MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2016/2017

SECOND YEAR FIRST SEMESTER EXAMINATION FOR DEGREE OF BACHELOR OF EDUCATION BED; BACHELOR OF ARTS BA; BACHELOR OF BUSINESS ECONOMICS BE AND BACHELOR OF SCIENCE BSc. WITH INFORMATION TECHNOLOGY

MAIN CAMPUS

MMA 104: DESCRIPTIVE STATISTICS

Date: 9th December, 2016 Time: 3.30 - 6.30pm

INSTRUCTIONS:

- Answer Question ONE and any other TWO.

Question 1 [Compulsory – 30 marks]

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a) Giving relevant examples, define the following terms. **[8 Marks]**
   i) Population
   ii) Sample
   iii) Quantitative variable
   iv) Discrete variables

b) Explain four types of scales of measurements.**[4 Marks]**

c) Different approaches are used in descriptive statistics for categoricaland continuous variables according to their appropriateness. Write two examples of statistics used in describing categorical variables and three examples of describing continuous variables. **[5 Marks]**

d) In descriptive statistics, diagrammatic and graphic representation of statistical data has a number of advantages over numerical methods. Justify this statement.

[5 Marks]

e) As the name quartile suggests, data is divided into four equal parts; using diagrams differentiate between 1st and 3rd quartile. **[4 Marks]**

f) Outliers in a data areextreme values which could beexpected or are correct but unexpectedor mistakes.Explain how you would handle outliers in your data set.

[2 Marks]

g) Tabulation is one of the most important and ingenious device of presenting data in a condensed and readily comprehensible form. What is tabulation? **[2 Marks]**

Question 2 [Optional – 20 Marks]

a)For a certain frequency table which has been partly reproduced here, the mean was found to be 1.46.

No. of accidents	0	1	2	3	4	5	Total
Frequency	46	-	-	25	10	5	200

Calculate the missing frequencies. **[6Marks]**

b) The following is the distribution of marks in MMA 104 test done by 50 students:

Marks (more than)	0	10	20	30	40	50
No. of students	50	45	40	20	10	3

i) Calculate the median marks **[6 Marks]**

ii) If 60 per cent of the students pass this test, find the minimum marks obtained by a pass candidate. **[8Marks]**

Question 3 [Optional – 20 Marks]

a) Using the following data set of ages of patients in an hospital in Kenya, answer the following questions. **[10 Marks]**

Class	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80
Frequency	5	15	25	35	45	55	65	75

i) Mean age of patients

ii) Modal age of patients

iii) Median age of patients

b) There are two sets of weights of students, group A and group B. Calculate and compare the variance and standard deviation of the two sets of data **[10 Marks]**.

A: 5648 6360 51 5248 56 64 52

B: 4220 8060 30 100 62 40 86 36

Question 4 [Optional – 20 Marks]

A) Differentiate between Descriptive statistics and inferential statistics. **[4 Marks]**

B) Describe three measures of central tendencies and three measures of variability. **[6 Marks]**

C) Mode is the value which occurs most frequently in a set of observations and around which the other items of the set cluster densely. Explain merits and demerits of using mode in descriptive statistics. **[10 Marks]**

Question 5 [Optional – 20 Marks]

a) What is coefficient of variation? **[2 Marks]**

b) The arithmetic mean of runs scored by three batsmen; Tonny, Kamau and Target in the same series of 10 innings were 50, 48 and 12 respectively. The standard deviations of their runs were15, 12 and 2, respectively. Who was the most consistent of the three? If one of the three was to be selected, who could have been selected? Why? **[6 Marks]**

c) Pearson's coefficient of skewness for a distribution is 0.4 and its coefficient of variation is 30%. If its mode is 88, find the mean and median. **[4 Marks]**

d) i) Explain the concept of skewness. Draw the sketch of non-skewed frequency distribution and show the position of the mean, median and mode when distribution is symmetric. **[4 Marks]**

ii) Show graphically the positions of mean, median and mode in a positively and negatively skewed series **[4 Marks]**