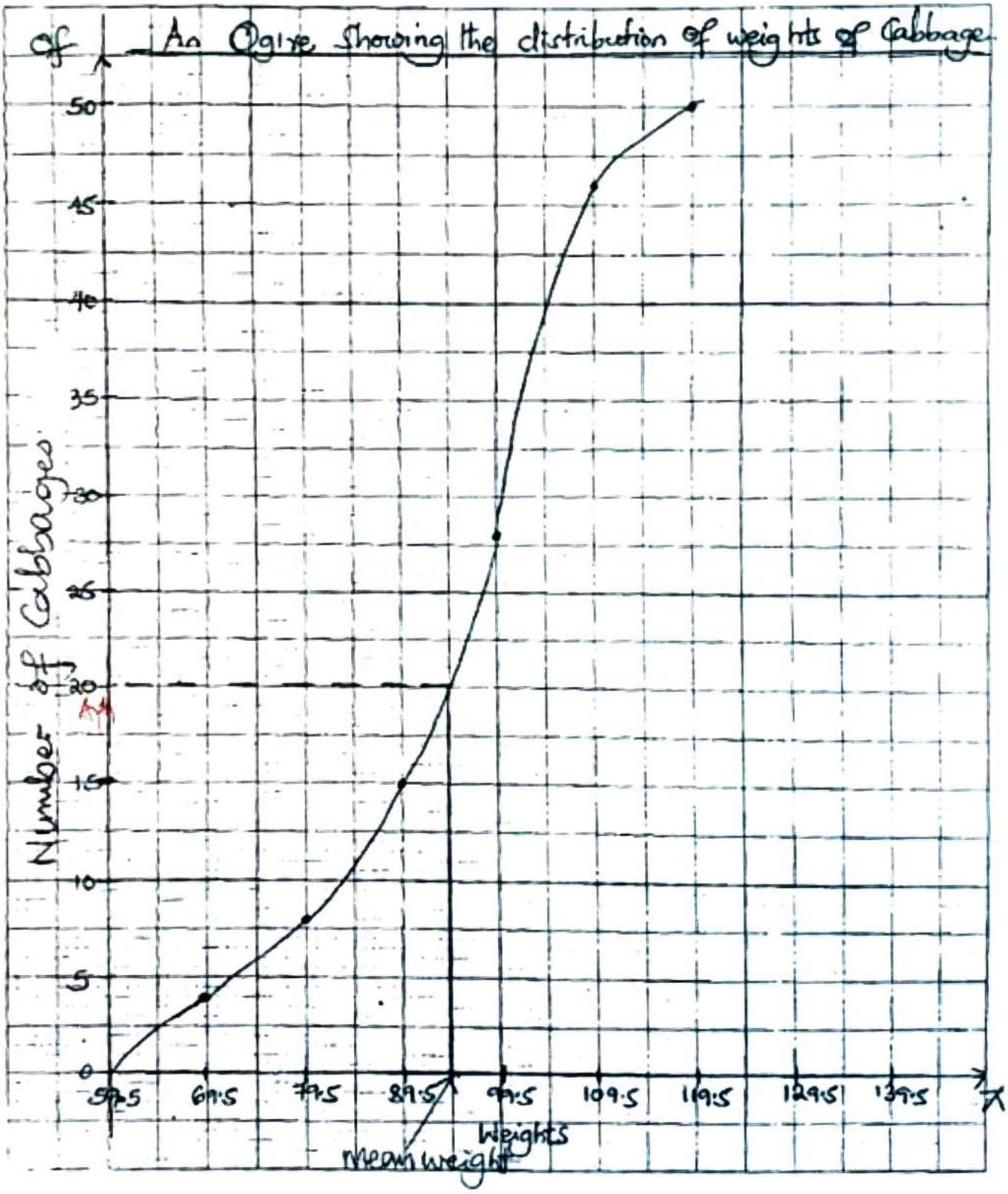

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