



**MAASAI MARA UNIVERSITY**  
**REGULAR UNIVERSITY EXAMINATIONS**  
**2020/ 2021 ACADEMIC YEAR**

**FIRST YEAR FIRST SEMESTER**  
**SCHOOL OF BUSINESS AND ECONOMICS**  
**DIPLOMA IN BUSINESS MANAGEMENT**

**COURSE CODE: DBM 03**

**COURSE TITLE: QUANTITATIVE TECHNIQUES**

**DATE: APRIL, 2021**

**TIME:**

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**INSTRUCTIONS TO CANDIDATES**

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

*This paper consists of FOUR printed pages. Please turn over.*

## **QUESTION ONE**

- a. Differentiate between quota sampling and snowball sampling. **(4 marks)**
- b. State three merits of chain index method. **(3 marks)**
- c. State three types of correlation. **(3 marks)**
- d. Give three properties of coefficient of correlation. **(3 marks)**
- e. Explain three main uses of regression analysis. **(3 marks)**
- f. A batch of 40 components contains 5 that are defective. If a component is drawn at random from the batch and tested and then a second component is drawn at random, calculate the probability of having one defective component, both with and without replacement  
(5 marks)
- g. 10 bottles are to be selected from 50 bottles. Explain how this can be done using systematic sampling **(4 marks)**
- h. Differentiate between permutation and combination and calculate the number of permutations and combination that are of 5 distinct objects taken 2 at a time. **(5 marks)**

## **QUESTION TWO**

- a. Differentiate between correlation and regression. **(4 marks)**
- b. In the following table are recorded data showing the test score made by salesmen on intelligence test and their weekly sales.

Salesmen	1	2	3	4	5	6	7	8	9	10
Test score	40	70	50	60	80	50	90	40	60	60

Sales (000 Sh.)	2.5	6.0	4.0	5.0	4.0	2.5	5.5	3.0	4.5	3.0
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Calculate:

- i. Regression line of sales on test score. **(8 marks)**
- ii. Estimate the probable weekly sales volume if a salesman makes a score of 100. **(2 marks)**
- iii. Calculate the correlation coefficient between the two variables under study. **(4 marks)**
- c. Give two important methods of ascertaining whether two are correlated or not. **(2 marks)**

### **QUESTION THREE**

- a. With relevant examples where necessary, discuss the various techniques that are involved in probability sampling. **(8 marks)**
- b. Give four use of index numbers. **(4 marks)**
- c. Calculate the probabilities of selecting at random:
  - i. The winning horse in a race in which 10 horses are running. **(2 marks)**
  - ii. The winning horses in both the first and second races if there are 10 horses in each race. **(2 marks)**
- d. Give two characteristics of a poisson distribution at a specified time or interval. **(2 marks)**
- e. Give two assumptions of a binomial trial. **(2 marks)**

### **QUESTION FOUR**

a. Give three disadvantages of arithmetic mean. **(3 marks)**

b. What are the properties of median. **(3 marks)**

c. Give the data in the following table. Calculate;

Grade	50 - 59	60 - 69	70 - 79	80 - 89	90 - 99	100 - 109	110 - 119
Frequency	7	81	192	312	218	82	18

i. Mean grade

ii. Modal grade

iii. Median grade

iv. Variance and standard deviation of the grade

v. Coefficient of variation

vi. Interpret the standard deviation. **(14 marks)**

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