TS 1

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	S1 - 2	Conversion in SSbase ten Fa. 9×8 72
	Cost of buying tomatoes; 9 x 2000 = Shs 18000 I_1 M_1	S1 2	For the cost
	Actual expenditure on tomatoes; $\frac{95}{100} x 18000 = 17100/=$ I_1 M_1	S1 2 S1	For $95/100$ accept alternative For 17100/=
	Heaps of 4 tomatoes; $72/4 = 18$ *heaps* I_1 M_1	S1 - 2	
	Amount earned after selling; 18 x 1200 = Shs 21600/= I_1 M_1	S1 S1 2	For 18 x 1200 For 21600
(a) (ii)	Profits earned from 4 heaps of tomatoes = 21600 – 17100 I_1 = Shs 4500 M_1	S1 2 S1	For 4500
(b)	Let x represent cost ticket for child T Let y represent cost of ticket for adult $3x + y = 17{,}000$ (i) I_1 $x + 2y = 14{,}000$ (ii) I_1	S1 S1 3 S1	For identifying two variables For expression in terms of x *and* y
	From equation (i), $x = 14{,}000 - 2y$ (iii) Subst (iii) into (i) $3(14{,}000 - 2y) + y = 17{,}000$ $42{,}000 - 6y + y = 17{,}000$ $-5y = -25{,}000$ $y = 5{,}000$ M_1 $x = 14{,}000 - 2(5{,}000)$ $x = 4{,}000$ M_1	S1 S1 S1 S1 S1 S1 2	identification For substitution For value of y
	Amount for 5children and 2adults; 5(4,000) + 2(5,000) = Ugx30,000. I_1 I_1 M_1	S1 S1 3	value of x For subtraction substitution amount a family of 7
		Total score=20	

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Item 2	Expected Responses	Score	Comments
(a)	Let the number of trips made by bus be x Let the number trips made by minibus be y	S1 S1	for identify variable x for identify variable y
	$y > x$.....(i) F1 $64x + 16y \leq 400$.....(ii) F1 $x \geq 2$.....(iii) F1 $y \leq 6$.....(iv) F1 $40{,}000y + 90{,}000x \geq 360{,}000$.....(v) F1	S1 S1 S1 S1 S1	S5, S1 for each correct inequality
	$y > x$ 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 Minimizing transport costs; Points in feasible region; =(2,6), (2,5), (3,6), (4,6), (3,5) (4,5), (5,5), (3,4) On testing gives; (2,5) =(90,000x2)+(5 x 40,000)=380,000Ugx M1	S1 S1 S1S1 S1 S1 S1 S1	Identification of points in the feasible region.
b)	(2, 5) Number of students = 64x + 16y = (64 x 2) + (16 x5) M1 = 208students M1	S1 S1	Substitution of (2, 5)
		Total score 20	

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(To be fastened together with other answers)

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

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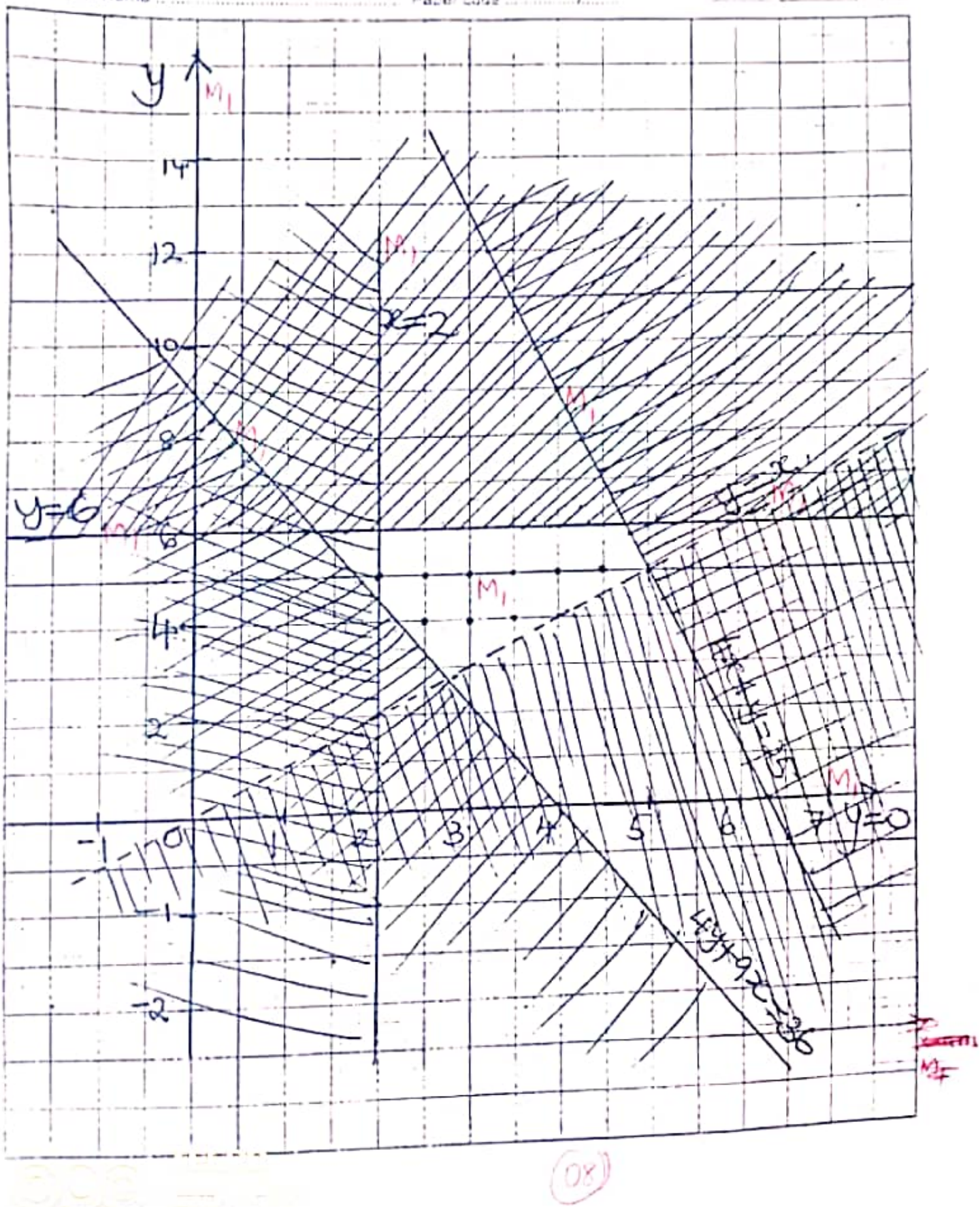

(08)

Item 3	Expected Responses	Score	comments
(a)	Statistical method could be a frequency distribution table.		

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	94.5	13	1228.5	28
100 – 109	104.5	18	1881	46
110 – 119	114.5	4	458	50
		50	4715	

Score	comments
S1	For classes
S1	For x values
S1	For f values
S1	For fx
S1	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

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 $= \sum \frac{fx}{f} = \frac{4700}{50}$ A1

$= 94$gms A1

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

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

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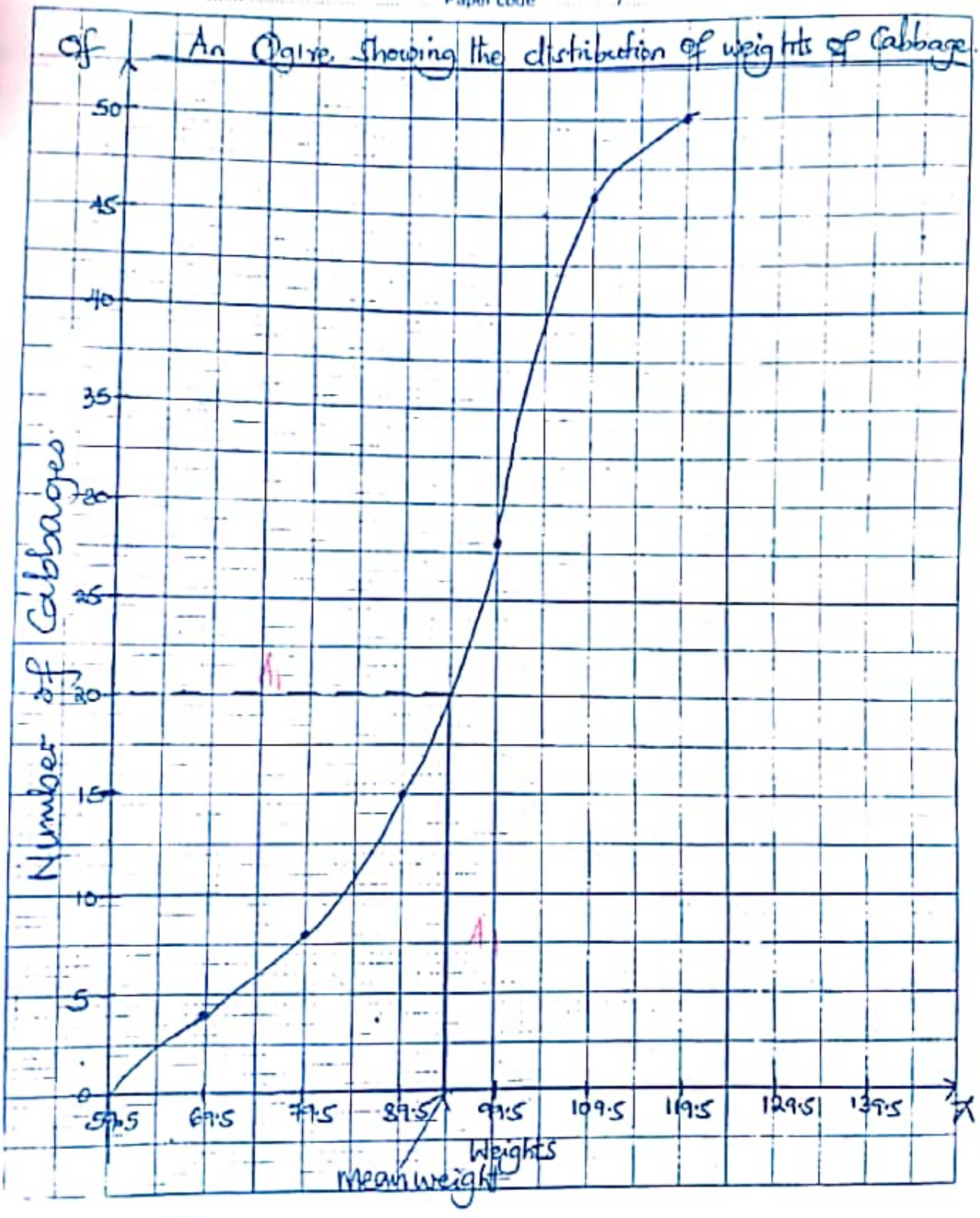

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	SGroup A cabbages sales: 20x1350 =ugx27, 000 Group B cabbages sales 30 x 1650 = ugx 49,500 Total sales 27,000 + 49500 =ugx 76,500 Profits = 76,500 - 40,000 ugx 36,500 since profits are Sless than 38,000, goal was not achieved; ***See graph at the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

Item 4	Expected Responses	Score	Comments
a)	Week 1 purchases = $\begin{pmatrix} 2 & 3 & 2 \\ 0 & 4 & 3 \end{pmatrix}$ Week 2 purchases = $\begin{pmatrix} 3 & 4 & 2 \\ 1 & 5 & 2 \end{pmatrix}$ Total purchase $\begin{pmatrix} 2 & 3 & 2 \\ 0 & 4 & 3 \end{pmatrix} + \begin{pmatrix} 3 & 4 & 2 \\ 1 & 5 & 2 \end{pmatrix}$ $= \begin{pmatrix} 5 & 7 & 4 \\ 1 & 9 & 5 \end{pmatrix}$	S1 S1 S1 S1 S1 S1	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 Total picked for posho; 7 + 9 =16kg Total picked for beans; 4 + 5 = 9kg Amount paid = (6 16) $\begin{pmatrix} 5500 \\ 4000 \\ 2400 \end{pmatrix}$ = (6x55000 + 16 x 4000 +16 x 2400) =330,000 +64000+ 21600 = 107,400	S1 S1 S1 S1 S1 S1 S1 S1 S1 S1 S1 S1	For strategy used Correct expansion S3 each correct pdt. S1 for 330,000 s1 for 64000, s1 for 21 000 Sum =S 118600.

	Goal implies; expenses less than Ugx 100,000 Since total expenses is greater than 100,000 A1 It means that desired goal was not achieved. A1	S1 S1 02 Total score = 20	
		Total score=20	
Item 5	**Expected Responses**	**Score**	**Comment**
	Walls of 6 x 6 = 36ft² x 2 A1 = 72ft² M1 Other wall (5x6) 2floor (6x5)=60 A1 2 x 30 = 60ft² M1 Total area to be tiled 72ft² + 60ft² A1 =132ft² M1 1ft= 0.305m 1ft² = (0.305)² = 0.093m² 0.093 x 132 = 12.3 A1 12.3 Approx ..= 13 sq meters M1 1box = 1.5m² No of boxes needed $(\frac{13}{1.5})$ = 8.7boxs A1 M1 M1 =9boxes M1 1box costs Ugx32,000 9boxes cost Ugx 32,000 x 9 = Ugx 288,000 M1 Amount for labour 1m² x Ugx 9000 13m² = (13 x 9000) M1 Ugx 117,000 M1 110700 Total Amount needed (117 + 288,000) M1 398700 Amount to be borrowed Ugx 405,000/= M1	S1 02 S1 S1 02 S1 02 S1 S1 S1 S1 S1 S1 S1 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 For strategy For computation For amount paid back
i)			
(bi)			

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	Amount pay back = $P(1+\frac{r}{100})^t$ 398700 $= 405{,}000\,(1+\frac{5}{100})$ A1 M1 = Ugx 432,800 ~~M1~~ = 428973.2 M1	S1 S1 S1 Total score= 20	For strategy Substitution in formula amount
Item 6	**Expected Responses**	**Score**	**Comment**
(CONT) (i)	W:B = 3:2, B:R=3:2 W:B = 9:6, B:R=6:4 W:B:R = 9:6:4 A1 Quantities; W= $\frac{9}{19}\times 380 = 180$ litres M1 B = $\frac{6}{19}\times 380 = 120$ litres M1 $R = \frac{4}{19}\times 380 = 80 litres$ M1	s1 ~~s1~~ 01 ~~s1~~ ~~s1~~ 3 ~~s1~~	for ratio identification Deduction from above for quantities of different colours
(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 Amount needed to make 1 litre of mixture $= \frac{948000}{380}$ A1 = approx.. ugx 2495 2494.74 M1 Profit = (3800 x 380) – 948,000 = 144000 – 948,000 = 496,000 M1	~~s1~~ 4 ~~s3~~ ~~s1~~ 02 ~~01~~ ~~01~~ ~~01~~ 03	Strategy identified S1 x3foreach correct pdt for addition for addition C's
(iii)	% profit = $\frac{496000}{948{,}000}\times 100$ A1 = 52.3% M1	~~01~~ ~~01~~	for multiplication for subtraction
b)	Vol. of frustum $= \frac{1}{3}\pi \times 15^2 \times (96+48) - \frac{1}{3}\pi \times 10^2 \times 96$ A1 M1 = 7600π cm3 M1 Vol. of cyl. $= \pi \times 11 \times 90 \times 120$ A1 = 977,000π cm3 M1	~~01~~ ~~01~~ 06 ~~01~~	for division Correct answer
		Total score20	

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