

CHUKA



UNIVERSITY

**UNIVERSITY EXAMINATIONS
CHUKA/EMBU**

**EXAMINATION FOR THE AWARD OF CERTIFICATE IN BUSINESS
MANAGEMENT AND CERTIFICATE IN PROCUREMENT AND LOGISTICS**

CPLM 00131: BUSINESS MATHEMATICS

STREAMS: CIBM,CPLM Y1S1

TIME: 2 HOURS

DAY/DATE: WEDNESDAY 4/12/2019

2.30 P.M – 4.30 P.M

INSTRUCTIONS

**Answer question one and any other two questions
Do not write anything on the question paper**

Question one

- (a) Discuss four areas of application of business mathematics in management of commercial enterprises. [4 marks]
- (b) Mvua is a member of Radi sacco and intends to borrow a loan of ksh 20,000 at an interest of 10% per annum on reducing balance . The loan is to be repaid in 5 years.

Required :

- (i) The annual instalment amount payable . [3 marks]
- (ii) Prepare the respective loan amortization schedule that would guide the client on loan repayment. [5 marks]
- (c) A bakery sells 3 varieties of biscuits ,Lemon, Raising and Chocolate. On a particular day the bakery sold 72 biscuits in the ratio 1:2:5.

Required

- (i) How many chocolate biscuits were sold? [2 marks]
- (ii) If the bakery makes a profit of ksh 25 on each Raising biscuit sold, how much profit was realized on raisin biscuits. [3 marks]

(iii) The next day the 3 types of biscuits were sold in the same ratio 1:2:5 but on this particular day 22 raisin biscuits were sold. What was the total sale of biscuits altogether? [3 marks]

(d) The cash price of a sofa set is ksh 70,000. The set is also available on hire purchase plan where a 20% deposit is required in addition to 12 monthly instalments of ksh 5500 each.

Required :

(i) The hire purchase price of the sofa set [2 marks]

(ii) How much could have been saved if the set was acquired in cash . [2 marks]

(iii) Express the saving as a percentage of cash price. [2 marks]

(iv) The percentage interest charge per month based on hire purchase terms. [4 marks]

QUESTION TWO

(a) Mzalendo deposited ksh 50,000 in a fixed deposit account that pays a compound interest of 20% per annum compounded quarterly. Determine the accumulated amount at the end of the 5th year. [4 marks]

(b) Musa works for pevlav limited and his monthly salary is as follows.

Basic salary ksh 40,000

Commuter allowance ksh 4,000

House allowed ksh 8,000

The applicable tax schedule during the month of November 2018 was as follows;

Monthly income	Tax rate (%)
1 – 12298	10%
12299 – 23885	15%
23886 – 35472	20%
35473 – 47059	25%
Over 47059	30%

The employee is entitled to a personal relief of ksh 1408 per month and the following deductions were also made against his pay.

Journal subscription ksh 5.00

Sacco loan ksh 8,000

Required :

- (i) Musa’s taxable income in a month [2 marks]
- (ii) PAYE for the month of Novemeber 2018 [5 marks]
- (iii) Musa’s net pay for the month of November 2018. [3 marks]
- (c) Explain any three characteristics of a good measure of dispersion. [6 marks]

QUESTION THREE

- (a) The following data relates to the distribution of 200 bulbs tested by compliance standards agency in Mulika ltd.

Life time (days)	Number of bulbs
500 – 550	40
550 – 600	25
600 – 650	15
650 – 700	50
700 – 750	30
750 – 800	40

Required :

- (i) Arithmetic mean of the bulbs lifetime [3 marks]
- (ii) Median of the bulbs lifetime. [3 marks]
- (iii) Modal lifetime of the bulbs [3 marks]
- (iv) Standards deviation of the bulbs lifetime [3 marks]
- (v) Coefficient of variation and comment on the results obtained. [2 marks]
- (b) The cost price of product Q is ksh 90,000. Amua sold the product at a profit of 25% on the selling price. At what price did he sell the product? [4 marks]
- (c) Distinguish between an annuity and perpetuity as applied in financial mathematics. [2 marks]

QUESTION FOUR

- (a) An American tourist visited Kenya with US dollar \$40,000. On arrival to Kenya he exchange the entire amount into Kenya shillings where the exchange bureau charged him 5% . He spend 12 days in Kenya in a hotel in watamu spending ksh 32,000 per day . On his departure he donated ksh 50,000 to a children's home in Nairobi and paid an air ticket to Malaysia of ksh 84,000. He then exchanged the remaining cash to Malaysian Riggits (MR) . Given that ;

$$\text{US } \$1 = \text{ksh } 105$$

$$\text{MR } 12.5 = \text{ksh } 5$$

Determine ;

- (i) Amount received on arrival to Kenya in Kenya shillings. [3marks]
- (ii) The amount spent while in Kenya in Malaysian Riggits (MR). [3 marks]
- (iii) Total amount received by the tourist on his departure to Malaysia in Malaysian Riggits. [3 marks]
- (b) In how many years will ksh 40,000 grow to ksh 50,000 at 12% per annum compound interest if the compounding is done quarterly? [4 marks]
- (c) Given a data set 10,30,40,45, and 60 determine the arithmetic mean. [3 marks]
- (d) State any four methods of data presentation. [4 marks]
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