CHUKA UNIVERSITY

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF MASTER OF

EPSC 802/EDCI 841: STATISTICAL METHODS

STREAMS: MASTERS **TIME: 3 HOURS**

DAY/DATE: TUESDAY 06/08/2019 **8.30 A.M. – 10.30 A.M.**

INSTRUCTIONS:

- **Answer question ONE an any other two questions**
- **Do not write on the question paper**

Q1. (a) Explain the meaning of the following terms

(i) Multiple regression
(ii) Correlation
(iii) Population
(iv) Probability (8 marks)

(b) The following table shows the number of births at Chuka level four hospital

No of births	2-4	5-7	8-10	11-13	14-16	17-19	20-22	23-25
No of days	3	6	11	9	6	1	4	2

Calculate (i) Mean
(ii) Mode
(iii) Median
(iv) Range of number of births (16 marks)

(c) With the aid of scatter diagrams explain three types of correlations. (6 marks)

Q2. (a) All human beings blood can be grouped as either 0, B, or AB. The following is a distribution of blood of randomly chosen people.

Blood type	O	B	A	AB
Probability	0.25	0.175	-	0.275

What is the probability of having people having blood group O and B or A and B (4 marks)

(b) The scores of mathematics and physics examination were recorded as follows.

Maths	3	9	10	3	8	3	10	6	1	6	2	3	4
Physics	5	8	9	5	7	4	7	4	2	5	6	5	2

Compute Spearman Rank Correlation Coefficient and interpret the results. (11 marks)

Q3. (a) Explain the steps involved in hypothesis testing.

(b) A sample of 324 measures were taken to test the hypothesis that the mean number of hours that a student spend reading per month is less than 78 hours. If the sample mean was found to be 115 hours and a variance of 48, test the null hypothesis at $\alpha = 0.05$ level of significance in a two tailed test. (15 marks)

Q4. The number of undergraduate students in Kenya is estimated to be 375, 000 studies. What samples will you take at (15 marks)

(a) 99% confidence limit
(b) 95% confidence limit
(c) 90% confidence limit with a maximum error of 0.01
(d) 99% confidence limit with 88% of the population having characteristics of infest
(e) 95% confidence limit with a maximum error of 0.1.
