

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**EXAMINATION FOR THE AWARD OF DEGREE OF MASTER OF SCIENCE IN
EDUCATION**

EDUC 803: STATISTICAL METHODS IN EDUCATION

STREAMS: MED (PART TIME)

TIME: 3 HOURS

DAY/DATE: THURSDAY 07/04/2021

2.30 P.M. – 5.30 P.M.

INSTRUCTIONS:

- Answer question one and any other two questions.
- Do not write on the question paper.

QUESTION ONE

- (a) Distinguish between the following pair of terms used in statistics,
- Discrete and continuous variables
 - Descriptive and inferential statistical
 - Random variables and constant
 - Skewness and Kurtosis
 - Parameter and Statistics (5 marks)
- (b) Citing relevant examples, explain the differences between interval and ratio scales of measurement. (6 marks)
- (c) A sample of 600 students drawn from Kenya secondary schools were found to have a mean score of 55% in mathematics test. Can this sample be regarded as a sample from a larger population whose mean score is 40% with standard deviation of 2.3, given that the test statistic $|Z|$ critical = 1.96 at 5% level of significance. (4 marks)
- (d) Given the following set of data

15	26	25	12	33
23	33	39	35	49
31	44	34	48	48
75	39	47	43	59
42	43	43	52	55
52	56	59	69	67
62	69	62	79	72

- (i) Draw a grouped frequency distribution table starting with class 10 -19. (2 marks)
- (ii) Compute
- (a) Mean (3 marks)
 - (b) Mode (3 marks)
 - (c) Median (3 marks)
 - (d) Standard deviation (4 marks)

QUESTION TWO

- (a) The following values of x and y were obtained from a research study.

x	10	20	30	40	50	60
y	16	15	18	22	24	23

Use the data to develop a regression model of y on x (12 marks)

- (b) Using the modes developed above, predict the value of y given $x=90$. (3 marks)

QUESTION THREE

- (a) The following data was collected from a control and experimental group of a study.

Control	6	7	9	5	4	3	2	8	10	7
Experimental	3	5	9	4	2	1	0	6	7	4

Test the hypothesis that there is no difference in the means of experimental and control group using t-test at level significance $\alpha=0.05$ and $t_{9,0.05}=1.833$ (10 marks)

- (b) A coin was tossed 20 times and the outcomes were 14 heads and 6 tails. Test the hypothesis that the probability of obtaining head is the same as that of obtaining tail. Take $\chi^2_{cr}=3.84$ at $\alpha=0.05$ significance level. (5 marks)

QUESTION FOUR

- (a) Explain the importance of studying statistics as a master of education student. (6 marks)

- (b) Succinctly discuss the steps followed when testing hypothesis. (6 marks)
- (c) Identifying any three (3) factors that influence correlation coefficient. (3 marks)
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