



MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

P.O. Box 972-60200 – Meru-Kenya.

Tel: +254 (0)799529958, +254 (0)799529959, +254 (0)712524293

Website: www.must.ac.ke Email: info@must.ac.ke

University Examinations 2023/2024

FIRST YEAR, FIRST SEMESTER EXAMINATION FOR THE DEGREE OF MASTERS OF
EPIDEMIOLOGY

HPE 7113: BIostatISTICS

DATE: APRIL 2024

TIME: 2 HOURS

INSTRUCTIONS:

1. SECTION A: Answer all Question
 2. SECTION B: Answer any 3 Questions
-

SECTION A: (30 MARKS)

QUESTION ONE

- a) As a biostatistician in a county government you are approached by a colleague to advice on how the study she is designing can increase the accuracy of its results. Discuss ways which can be employed to increase the accuracy of research results. (5 marks)
 - b) Using a dice discuss the rule of probability. (5 marks)
 - c) A student undertook a class assignment to conduct a research on monthly salaries earned (in KSh 1,000) by newly employed government staff for different government departments and collected the following data; 28,60,32,29 (in 1,000). (show all calculation for both I and ii)? (10 marks)
 - i. Compute the measures of central tendency or location of monthly salaries of a newly employed staff in government departments
 - ii. Calculated the variance and standards deviation of monthly salaries for this sample of 6 newly employed civil servants.
-



- d) In random sample of 400 observations from a normal population, it was found that the sample mean (\bar{x}) = 75 and variance (s^2) = 100. Find the 95% confidence interval estimate of the population mean μ . (10 marks)

SECTION B: (30 MARKS)

QUESTION TWO

- i. Compare and contrast the properties of student-t- distribution with those of normal distribution curve. (5 marks)
- ii. Differentiate standard deviation (SD) from standards error OF Mean (SEM). (5 marks)

QUESTION THREE:

Discuss how study errors can be minimized in a epidemiology survey? (10 marks)

QUESTION FOUR:

Discuss the steps of conducting a hypothesis testing (10 marks)

QUESTION FIVE

- i. Discuss briefly the central limit theorem(CLT) and condition requiring its application. (6 marks)
- ii. Discuss the relation between the margin of error and sample size. (4 marks)

