**GARISSA UNIVERSITY**

**SCHOOL OF BUSINESS AND ECONOMICS**

**BBM 221: BUSINESS STATISTICS**

**END OF SEMESTER EXAMINATION**

**MAY/AUG 2021**

**INSTRUCTIONS**

**ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS.**

**QUESTION ONE 30 MARKS (COMPULSORY)**

1 (a) i).distinguish between probability and non-probability sampling techniques (2marks)

 ii) Explain three mistakes committed in statistics (3marks)

(b) Given the data 10, 15, 20, 30, 7, 36, 14, 42, 15, 52, 25.

Find the

1. Mean (2marks)
2. median, (2marks)
3. Mode (2marks)
4. Range (2marks)
5. Coefficient of Range (2marks)
6. lower quartile and (2marks)
7. upper quartile (2marks)
8. interquartile (2marks)
9. Semi – interquartile . (2marks)

(c) I).Explain three main use of probability in business (3marks)

 II). (i) Consider an experiment of tossing a coin three times. State all the expected possible outcome. (2marks)

 (ii) Let the random variable X be the number of heads and Y be the number of tails obtained. Find probability that:

1. X=2 (1mark)
2. Y=1 (1mark)

**QUESTION TWO (20MARKS)**

1. Using a clearly labeled diagram, show the position of the mode, mean and median of a negatively skewed distribution (6marks)
2. State four reasons why it is important to study a sample instead of the whole population (4marks)
3. Explain three sampling techniques used.in research study (6marks)
4. Differentiate between correlation and regression (4 marks)

**QUESTION THREE (20MARKS)**

1. Explain how the knowledge of statistics may be applied in business situation. (4 marks)
2. Explain three ways of data representation used in an organization (6marks)
3. Find the range and coefficient of range of the data below (4marks)

30, 35, 20, 85, 60

(c) The concept of index numbers are useful in statistical analysis, Explain three uses.(6marks)

**QUESTION FOUR (20MARKS)**

Given the table below

|  |  |  |
| --- | --- | --- |
| Commodities  | Price in 2020 in kshs | Price in 2021 in kshs |
| Apple  | 35 | 65 |
| Mango  | 30 | 45 |
| Watermelon  | 5 | 10 |

1. Calculate the price index number by i) the simple aggregative index and ii) simple average of relatives methods from the following data (price per kg). (10 marks)
2. State two limitations of the simple aggregative methods. (2marks)
3. The mean of a certain number of observations is 40. If two or more items with values 50 and 64 are added to this data, the mean rises to 42. Find the number of items in the original data.(8marks)

**QUESTION FIVE (20MARKS)**

a) Differentiate between skewness and kurtosis (2marks)

b) Using a well labelled diagram Illustrate the concept of Peakedness (5 marks)

1. Using the data below.

|  |  |
| --- | --- |
| marks | frequency |
| 0 - 10 | 2 |
| 10 - 20 | 7 |
| 20 - 30 | 15 |
| 30 - 40 | 10 |
| 40 - 50 | 11 |
| 50 - 60 | 5 |

Calculate

1. mean (2marks)
2. mode (3marks)
3. median (4marks)
4. mean absolute deviation (4marks)