The Management University of Africa

Sponsored by the Kenya Institute of Management

# CERTIFICATE UNIVERSITY EXAMINATIONS

## SCHOOL OF MANAGEMENT AND LEADERSHIP

## BRIDGING CERTIFICATE

**FCC 101: REMEDIAL MATHEMATICS**

**DATE: 2ND APRIL 2025**

**DURATION: 2 HOURS**

**MAXIMUM MARKS: 70**

**INSTRUCTIONS**

1. Write your registration number on the booklet.
2. **DO NOT** write in this question paper.
3. This paper contains **SIX (6)** questions.
4. Question **ONE** is compulsory.
5. Answer any other **FOUR** questions.
6. Question **ONE** carries **30 MARKS** and the rest carry **10 MARKS** each.
7. **Write all your answers in the examination answer booklet provided.**

**QUESTION ONE**

a) Differentiate between qualitative data and quantitative data **(4 marks)**

b) Solve the equation below using elimination method **(4 marks)**

$x + 2y = 6$

$3x - y = 5$

c) The values are the scores scored by students in remedial mathematics exam

54 56 48 60 65 58 63 72 54 60 58 64 63 50 65 70 55 50 63 72

Compute;

i. Mean **(4 marks)**

ii. Mode **(1 mark)**

iii. Median **(2 marks)**

iv. Range **(1 mark)**

d). Define the term statistics and state any two areas where statistics is applicable in real life situation **(4 marks)**

e) Integrate the following functions

i) $y = 2x^2 + 7x + 4$ **(3 marks)**

ii) $y = 4x + 6$ **(3 marks)**

f) The table below shows the marks scored by students and the respective number of students per score.

| Marks | 56 | 60 | 64 | 68 | 73 |
|---|---|---|---|---|---|
| Frequency | 5 | 7 | 12 | 10 | 6 |

Calculate the Mean **(4 Marks)**

## QUESTION TWO

Describe 5 methods data collection **(10 marks)**

## QUESTION THREE

a). Find the derivatives of the following functions

i). $Y= 2x^4 + 6x^3 - 3x^2 - 8$ **(3 marks)**

ii). $Y= 3x^3 - 5x^2 - 3$ **(3 marks)**

b). Solve the following quadratic equation using quadratic formula method

$5x^2 + 2x - 3 = 0$ **(4marks)**

## QUESTION FOUR

a). Differentiate between primary and secondary **(4 Marks)**

b). State and explain any two applications of calculus **(4 marks)**

c). Solve for the value of y **(2 marks)**

$\frac{2}{3}y = -4$

## QUESTION FIVE

a) Define the following terms

i). Discount **(2 Marks)**

ii). Deposit **(2 Marks)**

iii). Commission **(2 Marks)**

b) What simple rate of interest will be required to produce Ksh. 5,000 after five years with an initial investment of Ksh. 4,000? **(4 Marks)**

**QUESTION SIX**

a) David is paid a fixed salary of ksh. 10,000/= per month plus a commission of 5% on sales made during the month. During the month of February, he made a total sale of ksh. 20,000. Calculate David's total earning in the month of February. **(4 marks)**

b). Edwin deposited ksh. 20,000 in the bank for a period of 3 years and he receives simple interest rate of 10% p.a. Determine

i) Interest earned by the end of the 3 years **(3 Marks)**

ii) Total accumulated amount at the end of the 3 years **(3 Marks)**

**Formulas**

**Quadratic Formula**

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

**Simple interest formula**

S= P (1 + r t)

**Compound interest**

$S = P(1 + r)^t$

**Mean** $\bar{x} = (\sum fx)/(\sum f)$