



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF MATHEMATICS & PHYSICS

UNIVERSITY EXAMINATION FOR:

UPGRADING MATHEMATICS

AMA 1004: COMMERCIAL ARITHMETICS

SPECIAL/ SUPPLEMENTARY EXAMINATIONS

SERIES: SEPTEMBER 2018

TIME: 2 HOURS

DATE: Sep 2018

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of Choose No questions. AttemptChoose instruction.

Do not write on the question paper.

Q1. (a) (i) An article was sold for Ksh 450 making a profit of 25%.

Find the cost price. (3mks)

(ii) The market price of a book is sh 1,500. How much does a Book cost after a discount of 5.2% is given? (3mks)

(iii) Calculate the compound interest earned by sh 10,000 for 3 Years at 8.5% p.a. (4mks)

(b) Solve (i) $3^x = 5$ (3mks)

(ii) $\log_4 \frac{1}{16} = x$ (2mks)

© Solve by quadratic formula $3x^2 + 4x + 1 = 0$ (3mks)

(d) Evaluate (i) $16^{\frac{3}{4}}$ (2mks)

(ii) $25^{\frac{-3}{2}}$ (2mks)

(iii) $\log_5 \frac{1}{125}$ (2mks)

(e) Given $A = \begin{pmatrix} 4 & 5 \\ 1 & 4 \end{pmatrix}$ and $B = \begin{pmatrix} 7 & 1 \\ 3 & 2 \end{pmatrix}$

Find (i) $3A - 4B$ (3mks)

(ii) Show $AB \neq BA$ (4mks)

Q2. (a) A TV costing sh 25,000 is added a sale tax of 25%.What is the
Cost of the TV? (5mks)

(b)

Monthly Taxable Pay (Ksh)	Rate of Tax (%)
1 – 10165	10%
10166 – 19740	15%
19741 – 29316	20%
29317 – 38892	25%
Over 38892	30%

A man receives a basic salary of Ksh 30,000 and receives taxable Allowance of Ksh 10,480.

- (i) Calculate the total tax (9mks)
(ii) If he is entitled to a personal relief of Ksh 1,162 per month,
Find the net tax. (6mks)

Q3. (a) A photocopier costs sh 50,000 and its value depreciates at the
Rate of 8%.What will its value be after 5 years? (8mks)

(b) A man deposited some money in a bank that paid simple
Interest at 50% p.a for a period of 5 years.How much money did
He deposit if he withdrew a total of Ksh 15,000 at the end?(8mks)

© Solve by elimination

$$4x - 5y = 22$$

$$7x + 3y = 15 \quad (4mks)$$

Q4. (a) (i) Make x the subject of the formula $y = \frac{x+a}{x-a}$ (4mks)

(ii) A shirt's price was decreased from sh 7,000 to sh 5,000

Find the ratio of the price decreased (5mks)

(iii) Increased 200 in the ratio 5:4 and decrease 480 in the ratio

5:8 (5mks)

(b) Find the equation of the line parallel to $2y + 4x = 7$ and passing

Through $(0,0)$. (6mks)

Q5. (a)(i) Ben sold a fridge for Ksh 65,000 making a loss of 20% on what

He had paid. How much had he paid for the fridge? (5mks)

(ii) Halima deposited Ksh 8,000 in a bank that paid a compound

Interest of 5% p.a for 3 years. Calculate the amount after this

Period if the interest is paid half yearly and if it is paid quarterly

(10mks)

(b) Find the inverse matrix for $A = \begin{pmatrix} -4 & 8 \\ 0 & 1 \end{pmatrix}$ (5mks)