



# **MAASAI MARA UNIVERSITY**

**REGULAR UNIVERSITY EXAMINATIONS  
2023/2024 ACADEMIC YEAR  
FIRST YEAR FIRST SEMESTER**

**SCHOOL OF BUSINESS AND ECONOMICS  
DIPLOMA IN BUSINESS MANAGEMENT**

**COURSE CODE: DBM 04**

**COURSE TITLE: QUANTITATIVE TECHNIQUES**

**DATE: 1/2/2024**

**TIME: 1100-1300 HRS**

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## **INSTRUCTIONS TO CANDIDATES**

1. Answer Question **ONE** and any other **TWO** questions

**QUESTION ONE (COMPULSORY) (30 MARKS)**

- a) The monthly salaries (in thousands of Ksh) of 8 employees in a company are as follows: 22, 24, 20, 18, 23, 25, 21, and 19.
- i Calculate the mean, median, and mode of the monthly salaries. **(6 Marks)**
  - ii Calculate the standard deviation of the monthly salaries. **(4 Marks)**
- b) Describe the steps involved in hypothesis testing. Provide an example of a hypothesis test scenario in a business context. **(10 Marks)**
- c) Discuss the importance of decision analysis in business decision-making. Provide an example of a decision tree analysis in a business context. **(10Marks)**

### **QUESTION TWO (15 MARKS)**

- a) Explain the concept of probability and its significance in decision-making. Provide a real-world example where probability analysis can be applied. **(10 Marks)**
- b) A company manufactures light bulbs, and the probability of a bulb being defective is 0.05. Calculate the probability that out of 20 randomly selected bulbs, exactly 3 will be defective. Show your calculations. **(5 Marks)**

### **QUESTION THREE (15 MARKS)**

- a) Explain the concept of regression analysis and its applications in business decision-making. Provide a scenario where multiple regression analysis would be useful. **(10 Marks)**

- b) In a survey of 500 customers, 320 said they prefer product A, 150 said they prefer product B, and the rest had no preference. Calculate the percentage of customers who had no preference. **(5 Marks)**

**QUESTION FOUR (15 MARKS)**

- a) A company is considering two investment projects: Project A and Project B. The expected cash flows for each project under different scenarios are as follows:

**Project A:**

- Best Case: \$50,000
- Worst Case: -\$10,000

**Project B:**

- Best Case: \$40,000
- Worst Case: \$20,000

Using the expected value criterion, recommend which project the company should choose. **(10 Marks)**

- b) Explain the concept of sensitivity analysis in decision-making and its importance. Provide an example. **(5Marks)**

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