# PROPOSED SCORING GUIDE FOR UGANDA TEACHERS' EDUCATION CONSULT (UTEC) 2025

## UGANDA CERTIFICATE OF EDUCATION

## MATHEMATICS

## PAPER 1

Downloaded from www.mutoonline.com you can download more pastpapers

| Item | Scoring criteria | Code | Indicators |
|---|---|---|---|
| 1 (i) | Total selling price $= 250{,}000 + 200{,}000 + 150{,}000 + 125{,}000$<br>$= shs\ 725{,}000$ | $m_1 - 1$<br>$m_1 - 1$ | Adding.<br>Total selling price. |
| | The cost price $= (4 \times 100{,}000) = shs\ 400{,}000$ | $m_1 - 1$ | Total cost price. |
| | Profit = selling price – cost price<br>$= 725{,}000 - 400{,}000 = shs\ 325{,}000$ | $m_1 - 1$ | Calculating profit. |
| | Percentage profit $= \frac{325{,}000}{400{,}000} \times 100 = 81.25\%$ | $m_1 - 1$ | Substitution |
| | The percentage profit increase Mirriam should be expected from the entire stock on the shelves is 81.25% | $m_1 - 1$<br>$AP_1 - 1$ | Percentage<br>Response to the task |
| (ii) | Total number of tins for promotion $= 54$<br>Ratio of type A to type B $= 5:4$ | $I - 1$ | Identifying the tins for promotion. |
| | Total ratio $= 5 + 4 = 9$ | $I - 1$ | For ratio. |
| | Type A $= \frac{5}{9} \times 54 = 30$ tins | $I - 1$ | Total ratio. |
| | Type B $= \frac{4}{9} \times 54 = 24$ tins | $m_1 - 1$ | No: of type A tins |
| | Maximum number of full boxes $= \frac{total\ number\ of\ tins}{Number\ of\ tins\ in\ each\ box}$ | $m_1 - 1$ | No: of type B tins |
| | $= \frac{54}{(5+4)} = 6\ boxes$ | $m_1 - 1$<br>$m_1 - 1$ | Substitution<br>Maximum number of full boxes |
| | The number of tins of type A and type B used for promotion is 30 tins and 24 tins respectively and hence the maximum number of full boxes is 6 boxes. | $AP_1 - 1$ | Response to the task |
| (iii) | Selling price $= percentage\ decrease \times cost\ price$<br>$= \frac{100 - 20}{100} \times 65{,}000$<br>$= shs\ 52{,}000$ | $m_1 - 1$<br>$m_1 - 1$ | Substitution<br>Correct value for selling price |
| | Each promotion box will be sold at $shs\ 52{,}000$ | $AP_1 - 1$ | Response to the task |



Prepared by Tr. PEKO ERICH 0783285967/ 0780375707

CamScanner

Downloaded from www.mutoonline.com, you can download more pastpapers

| | | | |
|---|---|---|---|
| **2** | | | |
| | $x$ \| 1 \| 2 \| 3 \| 4 \| 5 \| ..... $n^{th}$ | | |
| | $y$ \| 250 \| 270 \| 290 \| 310 \| 330 \| ..... | | |
| **(i)** | From $U_n = a + (n - \ ) \times d$ | $F-1$ | For first term of the sequence. |
| | First term; $a = 250$ | $F-1$ | For the common difference. |
| | Common difference; $d = 290 - 270 = 20$ | $m_2-1$ | Substitution |
| | $U_n = 250 + (n - \ ) \times 20$ | | |
| | $= 250 + 20n - 20$ | $m_2-1$ | Correct expression |
| | $U_n = 230 + 20n$ | $AP_2-1$ | Response to the task |
| | The expression for the $n^{th}$ term of the sequence is $U_n = 230 + 20n$ | | |
| **(ii)** | From $U_n = 230 + 20n$; | | |
| | For the week 10; $n = 10$ | $m_2-1$ | Substitution |
| | So; number of bricks $= 230 + 20 \times 10 = 430\ bricks$ | $m_2-1$ | Correct value for bricks |
| | They would sell 430 bricks in the 10 | $AP_2-1$ | Response to the task |
| **(b)** | | | |
| **3** | | | |
| **(a)** | | | |
| **(i)** | Let N, M and B represents the name of the Nabiryo, Mutesi and Baguma respectively and A, B, C, D to represent maize, millet, sorghum and sim-sim respectively | | |
| | A $4 \times 3$ matrix A showing the quantities of cereals sold by each vendor | $P-1$ | Title of the matrix A |
| | $\begin{matrix} \\ A \\ B \\ C \\ D \end{matrix}\begin{matrix} \begin{matrix} N & M & B \end{matrix} \\ \begin{pmatrix} 20 & 10 & 15 \\ 15 & 20 & 5 \\ 10 & 15 & 10 \\ 5 & 5 & 10 \end{pmatrix} \end{matrix} = \begin{pmatrix} 20 & 10 & 15 \\ 15 & 20 & 5 \\ 10 & 15 & 10 \\ 5 & 5 & 10 \end{pmatrix}_{4\times3}$ | $A_3-1$ | Matrix A |
| **(ii)** | A $1 \times 4$ matrix B showing the cost price of cereals sold per kg by each vendor | $P-1$ | Title of the matrix B |
| | $\begin{matrix} \\ Cost\ price \end{matrix}\begin{matrix} \begin{matrix} A & B & C & D \end{matrix} \\ \begin{pmatrix} 1200 & 1500 & 1000 & 2000 \end{pmatrix} \end{matrix}$ | | |
| | $(1200 \quad 1500 \quad 1000 \quad 2000)_{1\times4}$ | $A_3-1$ | Matrix B |
| **(b)** | | | |
| **(i)** | Market cost excluding market tax and feeding cost for each vendor | $A_3-1$ | Multiplication of matrices $mat\ A \times mat\ B$ |
| | $= (1200 \quad 1500 \quad 1000 \quad 2000)_{1\times4} \times \begin{pmatrix} 20 & 10 & 15 \\ 15 & 20 & 5 \\ 10 & 15 & 10 \\ 5 & 5 & 10 \end{pmatrix}_{4\times3}$ | | |


Prepared by Tr. PEKO ERICH 0783285967/ 0780375707
CamScanner

| | | | |
|---|---|---|---|
| | $= (66{,}500 \quad 67{,}000 \quad 55{,}500)$<br>Total expense on feeding and tax $= 1{,}500 + 2{,}000 = shs\ 3{,}500$<br><br>Matrix for market tax and feeding cost for each vendor<br>$= (3{,}500 \quad 3{,}500 \quad 3{,}500)$<br><br>Total Market cost including market tax and feeding cost for each vendor<br>$= (66{,}500 \quad 67{,}000 \quad 55{,}500) + (3{,}500 \quad 3{,}500 \quad 3{,}500)$<br><br>$= (70{,}000 \quad 70{,}500 \quad 59{,}000)$<br><br>The total Market cost including market tax and feeding cost for Nabiryo, Mutesi and Baguma is shs. 70,000, shs. 70,500 and shs. 59,000 respectively | $A_3 - 1$<br>$A_3 - 1$<br><br>$A_3 - 1$<br><br>$A_3 - 1$<br><br>$A_3 - 1$<br><br>$IN - 1$ | Correct multiplication<br>Total expenses in feeding and tax<br><br>Matrix for expense for each vendor<br><br>Addition of matrices<br><br>Correct value<br><br>Response to the task |
| (ii) | For Nabiryo's expected sales revenue = items sold × selling price<br>Selling price = cost price + mark-up<br>$= \begin{pmatrix}1200\\1500\\1000\\2000\end{pmatrix} + \begin{pmatrix}300\\300\\300\\300\end{pmatrix} = \begin{pmatrix}1500\\1800\\1300\\2300\end{pmatrix}$<br><br>Expected sales $= (20 \quad 15 \quad 10 \quad 5) \times \begin{pmatrix}1500\\1800\\1300\\2300\end{pmatrix}$<br>$= (20 \times 1500) + (15 \times 1800) + (10 \times 1300) + (5 \times 2300)$<br>$= shs\ 81{,}5000$<br>For Mutesi's expected sales revenue<br>Selling price $= \begin{pmatrix}1200\\1500\\1000\\2000\end{pmatrix} + \begin{pmatrix}400\\400\\400\\400\end{pmatrix} = \begin{pmatrix}1600\\1900\\1400\\2400\end{pmatrix}$<br><br>Expected sales $= (10 \quad 20 \quad 15 \quad 5) \times \begin{pmatrix}1600\\1900\\1400\\2400\end{pmatrix}$<br>$= (10 \times 1600) + (20 \times 1900) + (15 \times 1400) + (5 \times 2400)$<br>$= shs\ 87{,}000$<br><br>For Baguma's expected sales revenue | $A_3 - 1$<br><br>$A_3 - 1$<br><br>$A_3 - 1$<br><br>$A_3 - 1$<br><br>$A_3 - 1$ | Selling price for Nabiryo<br><br>Multiplication<br><br>Correct answer for expected sales<br><br>Selling price for Mutesi<br><br>Multiplication<br><br>Correct answer for expected sales |

Downloaded from www.mutoonline.com, you can download more pastpapers

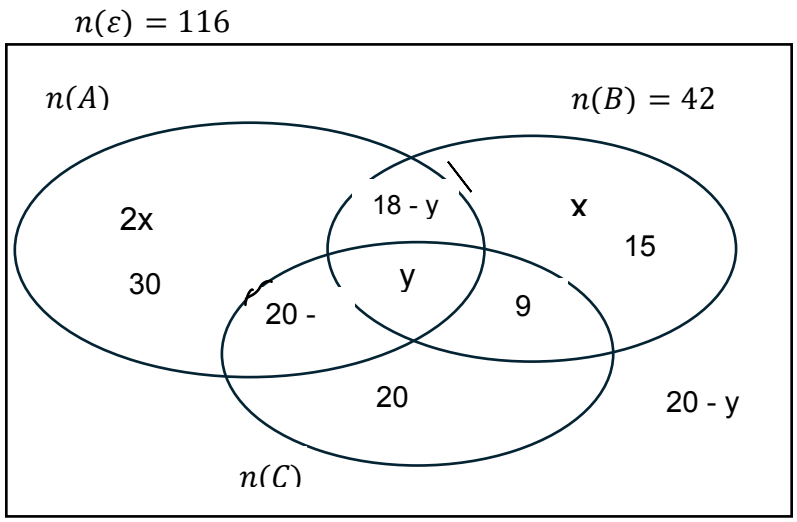

Prepared by Tr. PEKO ERICH 0783285967/ 0780375707
CamScanner

Downloaded from www.mutoonline.com, you can download more pastpapers

| | | | |
|---|---|---|---|
| | Selling price $= \begin{pmatrix}1200\\1500\\1000\\2000\end{pmatrix} + \begin{pmatrix}200\\200\\200\\200\end{pmatrix} = \begin{pmatrix}1400\\1700\\1200\\2200\end{pmatrix}$<br><br>Expected sales $= (15 \quad 5 \quad 10 \quad 10) \times \begin{pmatrix}1400\\1700\\1200\\2200\end{pmatrix}$<br><br>$= (15 \times 1400) + (5 \times 1700) + (10 \times 1200) + (10 \times 2200)$<br>$= shs\ 63{,}500$<br><br>The expected sales revenue for each vendor are shs 81,500, shs. 87,000 and shs. 63,500 for Nabiryo, Mutesi and Baguma respectively.<br><br>$\boldsymbol{Net\ profit = expected\ sales\ revenue - cost\ price}$<br><br>For Nabiryo's net profit $= 81{,}500 - 70{,}000 = shs.\ 11{,}500$<br><br>For Mutesi's net profit $= 87{,}000 - 70{,}500 = shs.\ 16{,}500$<br><br>For Baguma's net profit $= 63{,}500 - 59{,}000 = shs\ 4{,}500$<br><br>The net profit for Nabiryo, Mutesi and Baguma is *shs* . 11,500, *shs*. 16,500 *and shs* 4,500 respectively | $A_3 - 1$<br><br>$A_3 - 1$<br><br>$A_3 - 1$<br><br>$IN - 1$<br><br>$A_3 - 1$<br><br>$A_3 - 1$<br><br>$A_3 - 1$<br><br>$IN - 1$ | Selling price for Baguma<br><br>Multiplication<br><br>Correct answer for expected sales<br><br>Response to the task<br><br>Nabiryo's net profit<br><br>Mutesi's net profit<br><br>Baguma's net profit<br><br>Response to the task |
| **(c)** | ✓ Vendors should review their pricing strategy (like Mutesi's mark-up shs. 400) in order to generates the highest profit, suggesting customers are willing to pay for quality or services<br>✓ Maintain simple records of purchase from suppliers as proof of source if questioned during an inspection.<br>✓ All vendors must budget for and pay the daily market tax (shs. 1500) without fail. | $IN - 1$ | Response to the task |
| **4 (a)** | Information given<br>$n(\varepsilon) = 116, n(A \cap C) = 20, n(A \cap B) = 18,\ n(B \cap C)_{only} = 9,$<br>$n(B) = 42\ ,\ n(C)_{only} = 20,\ n(A \cap C)_{only} = n(A \cup B \cup C)^1$<br>Let $n(B)_{only} = x;\ then\ n(A)_{only} = 2x$<br>Let $n(A \cap B \cap C) = y$ | $P - 1$ | For analyzing the information given in the scenario |

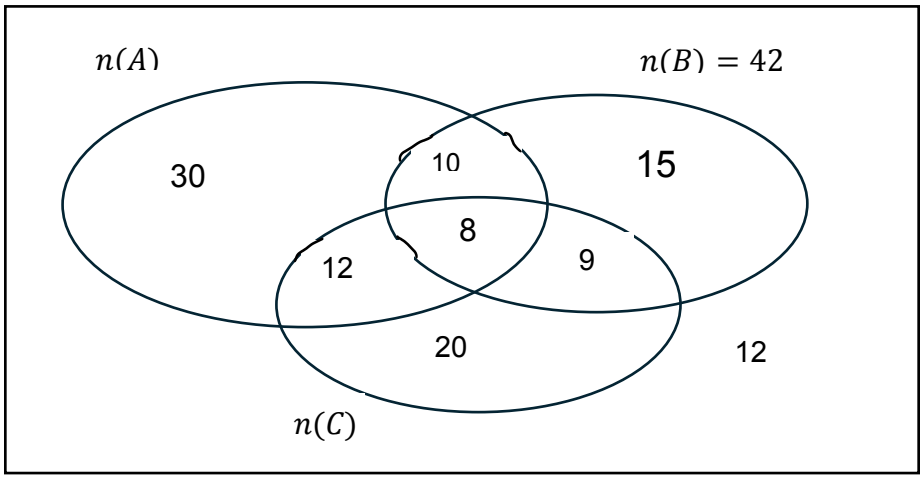

Prepared by Tr. PEKO ERICH 0783285967/ 0780375707
CamScanner

Downloaded from www.mutoonline.com, you can download more pastpapers

| | | | |
|---|---|---|---|
| | A Venn diagram showing number of students voting for their class captain.<br>  <br> | $P-1$ | Title of the Venn diagram |
| | | $P-1$ | For inserting any three given values in the Venn diagram |
| | | $A_3-1$ | For $2X$ and $X$ |
| | | $A_3-1$ | For $20-y$ |
| | $n(B) = 42;\ \ 18-y+y+9\ +x=42$ | | |
| | $x = 15$ | $A_3-1$ | Generating the equation |
| | From<br>$n(\varepsilon) = 116;$ | $A_3-1$ | Correct value of x |
| | $116 = 30+18-y+y+20-y+20-y+9+20+15$<br>$116 = 132-\ 2y$<br>$y = \dfrac{-16}{-2}$<br>$y = 8$ | $A_3-1$ | Generating the equation |
| | | $A_3-1$ | Correct value of y |
| | | $A_3-1$ | Complete Venn diagram |


Prepared by Tr. PEKO ERICH 0783285967/ 0780375707
CamScanner

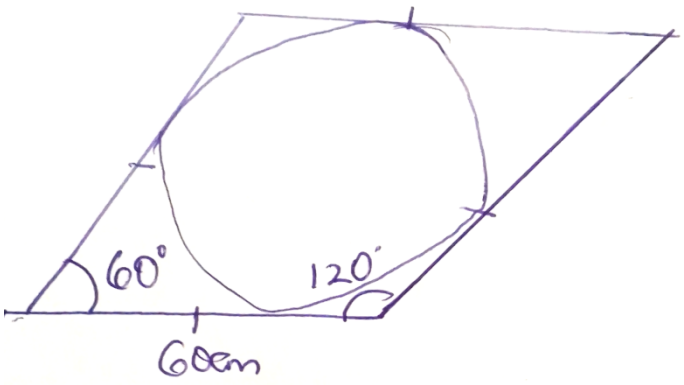
Downloaded from www.mutoonline.com, you can download more pastpapers

| | | | |
|---|---|---|---|
| | $n(\varepsilon) = 116$<br>  <br><br>$n(A) = 30 + 10 + 8 + 12$<br>$= 60$<br>$n(C) = 12 + 8 + 9 + 20$<br>$= 49$<br>The number of students who ticked for A and C respectively is 60 and 49 students | $A_3 - 1$<br>$A_3 - 1$<br>$A_3 - 1$<br>$A_3 - 1$<br>$IN - 1$ | Addition<br>Correct value for $n$ $(A)$<br>Addition<br>Correct value for $n$ $(C)$<br>Response to the task |
| **(b)** | Andrew is a candidate preferred by the majority. This is because he got 60 ticks which is more than compared to what Badul (42) and Cathy (49) respectively. | $IN - 1$ | Response to the task |
| **(c)** | Percentage of the votes obtained by Andrew<br>$= \frac{60}{116} \times 100 = 51.72\%$<br>Percentage of the votes obtained by Badul and Cathy<br>$= 100 - 51.72$<br>$= 48.28\%$<br>Andrew got $51.72\%$ which is just above 50% of the votes and almost half of the class did not tick him and therefore he may not lead easily since almost half of the votes ( 48.28%) of the class may not be fully supportive. | $A_3 - 1$<br>$A_3 - 1$<br>$A_3 - 1$<br>$IN - 1$<br>$IN - 1$ | Substitution<br>Correct value for Andrew's percentage.<br>Correct value for Badul's and Cathy's percentages.<br>Response to the task. |
| **5 (a)** | Sketch | | |



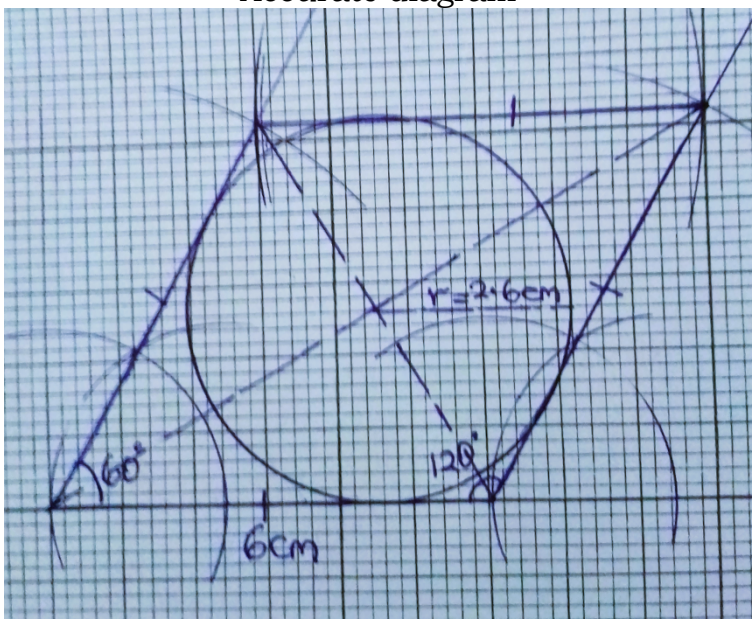
CamScanner

Downloaded from www.mutoonline.com, you can download more pastpapers




Using the scale of; 10cm: 1cm
Then 60cm = 6cm

Accurate diagram




Radius, $r = 2.6cm$

$$r = (2.6 \times 10) = 26\ cm$$

Area of the circle drawn $= \pi r^2$

$$= \frac{22}{7} \times (26)^2$$

$$= 2124.57\ cm^2$$

| | |
|---|---|
| $A_4 - 1$ | Sketch |
| $A_4 - 1$ | Scale and conversion |
| $m_4 - 1$ | Length of the rhombus |
| $m_4 - 1$ | Angles of $60^0$ *and* $120^0$ |
| $m_4 - 1$ | The two angles bisector |
| $m_4 - 1$ | Circle formed |
| $A_4 - 1$ | For; $r = 2.6\ cm$ (accept $r = 2.7\ cm$) |
| $m_4 - 1$ | For; $r = 26\ cm$ (Accept $r = 2.7\ cm$) |
| $A_4 - 1$ | Substitution |
| $m_4 - 1$ | For correct value of area |
| $AP_4 - 1$ | Response to the task |



CamScanner

| | | | |
|---|---|---|---|
| | No, this is because the board can also enable Mukasa to make a circular wall clock with an area of 2124.57 $cm^2$ which is less than the required area by 701.43 $cm^2$ | | |
| **(b)** | Gross salary $= shs.\ 350{,}000$<br>Non- taxable income for one worker $= \frac{70{,}000}{2} = shs\ 35{,}000$<br>Taxable income $= gross\ income - non\ taxable\ income$<br>$= 350{,}000 - 35{,}000$<br>$= shs.\ 315{,}000$<br><br>So, income tax for one worker<br>1st tax; $= 0$<br>2nd tax $= \frac{5}{100} \times (200{,}000 - 100{,}000)$<br>$= shs.\ 5000$<br>3rd tax $= \frac{10}{100} \times (315{,}000 - 200{,}000)$<br>$= shs.\ 11{,}500$<br><br>Total income tax for one worker $= 5000 + 11{,}500$<br>$= shs.\ 16{,}500$<br><br>Therefore, total income tax for two workers $= 2 \times 16{,}500$<br>$shs.\ 33{,}000$<br>The total income tax Mukasa is to remit to the authorities is $shs.\ 33{,}000$ | $A_4 - 1$<br><br>$m_4 - 1$<br><br>$A_4 - 1$<br>$m_4 - 1$<br><br><br><br>$A_4 - 1$<br>$m_4 - 1$<br><br>$A_4 - 1$<br>$m_4 - 1$<br><br>$A_4 - 1$<br>$m_4 - 1$<br><br>$A_4 - 1$<br>$m_4 - 1$<br><br>$IN - 1$ | Dividing non-taxable income by 2<br>Correct value<br><br>Substitution<br>Correct answer for taxable income for one worker.<br><br>Manipulating<br>Value of 2nd tax<br><br>Manipulating<br>Value of 3rd tax<br><br>Addition<br>Correct for income tax<br><br>Multiplication<br>Correct for income tax for two workers<br>Response to the task |
| **(c)** | Net income for one worker $= Gross\ income - each\ income\ tax$<br>$= 350{,}000 - 16{,}500$<br>$= shs.\ 333{,}500$<br><br>The net income Mukasa will pay to each employee after tax is $shs.\ 333{,}500$ | $A_4 - 1$<br>$m_4 - 1$<br><br>$AP_4 - 1$ | Substitution<br>Correct for net income<br>Response to the task |
| **6 (a)** | Information given; $n = 3\ years, principal, p = shs\ 200{,}000{,}000$<br>$rate, r = 9\ \%$<br>From $Amount; A = P\left(1 + \frac{r}{100}\right)^n$<br>$A = 200{,}000{,}000\left(1 + \frac{9}{100}\right)^3$<br>$A = shs.\ 259{,}005{,}800$ | $A_4 - 1$<br><br>$m_4 - 1$ | Substitution<br><br>Correct for amount made |

Downloaded from www.mutoonline.com, you can download more pastpapers



CamScanner

Downloaded from www.mutoonline.com, you can download more pastpapers

| | | | |
|---|---|---|---|
| | Interest earned $= Amount - Prinicipal$<br>$= 200{,}000{,}000 - 259{,}005{,}800$<br>$= shs.\ 59{,}005{,}800$<br><br>The total amount at the end of 3 years is $shs.\ 259{,}005{,}800$ and interest earned is $shs.\ 59{,}005{,}800$ | $A_4 - 1$<br><br>$m_4 - 1$<br><br>$AP_4 - 1$ | Substitution<br><br>Correct for interest earned<br><br>Response to the task |
| **(b)** | Information given on mortgage;<br>Principal, (p) $= shs.\ 400,000{,}000$<br>Rate (r) $6\ \%\ per\ annum$<br>Time (n) $=$ $5\ years\ in\ equal\ annum\ installments$<br><br>From $Amount\ for\ annum\ installment, A = P\left(\frac{r(1+r)^n}{(1+r)^n - 1}\right)$<br>$= 400{,}000{,}000 \times \left(\frac{\frac{6}{100}\left(1+\frac{6}{100}\right)^5}{\left(1+\frac{6}{100}\right)^5 - 1}\right)$<br><br>$= 400{,}000{,}000 \times \left(\frac{0.06(1+0.06)^5}{(1+0.06)^5 - 1}\right)$<br>$= shs.\ 94{,}958{,}560$<br><br>So, her annum mortgage installment $= shs.\ 94{,}958{,}560$<br><br>And total amount payable<br>$= annum\ installment \times number\ of\ years$<br>$= 94{,}958{,}560 \times 5$<br>$= shs.\ 474{,}792{,}800$<br>Total amount payable at the end of 5 years is $shs.\ 474{,}792{,}800$ and her annum mortgage installment is $shs.\ 94{,}958{,}560$ | $A_4 - 1$<br><br>$m_4 - 1$<br><br>$A_4 - 1$<br>$m_4 - 1$<br><br>$AP_4 - 1$ | Substitution<br><br>Correct for annum mortgage installment<br><br>Multiplication<br>For total payable amount<br>Response to the task |
| **(c) (i)** | Delivery van; cost<br>$price = shs.\ 60{,}000{,}000, appreciation\ rate = 4\%\ and\ time, n$<br>$= 3\ years$<br>From $Appreciation; A = P\left(1 + \frac{r}{100}\right)^n$<br>$A = 60{,}000{,}000\left(1 + \frac{4}{100}\right)^3$<br>$shs.\ 67{,}491{,}840$ | $A_4 - 1$<br>$m_4 - 1$ | Substitution<br>Appreciated value |


Prepared by Tr. PEKO ERICH 0783285967/ 0780375707
CamScanner

| | | | |
|---|---|---|---|
| | Increase in value $= shs.\,(67{,}491{,}840 - 60{,}000{,}000)$<br>$= shs.\,7{,}491{,}840$<br><br>The value of the delivery van has appreciated to $shs.\,67{,}491{,}840$ which by an increase of $shs.\,7{,}491{,}840$ | $A_4 - 1$<br>$m_4 - 1$<br><br>$AP_4 - 1$ | Substitution<br>Increase in value<br><br>Response to the task |
| **(ii)** | Machinery;<br>$depreciation\ rate = 15\ \%\ ; cost\ price = 120\ million\ and\ time, n = 4\ years$<br>$depreciation; A = P\left(1 - \frac{r}{100}\right)^n$<br>$= 120{,}000{,}000 \times \left(1 - \frac{15}{100}\right)^4$<br>$= shs.\ 62{,}640{,}750$<br><br>Loss in value after 4 years $= 120{,}000{,}000 - 62{,}640{,}750$<br>$shs.\,57{,}359{,}250$<br>The value of machinery depreciated to $shs.\ 62{,}640{,}750$ after 4 years with the total loss in value of $shs.\,57{,}359{,}250$ | $A_4 - 1$<br>$m_4 - 1$<br><br>$A_4 - 1$<br>$m_4 - 1$<br><br>$AP_4 - 1$ | Substitution<br>depreciated value<br><br>Substitution<br>loss in value<br><br>Response to the task |
| **(iii)** | From; Annum premium $= value\ of\ a\ good \times rate\ of\ premium$<br>$= \frac{2.5}{100} \times 900{,}000{,}000$<br>$shs.\,22{,}500{,}000$<br><br>Total premium for 5 years $= 22{,}500{,}000 \times 5$<br>$= shs.\,112{,}500{,}000$<br><br>The annum premium is $shs.\,22{,}500{,}000$ and she also pays $shs.\,112{,}500{,}000$ as a total premium over 5 years | $A_4 - 1$<br>$m_4 - 1$<br><br>$A_4 - 1$<br>$m_4 - 1$<br><br>$AP_4 - 1$ | Substitution<br>Annum premium value<br><br>Multiplication<br>Total premium for 5 years<br>Response to the task |
| **(d)** | ✓ It enables individual and business to acquire high-value assets like real estates, land etc<br>✓ Facilitate investment in property and business infrastructure and construction.<br>✓ Mortgage systems help mobilize capital within the financial sector, allowing banks to lend savings for productive investments, which strengthens the entire local economy. | $AP_4 - 1$ | Response to the task |

Downloaded from www.mutoonline.com, you can download more past papers



CamScanner