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**KIRIRI WOMEN'S UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION, 2019/2020 ACADEMIC YEAR
SECOND YEAR, FIRST SEMESTER EXAMINATION
FOR THE DEGREE OF BACHELOR OF SCIENCE
(BUSINESS ADMINISTRATION)**

Date: 15th April, 2019
Time: 8.30 – 10.30am

KBA 203 – STATISTICS FOR MANAGEMENT

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

- a. Define the following terms: (3 Marks)
- Population
 - Statistics
 - Index number
- b. In what practical ways can statistics be of service to a business? (6 Marks)
- c. Discuss the various methods which are used in collection of statistical data. (4 Marks)
- d. Calculate the mean deviation from the following data. (6 Marks)

size of item	6	7	8	9	10	11	12
frequency	3	6	9	13	8	5	4

- e. The population of goldfish in a large tank was studied and the mean length was found to be 6 cm with standard deviation of 1.1 cm. A separate study looked at the length of sharks found in fishermen's nets. The second study found that the mean length of the sharks measured was 8 feet with standard deviation of 2.1 feet. Which data set is more spread out? (4 Marks)

- f. A box contains 6 white balls and 4 red balls. Two balls are drawn out at random and without replacement. What is the probability that the second ball selected is red? (3 Marks)
- g. Construct Simple average of relative index numbers taking 2007 as the base year and interpret your answer. (4 Marks)

commodity	price	
	2007	2008
rice	50	62
salt	5	8
cloth	0.5	0.75
miscellaneous	10	14
fuel	8	10

QUESTION TWO (20 MARKS)

- a. What are the characteristics of a good questionnaire to be used in data collection? (4 Marks)
- b. The profits (Ksh'000) of two stores are shown in the table below. Which store has stable profits?

A	60	66	70	58	56	67
B	34	38	40	60	48	51

(8 Marks)

- c. A company has determined the number of machine breakdowns per month and their respective probabilities as shown below.

Number of Breakdowns	probability
0	0.12
1	0.38
2	0.25
3	0.18
4	0.07

- i) Find the expected mean number of machine breakdowns per month. (3 Marks)
- ii) The standard deviation. (3 Marks)
- iii) The probability of at least 3 breakdowns in a month. (2 Marks)

QUESTION THREE (20 MARKS)

- a. Discuss three advantages and three limitations of interviews as a method of data collection. (6 Marks)
- b. A study indicates that the weights of adults are normally distributed with a mean $\mu = 140$ lbs and a standard deviation $\delta = 25$ lbs.
- i. What is the probability that a randomly selected adult weighs between 120 and 165 lbs? (5 Marks)

- ii. If 200 adults are randomly selected from this population, approximately how many of them will weigh more than 170 lbs? (4 Marks)
- iii. Find a value of weight x such that only 20% of adults weigh less than that. (5 Marks)

QUESTION FOUR (20 MARKS)

- a. An economist wants to estimate the relationship between a family's annual income and the amount the family saves.

annual income (\$000) (x)	Annual savings (\$000)(y)
12.00	0.00
13.00	0.10
14.00	0.20
15.00	0.20
16.00	0.50
17.00	0.50
18.00	0.60
19.00	0.70

- i. Compute coefficients of correlation and determination and thus give interpretation. (10 Marks)
- ii. Determine the regression equation on annual income on annual savings. (10 Marks)

QUESTION FIVE (20 MARKS)

The following table gives the score attained by students in a statistics tests.

54	47	48	56	64	53	65	83	57
56	52	65	68	62	63	72	56	68
84	76	61	45	70	43	64	47	79
53	80	57	74	62	73	68	76	78
46	60	74	66	57	43	61	69	68
64	73	54	56	59	44	59	49	65

- i) Construct frequency distribution table for the following data using class intervals of 5. (4 Marks)
- ii) Find the mean of the distribution. (3 Marks)
- iii) Find the standard deviation and variance. (6 Marks)
- iv) Find the mode. (4 Marks)
- v) Draw a histogram. (3 Marks)