



Where Leaders are Made

UNIVERSITY EXAMINATIONS: 2025/2026
EXAMINATION FOR THE DEGREE MASTERS OF BUSINESS
ADMINISTRATION
MBA507
QUANTITATIVE ANALYSIS
END TERM EXAMINATION

DATE: DECEMBER, 2025

TIME: 3 HOURS

INSTRUCTIONS: Question One is Compulsory, Choose Three Other Questions

SECTION A (COMPULSORY)

QUESTION ONE

(20Marks)

Compulsory

a) Solve the following system of linear equations and **interpret** the solution in a business allocation scenario:

$$2x+3y=12$$

$$4x-y=10$$

(5 marks)

b) The monthly sales (in units) for a retail outlet for ten consecutive months were recorded as follows:

28, 32, 35, 30, 40, 36, 38, 33, 31, 37.

a) Compute the following measures of central tendency:

i. Mean

- ii. **Median**
- iii. **Mode**

b) **Explain the concept of a normal distribution** and comment on whether the above sales data appears to follow a normal distribution pattern. (5 marks)

c) For the same sales data, **calculate**:

- i. Q1, Q3, and interquartile range (IQR)
- ii. Variance, standard deviation, and coefficient of variation (CV)
- iii. **Interpret** these measures in the context of **business risk and consistency**. (5 marks)

d) Discuss the theoretical relevance of descriptive statistics and data dispersion measures in strategic decision-making. (5 marks)

SECTION B

(ANSWER ANY THREE (3) QUESTIONS IN THIS SECTION)

QUESTION TWO (10 marks)

Customer satisfaction scores: 4, 5, 6, 5, 7, 5, 8, 6, 9, 7

- a) **Calculate** Karl Pearson's coefficient of skewness. (5Marks)
- b) **Analyze** the direction and degree of skewness and **comment** on the implication for managerial strategy. (5Marks)

QUESTION THREE (10 marks)

Advertising expenditure (X, '000 Ksh) vs. Sales revenue (Y, '000 Ksh):

X	Y
10	40
15	42
20	50
25	55
30	60
35	65
40	70
45	78
50	85
55	92

- a) Compute the Pearson correlation coefficient (**r**). (5Marks)
- b) Interpret the correlation in terms of strategic decision-making and investment in advertising. (5Marks)

QUESTION FOUR: _____ **(10 marks)**

A factory produces 3 defective items in every 100.

- a) Using Poisson distribution, calculate the probability of 0 defective items in a sample of 10.

(5Marks)

- b) Evaluate the operational risk using the result and suggest a managerial action to mitigate defects. (5Marks)

QUESTION FIVE: _____ **(10 marks)**

Given Monthly production output (units) as follows:

Class Interval	Frequency
40-49	5
50-59	3
60-69	5
70-79	5
80-89	8
90-99	6
100-109	4
110-119	3
120-129	5

Compute standard deviation,skewness and interpret in the context of production stability.

(10

Marks)