TECHNICAL UNIVERSITY OF MOMBASA

SCHOOL OF BUSINESS

DEPARTMENT OF MANAGEMENT SCIENCE

UNIVERSITY EXAMINATION FOR:

BACHELOR OF SCIENCE IN DEVELOPMENT STUDIES, BACHELOR OF COMMERCE, BACHELOR IN BUSINESS ADMINISTRATION, BACHELOR OF BUSINESS AND OFFICE MANAGEMENT, BACHELOR OF BUSINESS INFORMATION TECHNOLOGY

BMS 4201: BUSINESS STATISTICS

END OF SEMESTER EXAMINATION

SERIES:DECEMBER2016

TIME:2HOURS

DATE: Dec 2016

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attemptquestion ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

Question ONE

i) The following are the monthly salaries received by workers in a certain factory.

22 73 52 65 34 46 25 36 43 61 72 23 50 46 64 72 68 55 61 75 67 27 58 66 70 49 60 77 64 21 53 35 60 57 66 73 75 78 79 37 48 45 61 63 71 67 76 68 59 60

a) Organize the data in a frequency distribution table with 20 – 29 as the first class, 30 – 39 as the second class and so on. (12 Marks)

b) Obtain the percentage frequency in each class interval. (3 Marks)

c) Construct a less than cumulative frequency distribution. (3 Marks)

d) Use the frequency distribution table in part (a) to determine the arithmetic mean. (3 Marks)

e) The factory gives bonuses of Ksh 10, 15, 20, 25, 30, and 35 for individuals in the salary groups 20 -29,30-39 and so on up to the highest salary group respectively. Find the total bonus paid by the factory. (3 Marks)

ii) With the aid of suitable examples, explain the meaning of the following terms as used in Statistics.

a) Quantitative variable (3 Marks)
b) Qualitative variable (3 marks)

Question TWO

(a) Define the following terms as used in probability theory:

(i) Mutually exclusive events (2 marks)
(ii) Sample space (2 marks)
(iii) Compound events (2 marks)

(b) Distinguish between a discrete variable and a continuous variable. (4 marks)

(c) The following data relates to the distribution of employees of XYZ Company Ltd. in terms of job grade.

	Clerical grade	**Administrative grade**
Male	40	26
Female	16	18

Required:

(i) The probability that an employee selected at random is in the administrative grade. (2 marks)
(ii) The probability that an employee selected at random is in the clerical grade. (2 marks)
(iii) The probability that an employee selected at random is female. (2 marks)
(iv) The probability that an employee selected at random is male given that the employee is in administrative grade. (2 marks)
(v) The probability that an employee selected at random is female given that the

employee is in clerical grade. (2 marks)

Question THREE

a) The frequency distribution below shows the mass of some flowers produced in a farm off Limuru road in the month of October 2016.

Mass (Kg)	Frequency (f)
30-40	7
40-50	14
50-60	22
60-70	13
70-80	6
80-90	11

Required

a) The Arithmetic Mean (4 Marks)

b) The Median (3 Marks)

c) The Mode (3 Marks)

d) Standard deviation (6 Marks)

e) The Variance (2 Marks)

f) The coefficient of variation. (2 Marks)

Question FOUR

a) Briefly explain the difference between Primary data and Secondary data. (4 Marks)

b) Explain any two methods of collecting primary data. (4 marks)

c) State and explain the four types of scales of measurement. (8 marks)
d) State the scale of measurement the following can be classified into
   i. The mass of a bull
   ii. The length of time spent in a restaurant
   iii. The type of vehicle driven by a celebrity.
   iV Rooms 201-230 at the Hilton Hotel, which has only 150 rooms. (4 Marks)

Question FIVE

Dr Mikasa, an agronomist, believes that over a limited range of fertilizer application levels (in litres per hectare) there is a prediction of crop yield in Kilograms that may be obtained. After conducting his experiments he observes the following relationship:

Fertilizer application levels (Litres per Hectare) x	Crop yield in Kg per Hectare y
14	68
23	105
9	40
17	79
10	81
22	95
5	31
12	72
6	45
16	93

a) Construct a scatter diagram for the data and comment on the relationship between X and Y

b) Use the method of linear least squares to find the estimated linear regression equation.

c) What is the meaning of the slope of this regression line?

d) From your estimate: What levels of fertilizer application are required to obtain 60 kg

(20 Marks)