CHUKA   **UNIVERSITY**

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DIPLOMA IN AGRICULTURE

AGRI 0291: AGRICULTURAL STATISTICS AND EXPERIMENTATION

STREAMS: DIP AGRIC   **TIME: 2 HOURS**

DAY/DATE: WEDNESDAY 11/12/2019   **2.30 P.M – 4.30 P.M**

INSTRUCTIONS
This paper contains section A and B
Answer all questions in section A and any two from section B
Marks for each questions are indicated in parenthesis

SECTION A (30 MARKS)
QUESTION ONE

(a) Explain :

    (i)   A single factors experiment   [5 marks]

    (ii)   Type II error in experimentation   [5 marks]

QUESTION TWO

(a) What is the importance of measures of central tendency and measures of dispersion.

[5 marks]

(b) Enumerate the elements of descriptive and inferential statistical problems. [5 marks]

QUESTION THREE

The weight of nine randomly selected orange fruits are shown in Table 1 in grams.

Table 1: weights in grams of oranges

Sn	Weight (g)
1	6
2	7
3	10
4	11
5	11
6	13
7	16
8	18
9	25

Find :

(i)   Sample means   [2 marks]

(ii)   Sample variance   [2 marks]

(iii)   Sample median   [2 marks]

(iv)   Sample range   [2 marks]

(v)   Standard deviation   [2 marks]

SECTION B: (40 MARKS)

QUESTION FOUR

(a) What is hypothesis testing ?   [2 marks]

(b) Enumerate the characteristics of a good hypothesis.   [8 marks]

(c) Explain the steps in hypothesis testing.   [10 marks]

QUESTION FIVE

The price of the standard family farm and the farm selling company shares was recorded for a random sample of 12 farm buying and selling agencies as indicate in table 2:

Table 2: selling price and market share of standard farm family.

Selling price ($ 000)	Market share %
137	14
138	15
125	10
142	8
168	9

145	7
135	11
145	5
160	3
146	5
136	7
160	2

(a) Calculate the correlation coefficient? [10 marks]

(b) Test to see if the correlation coefficient differs significantly from zero at 95% confidence level given critical T value is =2.23. [10 marks]

QUESTION SIX

An experiment consisted of five (5) treatment in three (3) replications in a completely randomizes design. There are three 3 sample per experimental plot. Using this information.

(a) Provide a linear model for this experiment and define the terms. [5 marks]

(b) Show the analysis of variance (ANOVA) with sources of variation and degree if freedom. [10 marks]

(c) Briefly outline the differences between a research proposal and a project proposal. [5 marks]