

## 1. Commercial Arithmetic 2

1. The table below shows the rate at which income tax is charged for all taxable income.

INCOME	RATE IN EXCH TWENTY SHILLINGS
On the first shs.116 160	10%
On the next shs.109 440	15%
On the next shs.109 440	20%
On the next shs.109 440	25%
On all income over shs.444 480	30%

Mr. Nyongesa earns a basic salary of sh.54, 450 per month. He is housed by the company and therefore 15% of his monthly salary is added to the basic salary as a taxable income. He is also given taxable medical and transport allowances of shs.4,000 and shs.2,000 per month respectively. He is entitled to a family relief of sh.1, 100 per month.

- (a) Calculate Nyongesa's annual taxable income (3 mks)  
 (b) Calculate his monthly P.A.Y.E after the relief (5 mks)  
 (c) If 20% of his basic salary goes towards deductions, determine his monthly income. (2 mks)

2. All employees of silver springs enterprises pay income tax at the rate shown in the table below.

Taxable income (p.a)	Rate sh. Per K£
1 – 3780	2
3781-7560	3
7561-11,340	4
11,341-OVER	5

Mr. Mooka earns a basic salary of sh.12,150 and a house allowance of sh.2800 per month. He is entitled to a family relief of sh.450 per month. A part from income tax the following deductions are also made from his monthly pay.

- a) Servicing loan payment sh.450  
 b) Hospital fund sh.260  
 c) Sacco contribution sh.120

Determine Mr. Mooka's net monthly income. (10 marks)

3. The taxation rates for income earned in a certain year were as follows:

Income K£ p.a	Tax Rate Kshs. Per £
1 – 4512	2
4513 – 9024	3
9025 – 13536	4

13537 – 18048	5
18049 – 22560	6
Over 22560	6.5

After a personal relief of Kshs.1056 per month, Otieno paid tax amounting to Kshs.18,152 that year.

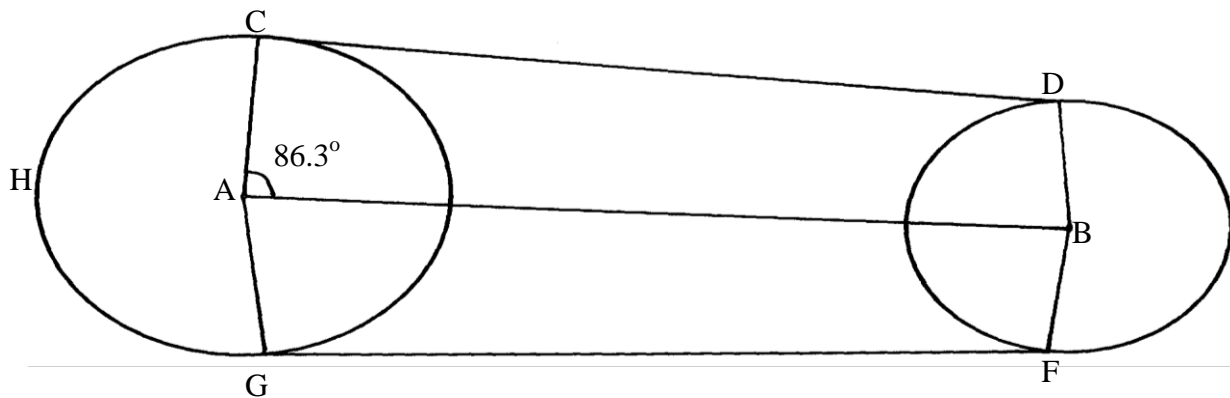
- a) How much tax would he have paid if he did not have the personal relief (2 mks)
  - b) Find his taxable income in K£ that year (5 mks)
  - c) If Otieno receives allowances amounting to 18% of the taxable income. Calculate his monthly basic salary in Kshs. (3 mks)
4. Chepkemoi bought a new washing machine for Kshs.420,000. Its value depreciated over the next 5years at the following rates; 15%, 13%, 12%, 9% and 7%. For the next 6 years, the rate of depreciation remained constant at 5% then the rate of depreciation remained at 4% each. How long did it take for the value of the washing machine to be  $\frac{1}{3}$  of its original value?

5. The table below shows income tax rates for the year 2006

Taxable income in shs. Pa	Rate of tax in %
1 – 120,000	10
120,001 – 240,000	15
240,001 – 360,000	25
360,001 – 480,000	35
Over 480,000	50

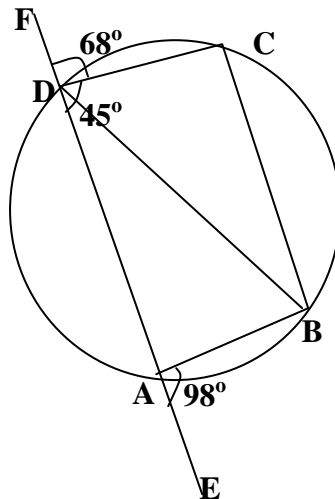
Nafula is married and claims a tax relief of shs.1,120 per month. She stays in a company house for which she pays a nominal rent of shs.1200 per month. She found that in a particular month, her employer deducted shs.4830 as tax. If she is entitled to a maximum insurance policy; relief of shs.600 per month. Calculate her monthly salary. (10mks)

6. The figure below represents two pulley wheels, centres A and B with a rubber band CDEFGHC stretched round them. Radius of wheel centre A = 16cm, AB = 30cm. CD, GF are tangents to the circles  $\angle CAB = 86.3^\circ$



- calculate the length of the belt CD
- Find the angle ABD
- Find the length of the belt that would go round the pulleys (CDFGHC)

7. In the figure below, ABCD is a cyclic quadrilateral and BD is a diagonal. EADF is a straight line,  $\angle CDF = 68^\circ$ ,  $\angle BDC = 45^\circ$  and  $\angle BAE = 98^\circ$ .



Calculate the size of:

- $\angle ABD$ .
- $\angle CBD$

8. A customer deposited Ksh.15,500 in a savings account. Find the accumulated amount after  $3\frac{1}{2}$  years if interest was paid at 16% per annum compounded semi-annually

9. A retailer mixes three types of rice, Bismatti costing shs.120 per tin with Pishori costing shs.150

per tin and Ahero rice costing shs.80 per tin in the ratio  $x : 1 : 2$  respectively. If he sells the mixture at shs.137.50 per tin making a profit of 25%. Calculate the value of  $x$ .

10. Ashanti is a saleswoman and earns a commission on sales based on the monthly rates shown in the table below:-

Sales (Kshs)	Commission rate % of sales
The first 5000	10%
The next 3000	15%
Sales above 8000	20%

In addition, she earns a basic monthly pay of Kshs.6700. During a certain month, she earned a total salary amounting to Kshs.8368. How much worth of sales did she make?

11. The table below shows the annual income tax rates for a certain year.

Total income per month in Kshs.	Rates in Kshs. Per £
1-10164	2
10165 – 19740	3
19741 – 29316	4
29317 – 33892	5
33893 and above	6
Automatic personal relief shs.1162	

Kiptoo earns a monthly salary of Kshs.25000. He is entitled to house and medical allowances of Kshs.12000 and Kshs.3000 respectively

Calculate:

- His taxable income per month
  - His monthly tax payable
  - His annual tax payable
12. A company employee earns a basic salary of Kshs.25,000 and is also given taxable allowances amounting to Kshs.10,480.

Monthly taxable income	Rate in Kshs. /Pound
1- 4350	2
4351 – 8900	3
8901 - 13455	4
13451 – 18005	5
18006 and above	6

Using the table of taxation above:-

- Calculate the employee's taxable income
- If the employee is entitled to a personal tax relief of Kshs.800 per month, determine the net tax

(c) If the employee was given 40% increase in his income, calculate the percentage increase in his income tax

13. A certain amount of money was invested at compound interest of 10% compounded every two years for ten years. Given that the investor invested a total of 500,000/= at the end of the ten years, find the amount of money invested to the nearest shillings
14. The cash price of a T.V set is Ksh. 26,000. Linda bought the set on hire purchase terms by paying a deposit of Ksh. 6,000 and the balance by 24 equal monthly installments of Kshs. 1,045.30. Find the compound rate of interest per year.
15. What would Kshs.15000 amount to after 3years at 16% per annum compounded quarterly?
16. Income rates for income earned were charged as follows:

Income in Kshs. p.m	Rate in Kshs. per sh.20
1- 8400	2
8401- 18,000	3
18,001- 30,000	4
30,000 - 36,000	5
36,001 - 48,000	6
48,001 and above	7

A civil servant earns a monthly salary of Ksh.19,200. His house allowance is Ksh12,000 per month. Other allowces per month are transport Ksh.1300 and medical allowance Ksh.2300. He is entitled to a family relief of Kshs. 1240 per month.

**Determine:**

a) (i) His taxable income per month.

(ii) Net tax.

b)

In addition, the following deductions were made

NHIF	shs. 230
Service charge	Kshs. 100
Loan repayment	Kshs. 4000
Co-operative shares of	Kshs. 1200.

Calculate his net salary per month.

17. Use the taxation rates in the table below to answer the questions that follow;-

Taxable income in K £ p.a	Rate % per K£
1-4500	10
4501-7500	15
7501 – 10500	20
10501 – 13500	25
13501 – 16500	30
Over 16500	35

The manager of a certain company is entitled to a monthly personal relief of shs.3000 and her tax (PAYE) is kshs.9000 per month she is also deducted NHIF shs.350 per month,

WCPS shs.800 per month and cooperative shares shs.1200 per month, **calculate**

- (a) The managers total deductions per month
- (b) Total tax per month
- (c) The manager's annual gross salary
- (d) The manager's monthly basic salary if her monthly allowance and medical allowances are 10000 and 2000 shillings

18. The table below shows the income tax for a certain year;

Monthly taxable income (Kshs.)	Tax rates (%)
1- 9680	10%
9681- 18800	15%
18801 – 27920	20%
27921 – 37040	25%
37940 and above	30%

In that year, Odero paid a net tax of Kshs.5,512 per month. His total monthly taxable allowances amounted to Kshs.15,220 and he was entitled to a monthly personal relief of kshs.1,162.

Every month the following deductions were made;

N.H.I.F Kshs.320

Union dues Kshs.200

Co-operative shares Kshs.7,500

- (a) Calculate Odero's monthly basic salary in Kshs
- (b) Calculate his monthly salary

19. (a) A car is worth shs.800,000 when new. During the first year it depreciates by 20% of its value and in the second it depreciates by 5% of its value at the start of the year. During the third, fourth and fifth year, depreciation rate is 10%. How much less will it cost at the end of the fifth year?
- (b) Find by how much the compound interest will exceed simple interest on shs.3,000 for two years at 15% per year

20. The table below shows the income tax rates:

Income per month (K£)	Rate in Kshs per £
1 - 325	2
326 – 975	3
976 - 1300	5
1301 – 1625	6
Over 1625	7.50

Mr. Misoi is a public servant who lives in a government house and pays a nominal rent of Kshs.1,220 per month. He earns a basic salary of Kshs. 24,800 and a house allowance of Kshs.12,000 per month. He is entitled to a monthly relief of kshs.1620.

- (a) Calculate his monthly;
  - (i) Taxable income in K£
  - (ii) Tax payable without relief
  - (iii) Tax after relief
- (b) Apart from the income tax. The following monthly deductions are made from his earnings
  - HELB loan repayment Kshs.2400
  - Health insurance fund Kshs.1200
  - 2% of Basic salary union fee

Calculate:- (i) the total monthly deduction made on Mr. Misoi's income  
(ii) Mr. Misoi's net income per month



21. Joseph bought a camera on hire purchase (H.P) term by paying a deposit of shs.7200 and cleared the balance in 24 equal monthly installments each of 1250.
- find the hire purchase price of the camera
  - the hire purchase price of the camera is 24% higher than the cash price. Find the cash price of the camera
  - Kangara took a loan from a financial institution and bought the camera with cash. He repaid the loan at 18% p.a compound interest at the end of the two years. Find the total interest paid by Kangara.

22. Income tax for all the income earned was charged at the rates shown.

Total Income p.a (K.£)	Rate in sh per K£
1 – 1980	2
1981 – 3960	3
3961 – 6440	5
6441 – 7920	7
7921 – 9900	9
Excess of 9900	10

- Wanyonyi earned a salary of Kshs.10,500 per month. In addition he was given a house allowance of Kshs. 6500 per month. He got tax relief of Kshs. 300 per month.  
Find ; (i) His taxable income p.a  
(ii) Income tax he pays per month.
- A part from income tax the following deductions are made per month. NHIF of Kshs.320, widow and pension scheme of 2% of his gross salary. Calculate his net monthly pay.