Mount Kenya University

MOUNT KENYA UNIVERSITY

University Examination 2019/2020

School of pure and applied sciences

Department of Physical and Mathematical Sciences

BSS/BSNE/BEDA

UNIT CODE:BMA 1210 UNIT TITLE:EXPLORATORY DATA ANALYSIS

MAIN EXAM. TIME:2 HOURS

INSTRUCTIONS: Attempt question one ( compulsory) and ANY other TWO questions

SECTION A

QUESTION 1(30 MARKS)

(I).Define the following terms; (2marks each)

(a)Statistics

(b)Population

©Sample

(d)Correlation

(e)Data

(II).From the following data set 61,64,67,70,73 which describes the scores given to different restaurants from an health officer after inspection,determine the following:

1. Kurtosis. (5 Marks)
2. Skewness. (5 Marks)

III).A group of 8 accountancy students are tested in Quantitative Techniques and Law II.Their rankings in two tests were;

|  |  |  |  |
| --- | --- | --- | --- |
| A.  B | 2  7 | 3  6 |  |
| C.  D. | 6  1 | 4  2 |  |
| E.  F | 4  3 | 5  1 |  |
| G | 5 | 8 |  |
| H | 8 | 7 |  |

Student. Q.T.ranking Law II ranking

Find the Rank correlation coefficient and comment on it. (6 Marks)

IV).List the methods of collecting data. (4 Marks)

SECTION B

QUESTION 2 ( 20 MARKS)

I).Differentiate the following data types by definition and also give an example of each (9 marks)

(a)Numerical and non- numerical

( b)Discrete and continuous

©Ordinal and nominal

II).Using your understanding of data presentation, present the following information in a suitable chart. (6 Marks)

The data represent the consumption of fruits for breakfast from a particular resort.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| FRUIT | APPLES | ORANGES | BANANA | KIWI FRUIT | BLUEBERRY | GRAPES |  |  |
| MALE | 35 | 30 | 25 | 15 | 35 | 10 |  |  |
| FEMALE | 40 | 45 | 10 | 25 | 40 | 25 |  |  |

III)A police authority conducts an eight week experiment.In each week it records the number of foots patrols,x,made in a small gated community and the number of reported crimes, y,in that community.

The summarized data is as follows.

Mean of x-:52. Mean of x²-:380. Mean of xy-;1335

Mean of y-:225. Mean of y²-;7007. n-;8

Calculate the Karl Pearson’s correlation coefficient and comment on it (5 Marks)

QUESTION 3 (20 MARKS)

The customer of an import agency are investigating the length of time that customers take to pay their invoices, the normal terms for which are 30 days net. They have checked the payment record of 100 customers chosen at random and have compiled the following table:

|  |  |
| --- | --- |
| Payment in | Number of Customers |
| 5 to 10 days | 4 |
| 10 to 15 days | 10 |
| 15 to 20 days | 17 |
| 20 to 25 days | 20 |
| 25 to 30 days | 22 |
| 30 to 35 days | 16 |
| 35 to 40 days | 8 |
| 40 to 45 days | 3 |

1. Calculate the Arithmetic mean. (5Marks)
2. Calculate the Standard Deviation (5Marks)
3. Find the mode and median. (10 Marks)

QUESTION 4(20 MARKS)

Thirty AA batteries meant to be used in flash lights at small bed and breakfast facility for any emergency power shortage were tested to determine how long they would last. The results, to the nearest minute, were recorded as follows:

423,369,387,411,393,394,371,377,389,409,392,408,431,401,363,391,405,382,400,381,399,415,428,422,396,372,410,419,386,390

Construct

I)A frequency distribution table (10Marks)

ii)A histogram. (5Marks)

ii)Find the quartile deviation. (5 Marks)

QUESTION 5(20 MARKS)

a)Discuss the role of statistics in the different service industries citing examples. (10Marks)

b)Discuss the advantages and disadvantages of measures of central tendency. (10Marks)

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