COMMERCIAL ARITHMETICS II KCSE QUESTIONS WITH ANSWERS MODEL03052023

1

Income tax rate are as shown below.

Income (k£ p.a)	Rate (Ksh per £)
1- 4200	2
4201 - 8000	3
8001 - 12600	5
12601 – 16800	6
16801 and above	7

Omari pays Sh. 4000 as P.A.Y.E per month. He has a monthly house allowance of Ksh. 10800 and is entitled to a personal relief of Ksh. 1,100 per month. Determine;

(i) his gross tax p.a in Ksh (2marks)
(ii) his taxable income in k£ p.a (4marks)
(iii) his basic salary in Ksh. p.m (2marks)
(iv) his net salary per month (2marks)

2 The average rate of depreciation in value of a laptop is 10% per annum. After three complete years its value was ksh 35,000. Determine its value at the start of the three-year period.(3marks)

3 The table below shows income tax rates.

Monthly income in Kenya shillings (Kshs)	Tax rate percentage (%) In each shilling
Up to 9 680	10
From 9681 to 18 800	15
From 18 801 to 27 920	20
From 27 921 to 37 040	25
From 37 041 and above	30

In certain year, Robi‟s monthly taxable earnings amounted to Kshs. 24 200.
a) Calculate the tax charged on Robi‟s monthly earnings.
b) Robi was entitled to the following tax reliefs:
I: monthly personal relief of Ksh 1 056;
II: Monthly insurance relief at the rate of 15% of the premium paid.
Calculate the tax paid by Robi each month, if she paid a monthly premium of Kshs 2 400 towards her life insurance policy.

4 A house is to be sold either on cash basis or through a loan. The cash price is sh.750,000. The loan

conditions are as follows: there is to be down payment of 10% of the cash price and the rest of the money is to be paid through a loan at 10% per annum compound interest.
A customer decided to but the house through a loan.
a)
(i) Calculate the amount of money loaned to the customer.
(ii) The customer paid the loan in 3 years. Calculate the total amount paid for the house.
b) Find how long the customer would have taken to fully pay for the house if she paid a total of sh 891,750. (8 mks)

5 The table shows income tax rates

Monthly taxable pay	Rate of tax Kshs in 1 K£
1 – 435	2
436 – 870	3
871-1305	4
1306 – 1740	5
Excess Over 1740	6

A company employee earn a monthly basic salary of Kshs 30,000 and is also given taxable allowances amounting to Kshs 10, 480.
(a) Calculate the total income tax
(b) The employee is entitled to a personal tax relief of Kshs 800 per month.
Determine the net tax.
(c) If the employee received a 50% increase in his total income, calculate the corresponding percentage increase on the income tax.

6 A tailor intends to buy a sewing machine costs Kshs. 48,000. He borrows the money from a bank the loan has to be repaid at the end of the second year. The bank charges an interest at the rate of 24% per annum compounded half - yearly. Calculate the total amount payable to the bank.

COMMERCIAL ARITHMETICS MODEL03052023 MARKING SCHEME

1

(i) his gross tax p.a in Ksh

4000
+ 1·100
5100 × 12 = 61,200 ✓ (2)

(ii) his taxable income in k£ p.a

4200 × 2 = 8400 ✓
3800 × 3 = 11,400
4600 × 5 = 23,000 ✓
42,800
x × 6 = 18,400
x = 18400/6 = 3066.67

12,600
3066.67
£ 15,666.67 (4)

(iii) his basic salary in Ksh. p.m (2marks)

15,666.67 × 20/12 = 26,111·11
− 10,800
15,311·11 (2)

(iv) his net salary per month (2marks)

26,111·11
− 4000
22,111·11 (2)

2

$x\left(1-\frac{16}{100}\right)^3 = 35{,}000$ ✓ M1

$(0.9)^3 x = 35{,}000$ M1

$x = \frac{35{,}000}{0.729}$ ✓

48010.97

48011 ✓ A1

(3)

3

Tax on 1st Ksh 9680 $= 9680 \times \frac{10}{100} = 968$ M_1

Tax on next $(18800-9680) = 9120 \times \frac{15}{100} = 1368$ M_1

Tax on next $(24{,}200-18800) = 5400 \times \frac{20}{100} = 1080$ M1

Total tax = Ksh $(968+1368+1080)$

$= 3416$ A_1

b) Tax paid $= 3416 - \left(1056 + 2400 \times \frac{15}{100}\right)$ M_1

$=$ KSh. 2000 A_1

c) Increase in tax paid $= 2000 \times \frac{363}{100}$ M_1

$= 726$

∴ % Increase in earnings =

$= 726 \times \frac{100}{20}$ M_1

$= 3630$

% increase $= \frac{3630}{2400} \times 100$ M_1

$= 15\%$ A_1

10

4

SOLUTION	MARKS	ALTERNATIVE METHOD
17. (a) (i) $750{,}000 \times \frac{90}{100}$	M1	
$= 675{,}000$	A1	
(ii) $675{,}000\ (1.1)^3 = 898.425$	M1	
$898{,}425 + 75{,}000 = 973\ 425$	A1	
(b) $675{,}000\ (1\text{-}1)^n = 816{,}750$	M1	
$(1.1)^n = 1.21$	A1	
$n = \frac{0.0828}{0.0414}$		
$n = 2$ years	8 marks	

5

SOLUTION	MARKS	ALTERNATIVE METHOD
17. a) Total earnings		
$\frac{40480}{20} = £2024$	M1	
$435 \times 2 = 870$		
$435 \times 3 = 1305$	M1	
$435 \times 4 = 1740$	M1	
$435 \times 5 = 2175$		
$284 \times 6 = \frac{1704}{7794}$	A1	
b) Net tax Sh 7794 - Sh 800 = Sh 6994	B1	
c) New earnings		
$.15 \times 2024 = 3036$		
£3036 - £2024 = 1012	M1	
excess tax = 1012×6		$\frac{1012 \times 6 \times 100}{7794}\%$
= Sh 6072	M1	
% age excess = $\frac{6072}{7794} \times 100\%$	A1	
	8 marks	
$= 77.91\%$		

6

12. 12% used - n = 4

A - 48000 (1.12) substituting

No	Log
48000	4.6812
$(1.12)^4$	0.1968
7.55×10^4	4.8780

Amount payable = Sh. 75510

m1	Accept step by step
m1	A1
	A2
	-3
	-4
A1	75520
5 marks	follow through