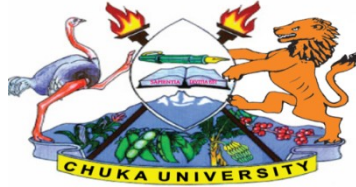


CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF DOCTOR OF PHILOSOPHY IN
EDUCATION

EDUC 902: ADVANCED APPLICATION OF EDUCATIONAL STATISTICS

STREAMS: SB/PT

TIME: 3 HOURS

DAY/DATE: WEDNESDAY 6/10/2021

2.30 P.M – 5.30 P.M

INSTRUCTIONS

Answer question one and any other two questions

Do not write anything on this paper

QUESTION ONE

- (a) Distinguish between the following pair of terms as used in statistics;
- (i) Discrete variance and continuous variables
 - (ii) Descriptive statistics and inferential statistics
 - (iii) One tailed test and two tailed test [3 marks]
- (b) Explain four levels of measurements. [8 marks]
- (c) Outline the errors that one may commit in statistical testing. [4 marks]
- (d) A researcher picked ten students are random from a class and recorded their mathematics score in end of term exam as follows; 75,73,65,54,69,72,79,80,52,66. Discuss the suggestion that their mean maths score for the class is 65. [8 marks]
- (e) Demonstrate your understanding of the following concepts;
- (i) Sum of squared deviates within the group.
 - (ii) Sum of squares between groups
 - (iii) F. ratio [3 marks]
- (f) Fourty students from a randomly selected public secondary schools were independently asked to name their favorite subject. The choices were mathematics,2; physics 6; history 12; business studies 15 and geography 5. Using Chi-square test establish whether their preference were evenly distributed. [4 marks]

QUESTION TWO

A researcher hypothesized that female students are superior to males in reading skills. He selected 14 males students and 19 female students, administered reading skills test to them. The analysis of this data on SPSS software produced the following tables.

	Gender of students	N	Mean	Std deviation	Std error mean
Reading skills	Male	14	10.71	3.31	0.88
	Female	19	13.52	3.15	0.72

Table 2: Independent sample test

	Levene's test for equality of variance		T-test for equality of means		
	F	Sig	t	df	Sig(2 tailed)
Equal variances assumed	0.111	0.742	-2.479	31	0.019
Equal variance not assumed			-2.459	27.326	0.021

(i) What is the significance of table 1 in the analysis of this data. Explain its concepts.

[7

marks]

(ii) Use table two to test the hypothesis that there is no statistical significant difference in males and females reading skills.

[8 marks]

QUESTION THREE

(a) Twenty four students from four different schools XYZ participated in mathematics context. The following is table showing the scores of students

X	Y	Z	W
5	8	7	7
7	7	9	6
5	6	6	6
7	7	7	7
8	7	8	7
7	8	6	6

Determine whether there is significant difference in group means at $\alpha = 0.05$.

[15 marks]

QUESTION FOUR

Using Wilcoxon statistics, draw the appropriate conclusions on the following set of data; [15 marks]

Subject	Assessment I	Assessment II
1	60	75
2	56	73
3	50	66
4	42	49
5	40	38
6	36	34
7	32	33
8	30	30
9	30	27
10	25	27

NB: Statistical tables will be provided
