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 set of data represents a frequency distribution of the number of foreign exchange transactions conducted by a Bank over 250 working days.

Number of transactions	Frequency
0 - 4	5
5 – 9	55
10 – 14	150
15 – 19	18
20 – 24	12
25 – 29	7
30 - 34	3

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)

ii) The sampling techniques most commonly used in business can be split into two categories. List these two categories. (2 Marks)

ii) Give any four reasons why sampling method may be preferred to census method. (8 Marks)

Question TWO

a) i) A manufacturer makes ball pens. The manufacturer employs an inspector to check the quality of his product. The inspector tested a random sample of the pens from a large batch and calculated the probability of any pen being defective as 0.25.

Calculate the probability that a pen selected at random is not defective. (2 Marks)

ii)Peter buys two of the pens made by the manufacturer

- Draw a tree diagram to illustrate the information (2 Marks)
- Calculate the probability that both pens are defective. (2 Marks)
- Calculate the probability that exactly one of the pens is defective. (2 Marks)

b) The prices in Kshs per Kg and consumption in tones of some retail products in a certain region between 2014 and 2015 were as shown in the table below;

Product	2014		2015	
	Price	Quantity	Price	Quantity
A	2	40	5	80
B	4	20	8	50
C	4	10	4	25
D	5	20	10	60
E	8	75	12	90

Using 2014 as the base year, calculate the following

j) Paasches price index

ii) Laspeyres price index

iii) Fishers ideal price index (12 Marks)

Question THREE

The following data show the number of tourist bookings per week at two coastal beach hotels:

Hotel Ocean: 86, 90, 85, 60, 70, 50, 90, 65, 44, 30, 54, 60.
Hotel Sea: 25, 37, 15, 48, 100, 36, 40, 62, 87, 20, 60, 50

Required:

(i) The arithmetic mean number of bookings for each hotel. (6 marks)

(ii) The median of the bookings for each hotel. (4 marks)
(iii) The range of the bookings for each hotel. (2 marks)
(iv) The interquartile range of the bookings for each hotel. (6 marks)
(v) Compare the performance of the two hotels based on the results obtained in c(i) and c(iii) above. (2 marks

Question FOUR

a) The table below shows the distribution of the weight of students in a class of 100.

Weight (Kg)	No. of students
30 – 39	5
40 – 49	10
50 – 59	35
60 – 69	28
70 – 79	13
13 80– 89	9

i) Represent the above data on a histogram (4 marks)

ii) Construct a less than Ogive for the distribution (4 marks)

iii) Use the ogive to estimate the lower and upper quartiles. (4 marks)

b) The following data give the actual sales of a company in each of the 8 regions of a country together with the forecast of sales.

REGION	**Actual sales(Sh. 'million')**	**Forecast of sales**
A	15	16
B	19	19
C	30	26

D	12	14
E	58	65
F	10	18
G	23	27
H	17	22

Required:

(i) Calculate the rank correlation coefficient between actual sales and forecast of sales. (6 marks)

(ii) Comment on the degree of correlation between actual sales and forecast of sales. (2 marks)

Question FIVE

Clearly explain how sampling can be conducted using the methods stated below. In each case illustrate your answer with a practical example.

a) Simple random sampling (5 Marks)
b) Systematic random sampling (5 Marks)
c) Stratified random sampling (5 Marks)
d) Cluster sampling (5 Marks)