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KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY

UNIVERSITY EXAMINATION, 2019/2020 ACADEMIC YEAR
SECOND YEAR, FIRST SEMESTER EXAMINATION
FOR THE DEGREE OF BACHELOR OF SCINENCE IN
(BUSINESS ADMNISTRATION)

Date: 4th December, 2019
Time: 2.30pm – 4.30pm

KBA 203 - STATISTICS FOR MANAGEMENT

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTIONONE (COMPULSORY) AND ANYOTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

a) Define the following terms:
   i) Measure of dispersion
   ii) Mutually exclusive
   iii) Discrete variable (3 Marks)

b) Calculate the mean deviation and coefficient of mean deviation from the following. 20, 25, 40, 50, 65, 70, 75. (4 Marks)

c) The table below shows the masses of 40 students in a class.

Mass (kg)	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64
Frequency	4	10	15	8	3

Calculate the median mass (4 marks)

d) Discuss the advantages of primary data over secondary data. (4 Marks)

e) What is the probability of getting 2 white and one black ball in a draw of 3 balls from a box containing 5 white and 4 black balls with replacement? (3 Marks)

f) Discuss the significance of statistics as a tool of management.
(4 Marks)

g) What are the advantages of graphical presentation of data?
(4 Marks)

h) Construct Simple average of relative index numbers and interpret your answer.
(4 Marks)

	price	
Commodity	2007	2008
Rice	20	15
Salt	4	4.75
Cloth	0.5	0.75
House rent	10	12
Fuel	8	10

QUESTION TWO (20 MARKS)

a) A company manufactures concrete blocks that are used for construction purposes. Suppose that the weights of the individual concrete blocks are normally distributed with mean value $\mu=11.0$ kg and a standard deviation $\sigma=0.3$ kg.

i) Find the probability that a randomly selected concrete block weighs less than 10.7 kg.
(4 Marks)

ii) Find the probability that a randomly selected concrete block weighs between 10.8kg and 11.5 kg. (4 Marks)

iii) Find the weight x which is exceeded by only 15% of the heaviest concrete blocks.
(4 Marks)

b) The random variable X has the following probability distribution:

value	1	2	3	4
Probability	0.1	0.5	0.3	?

i) Find the missing probability. (2 Marks)

ii) What is the expected mean value and standard deviation of X? (6 Marks)

QUESTION THREE (20 MARKS)

a) A medical treatment has a success probability of 0.7. Three patients will be treated with this treatment. Assuming the results are independent for the three patients, what is the probability that at least two of them will be successfully cured? (4 Marks)

b) Factory A and Factory B that employs 476 and 524 workers respectively. The average weekly wages for each worker in Factory A and Factory B are USD 34.5 and USD 28.5 respectively. The standard deviation in paying the individual wages has been recorded as USD 5 and USD 4.5 for Factory A and Factory B respectively.

i) Which factory A or B pays out a larger amount as average weekly wages?
(2 Marks)

ii) Which factory A or B has greater variability in paying individual wages?
(4 Marks)

c) Discuss the limitation of index numbers.
(4 Marks)

d) Construct weighted index by Fisher's Ideal Method from the following data and comment on your answer.

	1990		2000	
commodity	price Po	Quantity qo	price P1	Quantity q1
A	6	50	10	56
B	2	100	2	120
C	4	60	6	60
D	10	30	12	24
E	8	40	12	36

(6 Marks)

QUESTION FOUR (20 MARKS)

A group of 40 railroad clerks takes an examination to test manual dexterity. Their scores are as follows.

81	62	76	81	65	80	42
83	93	78	86	71	82	76
78	98	92	74	75	81	78
76	51	63	79	73	49	71
74	75	50	71	69	58	72
53	60	65	95	98		

Group the data using appropriate classes. (4 Marks)

Calculate:

i) the mean (3 Marks)

ii) standard deviation (4 Marks)

iii) mode (3 Marks)

iv) quartile deviation (6 Marks)

QUESTION FIVE (20 MARKS)

a) A simple random sample of 64 men has a sample mean foot length of 27.5 cm. assuming that the standard deviation of foot lengths for all men is 2 cm, obtain a 95% confidence interval for the mean foot length of all men.

(4 Marks)

b) The table below shows the number of absences, x, in a Calculus course and the final exam grade, y, for 7 students.

x	1	0	2	6	4	3	*3*
y	85	80	70	55	90	90	*95*

i) Find the correlation coefficient and coefficient of determination hence interpret your results. (8 Marks)

ii) Find the line that best fit the data for the data in (a) above.

(8 Marks)