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KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION, 2018/2019 ACADEMIC YEAR
DIPLOMA IN BUSINESS INFORMATION TECHNOLOGY

DBA 1104 – QUANTITATIVE METHODS

Date: 11th April, 2018
Time: 8.30am –10.30am

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTIONONE (COMPULSORY) AND ANYOTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

a) Define the following terms; (3 Marks)
   i) Population
   ii) Qualitative variable
   iii) Index number

b) The mean score for eight students is 50. The scores for 7 of the students are recorded as follows; 43, 47, 41, 60, 63, 45, 51. Find the missing score. (4 Marks)

c) Calculate the coefficient of mean absolute deviation of the following data set. 32 33 34 37 44 45 49 50 50 52 (5 Marks)

d) A box contains 6 red balls and 5 blues balls. A person draws three balls at random without replacement, determine the probability that the balls drawn are:
   i) No red (4 Marks)
   ii) At least two reds (4 Marks)

e) 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:-
   i) Mode (4 marks)
   ii) Median mass (4 marks)

QUESTION TWO (20 MARKS)

a) Use the method of least squares to determine the equation of the straight line that best fits the following data.

(10 Marks)

X	11	13	14	17	18	21	26
Y	20	23	25	28	30	34	38

b) Using the data in (b) above find the coefficients of correlation and determination and interpret your result. (10 Marks)

QUESTION THREE (20 MARKS)

a) The scores in an aptitude test are normally distributed with a mean of 100 and with standard deviation of 15.

i) What proportion of students is likely to score between 85 and 115? (4 Marks)

ii) The probability that a student will score above 130. (3 Marks)

iii) What is the minimum score attained by the top 15% of the students. (5 Marks)

b) The following table gives the profits in ten thousand of shillings of two supermarkets. Compute the coefficient of variation for each supermarket and indicate which one has higher variability of profits . (8 Marks)

A	48	15	28	41	59	41
B	33	20	23	69	45	53

QUESTION FOUR (20 MARKS)

a) In a consignment of articles, 10 percent are defective. If a sample of 6 articles is taken at random from this consignment, find the probability that it will contain:

i) No defective articles. (3 Marks)

ii) Three or more defective articles. (5 Marks)

b) Discuss how index numbers are useful in a business. (6 Marks)

c) Using the figures below, calculate:

i) A Laspeyre's price index (3 Marks)

ii) A fisher's ideal index (3 Marks)

Commodity	1980		1985	
	Price	Quantity	Price	Quantity
Maize	65	20	135	30
Wheat	95	8	160	7
Beans	150	5	320	8

QUESTION FIVE (20 MARKS)

a) The following data is an extract from the monthly record of electricity consumption in thousand kilowatt hours of Chuma Enterprises Ltd.

57	59	59	60	61	63	67	70	74	80
50	59	60	63	62	61	61	65	70	76
80	89	54	59	63	60	64	65	65	68
75	80	90	92	56	60	60	64	66	66
69	78	84	86	96	99	60	80	46	56

Develop a frequency distribution table using classes of equal width. (5 Marks)

b) Determine:-

i) Mean (4 Marks)

ii) Standard deviation and variance (5 Marks)

iii) Inter-quartile range (6 Marks)