WAKISSHA JOINT MOCK EXAMINATIONS
SCORE 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 $I_1 m_1$ I_1	S1 2	Conversion in SSbase ten
	Cost of buying tomatoes; 9 x 2000 = Shs 18000 $I_1 m_1$	S1 2	For the cost
	Actual expenditure on tomatoes; $\frac{95}{100} x18000 = 17100/=$ $I_1 m_1$	S1 2 S1	For $95/100$ accept alternative
	Heaps of 4 tomatoes; $72/4 = 18$ *heaps* $I_1 m_1$	S1 2	For 17100/=
	Amount earned after selling; 18 x 1200 = Shs 21600/= $I_1 m_1$	S1 S1 2	For 18 For 21600
(a) (ii)	Profits earned from 4 heaps of tomatoes = 21600 – 17100 I_1 (I_1 Subtraction) = Shs 4500 m_1	S1 S1 2	for ~~For 24~~ 4500
(b)	Let x represent cost ticket for child Let y represent cost of ticket for adult $3x + y = 17{,}000$ (i) I_1 I_1 $x + 2y = 14{,}000$ (ii) I_1	S1 S1 S1	For identifying two variables For expression in terms of x *and* y
	From equation (i), $x = 14{,}000 - 2y$ (iii) I_1 Subst (iii) into (i) $3(14{,}000 - 2y) + y = 17{,}000$ $42{,}000 - 6y + y = 17{,}000$ M_1 $-5y = -25{,}000$ $y = 5{,}000$ m_1 $x = 14{,}000 - 2(5{,}000)$ M_1 $x = 4{,}000$ m_1	S1 S1 S1 S1 S1 S1 S1	For substitution for value of y For value of x
	Amount for 5children and 2adults; 5(4,000) + 2(5,000) = Ugx30,000. m_1 $I_1 m_1$	S1 S1	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
	$y \geq x$.....(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	
	$y \geq x$ 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	S1 S1 S1S1 S1	
	Minimizing transport costs;	S1	
	Points in feasible region;	S1	
	=(2,6), (2,5), (3,6), (4,6), (3,5) (4,5), (5,3), (3,4)	S1	Identification of points in the feasible region.
	On testing gives;		
	(2,5) =(90,000x2)+(5 x 40,000)=380,000Ugx	S1	
b)	(2, 5)		
	Number of students = 64x + 16y	S1	Substitution of (2, 5)
	= (64 x 2) + (16 x5)	S1	
	= 208students		
		Total score 20	

Item 3	Expected Responses	Score	comments
(a)	Statistical method could be a frequency distribution table showing weights of Cabbages. P1		

~~Length (cm)~~ weight (g)	x	f	fx	~~frequency 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	94.5	13	1228.5	28
100 – 109	104.5	18	1881	46
110 – 119	114.5	4	458	50
P1	P1	50	4715	P1

Score	comments
~~S1~~	For classes
S1	For x values
S1	For f values
~~S1~~	For fx
S1 08	For c.f
~~S1~~	For Σfx
~~S1~~	For Σf

(a)

Mean $= \frac{\Sigma fx}{\Sigma f} = \frac{4715}{50}$ A1

$= 94.3$g A1

ALTERNATIVE SOLUTION P1

Weight in gms	x	f	fx	cf frequency
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 P1	448 P1	50 P1
P1	P1	$\sum f = 50$ P1	$\sum fx = 4700$ P1	

Score	comments
S1	Substitution in formula
S1	
S1	
S1	
S1	
S1	Labelling and correct scale of axes.
S1	For plotting
S1	For smooth curve
08	LSocating P_{60}

Paying back

C.P $= P(1+\frac{R}{100})^T$

$= 398513.7(1+\frac{5}{100})^{5}$ A1 m1

$= 428772.78$ m1

Mean $= \Sigma\frac{fx}{f} = \frac{4700}{50}$ A1

$= 94$gms A1

Since mean = 94 cabbages weighing below the average weight are 20. And 30 cabbages above average weight.

Amount = 110513.7 + 288000 A1

bonded = 398513.7m1

6ft = 6 × 0.305m A1

$= 1.83$m A1

Total area $= 2(1.83 \times 1.83) + 2(1.83 \times 1.525)$

$= 6.6978\text{m}^2$ A1m1

$2(1.83 \times 1.525)$

$= 12.2793$m1 A1

No boxes = $\frac{\text{total area}}{\text{area of box}} = \frac{12.27}{1.55}$ m1

$= \frac{12.2793\text{m}^2}{1.55\text{m}^2} = 8.1862$

≈ 9 box A1

No of boxes = 9 × 32000 m1

$= 288000$m1

Labour = 4020 × 12.2793m1

$= 110513.7$m1

	SGroup A cabbages sales; 20x1350 A1 =ugx27, 000 A1 Group B cabbages sales 30 x 1650 = ugx 49,500 A1 Total sales 27,000 + 49500 =ugx 76,500 A1 Profits = 76,500 - 40,000 A1 A1 A1 ugx 36,500 A1 since profits are Sless than 38,000, goal was not achieved; A1 A1 ***See graph at the back page.***	s1 s1 01 s1 s1 s1 s1 02 04 **Total score=20**	

Item 4	Expected Responses	Score	Comments
a)	matrices showing consumables Week 1 purchases = $\begin{pmatrix} 2 & 3 & 2 \\ 0 & 4 & 3 \end{pmatrix}$ P1 P1 2x3 P1 Week 2 purchases = $\begin{pmatrix} 3 & 4 & 2 \\ 1 & 5 & 2 \end{pmatrix}$ P1 2x3 P1 Total purchase $\begin{pmatrix} 2 & 3 & 2 \\ 0 & 4 & 3 \end{pmatrix} + \begin{pmatrix} 3 & 4 & 2 \\ 1 & 5 & 2 \end{pmatrix}$ A1 $= \begin{pmatrix} 5 & 7 & 4 \\ 1 & 9 & 5 \end{pmatrix}$ A1 2x3	S1 01 S1 02 S1 02 S1 02 S1	Data analysis presentation Correct 2x 3 matrix Data analysis presentation Correct 2 x 3 matrix For addition of correct matrices For sum
b)	Total picked for sugar; 5 + 1=6kg A1 Total picked for posho; 7 + 9 =16kg A1 Total picked for beans; 4 + 5 = 9kg A1 Amount paid = (6 16 9) $\begin{pmatrix} 5500 \\ 4000 \\ 2400 \end{pmatrix}$ P1 A1A1A1 3x1 P1 = (6x5500 + 16 x 4000 + 9x 2400) A1 =330,000 + 64000 + 21600) A1 =Ugx 118600 107400 A1	S1 S1 S1 S1 03 S1 S1 S1 05 S1 S1 S1 S1 S1 03	6, 11 and 9 kg seen. 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 AP1 Since total expenses is greater than 100,000 It means that desired goal was not achieved. AP1	S1 S1 02 Total score = 20	Descri & reason
		Total score=20	
Item 5	**Expected Responses**	**Score**	**Comment**
	Walls of 6 x 6 = 36ft² x 2 A1 = 72ft² A1 Other wall (5x6) 2floor (6x5)=60 A1 2 x 30 = 60ft² A1 Total area to be tiled 72ft² + 60ft² m1 =132ft² A1 1ft= 0.305m 1ft² = (0.305)² = 0.093m² 0.093 x 132 = 12.3 A1 12.2793 m² A1 Approx ..= 13 sq meters m1 1box = 1.5m² 12.2793 No of boxes needed ($\frac{18}{1.5}$) = 8.7boxs A1 m1 =9boxes m1 m1 1box costs Ugx32,000 9boxes cost Ugx 32,000 x 9 = Ugx 288,000 m1 m1 Amount for labour 1m² x Ugx 9000 13m² = (12 x 9000) A1 Ugx 117,000 m1 110513·72 110514 ≠ Total Amount needed (117 000 + 288,000) m1 Amount to be borrowed Ugx 405,000/= m1	S1 S1 02 S1 S1 02 S1 S1 S1 :1 S1 S1 S1 04 S1 S1 04 S1 S1 S1 S1	For doubling Total area of 2 walls For 60 Sum total For meters = 13m² For equating ratios For number of boxes For computation For amount For computation For amount For strategy For amount borrowed accept approximation and two decimal point For strategy For computation For amount paid back
i)			
(bi)			

	Amount pay back = $P(1+\frac{r}{100})^t$ $= 405{,}000\ (1+\frac{5}{100})$ m1 A1 = 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~~ 03	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~~ 03	
	$R = \frac{4}{19}\times 380 = 80 litres$ m1	~~s1~~	
	Amount needed for 380 litres		
(ii)	A = (180 x 2200) + (120 x 2700) +(80x2850) A = Shs (396000 + 324000 + 228000) m1 m1	~~s1~~ 04	Strategy identified
	A = Shs 948,000 m1	~~s3~~	S1 x3foreach correct pdt
	Amount needed to make 1 litre of mixture	~~s1~~	for addition
	$= \frac{948000}{380}$ A1	~~01~~ 02	
	= approx.. ugx 2495 m1		for addition
	Profit = (3800 x 380) – 948,000	~~01~~	
	= 144000 – 948,000		C's
	= 496,000 m1	~~01~~ 02	
(iii)	% profit = $\frac{496000}{948,000}\times 100$ A1		for multiplication
	= 52.3% m1	~~01~~ 02	for subtraction
(b)	Volume of frustrum = $\frac{1}{3}\pi 15^2$	~~01~~	for division
		01	Correct answer
		01	
		Total score20	

odongo jaspher

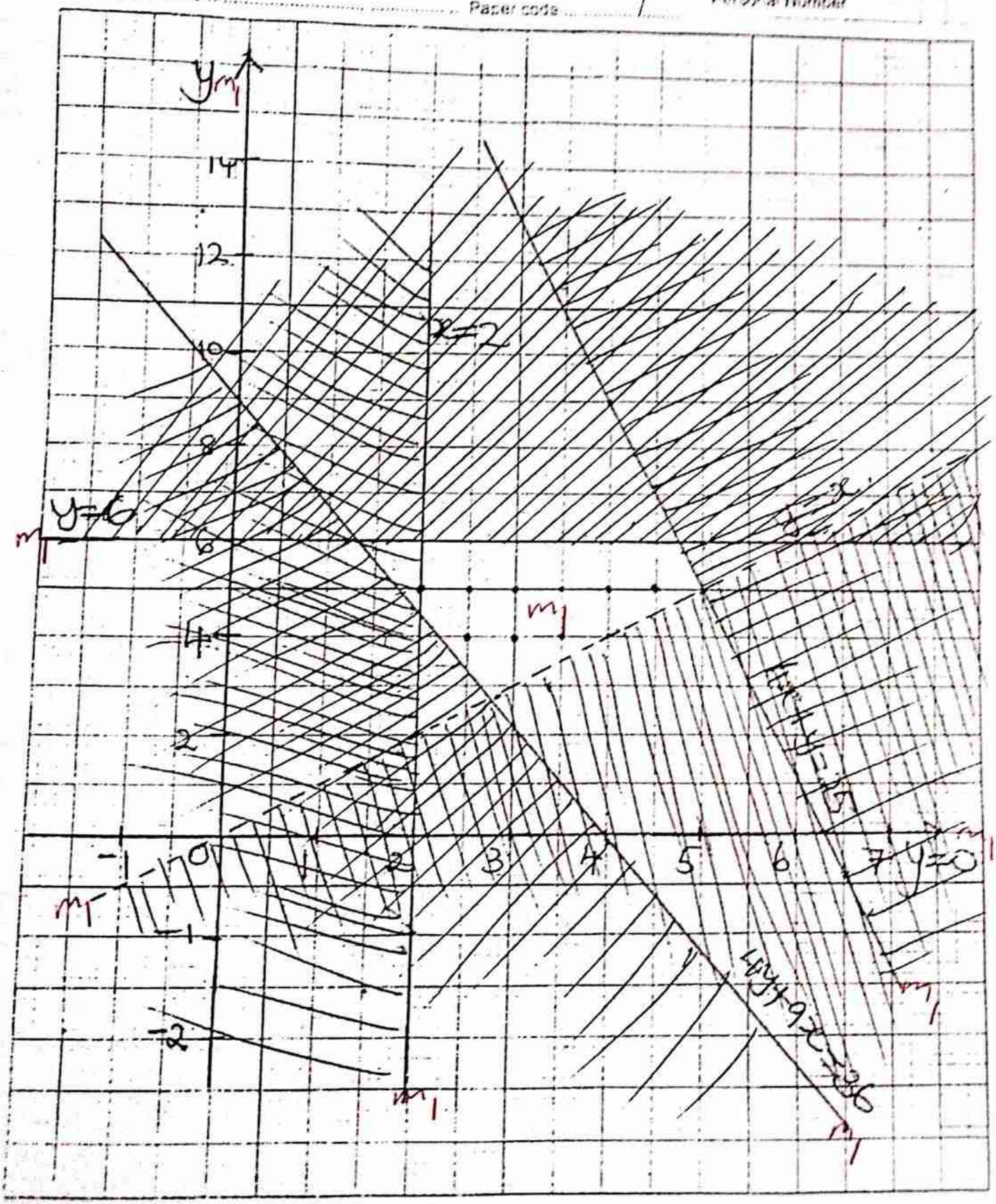
UGANDA NATIONAL EXAMINATIONS BOARD

(To be fastened together with other answers)

Candidate's Name ..... Wakissha 456 Maths

Signature ..... Hem: 2

Subject Name ..... Paper code ..... / Personal Number



odongo jaspher

UGANDA NATIONAL EXAMINATIONS BOARD

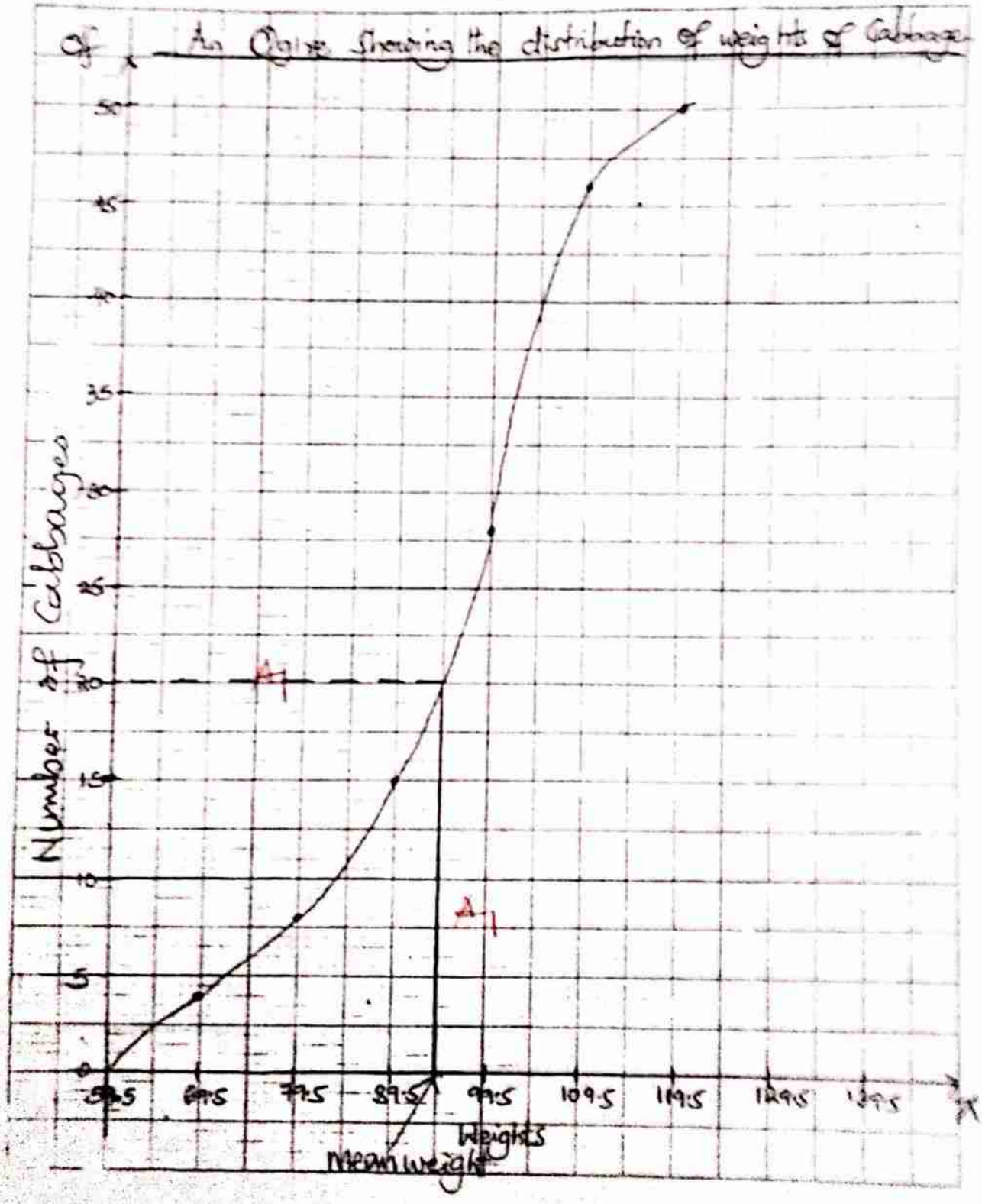
(To be fastened together with other answers to paper)

Candidate's Name Hem: 3 Wakissha 450/1 (Maths)

Signature

Subject Name Paper code Person / Number

Q) An Ogive showing the distribution of weights of Cabbages



END