CHUKA  **UNIVERSITY**

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF MASTERS OF EDUCATION

EDUC 802: STATISTICAL METHODS IN EDUCATION

STREAMS: MED **TIME: 3 HOURS**

DAY/DATE: TUESDAY 14/04/2020 **8.30 AM – 11.30 AM**

INSTRUCTIONS:

- **Answer Question One and any other Two Questions**
- **Do not write on the question paper**

1. (a) Explain the meaning of the following terms:

   (i) Interval scale
   (ii) Simple regression analysis
   (iii) Correlation
   (iv) Probability [8 marks]

   (b) Given the following data, determine the Spearman Rank Correlation Coefficient (r_s) and interprete the results. [12 marks]

Student score in English	12	10	12	21	14	17	21	19	20
Student score in writing	18	9	10	18	8	9	18	19	16

   (c) A basket contains yellow, green, orange and white marbles. Their probability are shown below

Color	Green	Yellow	Orange	White
Probability	-	0.20	0.11	0.25

   (i) What is the probability of picking orange or green and white
   (ii) What is the probability of picking orange and yellow or green and white?
   (iii) When one makes 10 tosses of a coin, what are the chances of getting 4 heads. [10 marks]

2. (a) Explain the factors that influence correlation coefficient. [5 marks]

   (b) (i) Explain the steps involved in testing a hypothesis.

   (ii) A lecturer wishes to test the hypothesis that the mean performance of her students in statistics has changed from 77%. She selects a sample of 180 students, and administered a test to them and obtained an average of 78% with a variance of 42.1. test the hypothesis at 0.05 level of significant in a two tailed test. [10 marks]

3. (a) Present the following data into grouped frequency distribution of class interval 1 – 10, 11 – 20, etc.

35	50	60	56	70	76	50	40	48	45	69
16	30	45	38	40	18	23	40	35	92	61
37	46	42	38	59	72	64	94	30	30	35
49	43	32	60	30	53	24	36	44	65	45
45	10	58	66	60	50	50	95	90	77	55
50	43	82	50	80						

   (b) Calculate for 3(a) above

   (i) Mean
   (ii) Median
   (iii) Mode
   (iv) Range [15 marks]

4. (a) With the aid of scatter diagrams explain three types of correlation

   (b) The number of pupils in County A is estimated to be 500,000. As a researcher what sample would you take at,

   (i) 95% confidence limit with 80% of the target population having characteristics of interest
   (ii) 99% confidence limit with a maximum error of 0.05
   (iii) 90% confidence limit with 65% of the target population having the characteristic of interest and maximum error of 0.01. [15 marks]
