

**CHUKA**



**UNIVERSITY**

**UNIVERSITY EXAMINATIONS**

**EXAMINATION FOR THE AWARD OF POST GRADUATE DIPLOMA IN  
EDUCATION**

**PGDE 742: STATISTICAL METHODS IN EDUCATION**

**STREAMS: PGDE (P/T)**

**TIME: 2 HOURS**

**DAY/DATE: WEDNESDAY 31/3/2021**

**8.30 AM – 10.30 AM**

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**INSTRUCTIONS:**

- Answer Question one and any other Two Questions
- Do not write anything on the question paper.

**QUESTION ONE**

- (a) Write short notes on the following:
- (i) Null and Alternative hypothesis
  - (ii) One tailed and two tailed tests
  - (iii) Type I and type II errors
  - (iv) Acceptance and rejection regions. [8 Marks]

(b) Identify three reasons for studying statistical methods in education.[6 Marks]

(c) Given the following set of data  
18,23,25, 26, 24

Compute

- (i) Mean [2 Marks]
- (ii) Variance [3 Marks]
- (iii) Standard deviation [1 Mark]
- (d) Discuss any five factors that influence correlation coefficient. [10 Marks]

**QUESTION TWO**

- (a) Describe the steps followed when testing hypothesis. [10 Marks]
- (b) An Urn contains 5 black balls, 4 white balls and some yellow balls. If a ball is picked at random the probability that its is yellow is  $\frac{1}{4}$  find.
- (i) The number of yellow balls in the Urn. [3 Marks]
- (ii) The total number of balls in the urn. [1 Mark]

**QUESTION THREE**

Given the following values of X and Y obtained from a research study.

X	1	2	3	4	5	6	7
Y	14	17	15	23	18	22	27

- (a) Generate a regression models of y on x. [12 Marks]
- (b) Use the model to predict the value of y given  $x = 9$

**QUESTION FOUR**

A statistics test was done by 24 students drawn from four schools and their results out of 10% were recorded as follows.

School	School	School	School
X	7	w	z
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 their mean ( $\bar{x}$ ) performance at significance levels of  $\alpha = 0.05$ . Provided

$F_{ratio} [0.05(3,20)] = 3.10$  [15 Marks]

**QUESTION FIVE**

(a) A sample of 400 students is found to have a Mean Score of 65% in statistics exam. Can it be reasonably regarded as a sample from a larger population whose mean is 85% with standard deviation of 1.2 given that the test statistic  $|z|$  critical = 1.96 at 5% level of significance.

[3 Marks]

(b) The following data was collected from a control and experimental groups of a study.

Control	1.0	1.2	1.4	1.3	1.6
Experimental	1.4	0.6	1.0	1.6	1.4

By use of t-test and level of significance  $\alpha = 0.05$ , determine whether the differences between the group means is significant, Given t critical (4,0.05) = 2.78 [12 Marks]

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