



**MAASAI MARA UNIVERSITY**  
**REGULAR UNIVERSITY EXAMINATIONS**  
**2022/ 2023 ACADEMIC YEAR**

**THIRD YEAR SECOND SEMESTER**  
**SCHOOL OF TOURISM AND WILDLIFE**  
**MANAGEMENT**  
**DEGREE IN TOURISM AND WILDLIFE**  
**MANAGEMENT.**

**COURSE CODE: BTM 3237-1**

**COURSE TITLE: STATISTICS AND DATA**  
**ANALYSIS.**

**DATE: 27<sup>th</sup> /April/ 2023**

**TIME: 0830 - 1030HRS**

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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 **(2 marks)**
- b. Given the following information;  $n = 5, p = 0.7$ . Find  $P(X \leq 3)$  **(3 marks)**
- c. 10 bottles are to be selected from 50 bottles. Explain how this can be done using systematic sampling **(3 marks)**
- d. The incidence of occupational disease in an industry is such that the workers have a 20% chance of suffering from it. What is the probability that out of the 6 workers 4 or more will contract disease **(4 marks)**
- e. A factory produces blades in packets of 10. The probability of a blade to be defective is 0.2 percent. Find the number of packets having 2 defectives blades in a consignment of 10,000 packets **(3 marks)**
- f. A sociologist has conducted a survey of how people perceive the prestige of different occupations. She wonders if people perceive high income occupations as more prestigious. Her survey data have provided rank orders of prestige and she rank-ordered each occupation according to mean income. Calculate and interpret the Pearson correlation coefficient **(5 marks)**

Prestige	2	1	3	4	7	10	6	8	5	9
Income	1	3	7	10	4	5	8	2	9	6

## QUESTION TWO

- a. Differentiate between correlation and regression **(2 marks)**
- b. In the following table are recorded data showing the test score made by salesmen on intelligence test and their weekly sales (000 sh). Calculate;

Salesmen	1	2	3	4	5	6	7	8	9	10
Test S.	40	70	50	60	80	50	90	40	60	60
Sales	2.5	6.0	4.0	5.0	4.0	2.5	5.5	3.0	4.5	3.0

- i. Regression line of sales on test score **(6 marks)**
- ii. Estimate the probable weekly sales volume if a salesman makes a score of 100 **(1 mark)**
- iii. Calculate the correlation coefficient between the two variables under study **(4 marks)**
- iv. Give two important methods of ascertaining whether two variables 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 three characteristics of a poisson distribution at a specified time or interval **(3 marks)**
- c. Give four assumptions of a binomial trial **( 4 marks)**

### **QUESTION FOUR**

- a. Give the data in the following table. Calculate;
- Mean grade **(2 marks)**
  - Modal grade **(2 marks)**
  - Median grade **(2 marks)**
  - Variance and standard deviation of the grade **(4 marks)**

Grade	50 - 59	60 - 69	70 - 79	80 - 89	90 - 99	100 - 109	110 - 119
Frequency	9	81	192	314	218	82	20

- b. Three groups of children contain respectively 3 girls and 1 boy, 2 girls and 2 boys, 1 girl and 3 boys. One child is selected at random from each group. Show the chance that the 3 selected consist of 1 girl and 2 boys is  $\frac{13}{32}$  **(5 marks)**