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**KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**UNIVERSITY EXAMINATION, 2017/2018 ACADEMIC YEAR**  
**DIPLOMA IN BUSINESS INFORMATION TECHNOLOGY**

**DBT 024 - BUSINESS STATISTICS**

Date: 27<sup>th</sup> July, 2017.

Time: 12.00pm– 2.00pm

**INSTRUCTIONS TO CANDIDATES**

**ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS**

**QUESTION ONE (30 MARKS)**

- a) Distinguish and give examples of qualitative and quantitative data. (4 Marks)
- b) Calculate the mean and standard deviation of the following data: 23, 43, 32, 42, 57, 62, 99, 82, 98, 54. (5 Marks)
- c) 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) Not red (3 Marks)
- ii) At least two reds (3 Marks)
- d) Discuss the advantages of primary data over secondary data. (4 Marks)
- e) The following data shows the price of a commodity in a locality. Find the coefficient of mean deviation.  
110, 145, 150, 130, 128, 160, 120, 115, 108 (4 Marks)
- f) Given below are profits earned by franchise branches of a food outlet.

profit	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39
No. of shops	8	18	27	21	10	28	8

Calculate the mode.

(3 Marks)

- g) 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)

**QUESTION TWO (20 MARKS)**

- a) Discuss three advantages and three limitations of interviews as a method of data collection. (6 Marks)
  
- b) A group of 40 railroad clerks takes an examination to test manual dexterity. Their scores are as follows.

81	62	76	81	65	60	42
47	93	78	66	71	52	76
78	98	92	54	75	81	78
76	59	63	79	73	49	71
74	75	50	71	69	58	72
53	60	65	95	98	66	56

- i) Group the data using classes 40-49, 50-59 etc. (3 Marks)
- ii) Find the mean (3 Marks)
- iii) The standard deviation (4 Marks)
- iv) The range of the middle 60% of the observations. (4 Marks)

**QUESTION THREE (20 MARKS)**

- a. Five children aged 2, 3, 5, 7 and 8 years old weigh 14, 20, 32, 42, and 44 kilograms respectively.
  - i) Identify the dependent and independent variables. (2 Marks)
  - ii) Find the equation of the regression line of age on weight. (6 Marks)
  - iii) Based on this data, what is the approximate weight of a six years old child? (2 Marks)

Compute the coefficient of correlation and coefficient of determination and give the interpretation of each. (10 Marks)

**QUESTION FOUR (20 MARKS)**

- a) The table below shows the marks obtained by students in a statistics examination. If the mode 25 and the average mark was 23, determine the total number of students in the class and hence calculate the median mark. (10 Marks)

Marks	0 -10	10 -20	20 – 30	30 – 40	40 - 50
No. of students	5	x	8	4	y

- b) The weekly demand, n, for some perishable product is shown below

No. of order n	5	6	7	8	9	10	11
P(n)	t	4t	0.12	0.17	0.24	0.14	0.08

Determine:

- i) Find the missing probabilities. (2 Marks)
- ii) The probability that the demand is not more than 9. (2 Marks)
- iii) The expected number of orders and standard deviation. (6 Marks)

**QUESTION FIVE (20 MARKS)**

- a) Distinguish the following terms:
  - i. Mutually exclusive and independent events. (2 Marks)
  
- b) A bag contains 20 balls marked 1 to 20. One ball is drawn at random. What is the probability that it is marked with a number:
  - i) Multiple 5 or 7. (4 Marks)
  - ii) Even number. (2 Marks)
  
- c) Briefly discuss the properties of a Bernoulli trials. (4 Marks)
  
- d) Hospital records show that of patients suffering from a certain disease, 25% die from it. What is the probability that of 6 randomly selected patients:
  - i) Exactly 4 will die ( 2 Marks)
  - ii) Exactly four will recover (3 Marks)
  - iii) At least one die. (3 Marks)

END