TECHNICAL UNIVERSITY OF MOMBASA

SCHOOL OF BUSINESS

DEPARTMENT OF MANAGEMENT SCIENCE

UNIVERSITY EXAMINATION FOR:

BACHELOR OF SCIENCE IN TOURISM MANAGEMENT, BACHELOR OF JOURNALISM AND MASS COMMUNICATION, BACHELOR OF COMMERCE, BACHELOR OF BUSINESS ADMINISTRATION, BACHELOR OF TECHNOLOGY IN HOTEL AND HOSPITALITY MANAGEMENT.

BMS 4201: BUSINESS STATISTICS

END OF SEMESTER EXAMINATION

SERIES: APRIL2016

TIME: 2HOURS

DATE: 9 May 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

(a) Differentiate between the following terms as used in statistics.

(i) Descriptive statistics and inferential statistics. (4 marks)

(ii) Population parameter and sample statistic. (4 marks)

(b) The table below shows the number of units sold by XYZ Limited for a 40 day period.

71	54	55	43	64	78	56	63	45	41
53	64	63	52	63	38	74	61	84	49

51	72	73	75	74	66	64	67	57	40
58	61	67	53	36	48	46	65	68	35

Required:

(i) Construct a grouped frequency distribution table of the data above, beginning with class 35 – 39 and using a class width of 5. (6 marks)

(ii) Use the frequency distribution to compute

(a) The arithmetic mean (4 marks)

(b) The median (3 marks)

(c) The mode (3 marks)

(c) In two factories A and B engaged in the same industry, average weekly wages and standard deviations in shillings are as follows:

Factory	**Average weekly wage**	**Standard Deviation**	**Number of wage earners**
A	460	50	100
B	490	40	80

Required:

(i) What is the arithmetic mean of the wages for all the workers in two factories taken together? (3 marks)

(ii) Which factory shows greater variability in the distribution of wages? (3 marks)

Question TWO

The data below show the profits realized by 100 companies in the Agricultural sector and 100 companies in the manufacturing sector for the year ended 31 December 2014.

	Number of companies	
Profit (millions)	**Agricultural Sector**	**Manufacturing sector**
50 – 60	9	8
60 – 70	15	6
70 – 80	28	18
80 – 90	34	14
90 – 100	6	32
100 – 110	6	12
110 - 120	2	10

Required:

(a) Construct Lorenz Curves of the agricultural and manufacturing sectors on the same axes.

(16 marks)

(b) Comment on the dispersion of the profit realized by the companies as illustrated by the Lorenz Curves obtained in (a) above. (4 marks)

Question THREE

The table below shows the distribution of the number of orders received by a supplier on a weekly basis.

Number of orders	**Frequency**
23 – 29	4
30 – 36	9
37 – 43	6
44 – 50	8
51 - 57	3

Required:

(a) The arithmetic mean (4 marks)

(b) The Standard deviation (6 marks)

(c) The median (3 marks)

(d) The interquartile range of the distribution (5 marks)

(e) The coefficient of variation (2 marks)

Question FOUR

(a) Ten competitors in a voice test are ranked by three judges in the order given below:

	A	B	C	D	E	F	G	H	I	J
1st Judge	7	5	10	3	2	1	8	9	4	6
2nd Judge	8	7	9	4	2	3	10	5	6	1
3rd Judge	9	6	1	2	10	7	4	8	5	3

Required:

Use rank correlation to determine which pair of Judges has the nearest approach to voice preference. (16 marks)

(b) Explain the difference between regression and correlation analysis. (4 marks)

Question FIVE

(a) Give the meaning of the following terms as used in probability theory.

(i) An event

(ii) Elementary event (4 marks)

(b) An auditor has a file containing ten invoices. Four of the invoices have errors. She selects two invoices randomly one at a time.

Required:

(i) The probability that the first invoice selected has an error. (2 marks)

(ii) The probability that the first invoice selected has no error. (2 marks)

(iii) A probability tree showing the selections. (4 marks)

(iv) The probability that both invoices selected have errors. (2 marks)

c) i) What is simple random sampling? (2 marks)

ii) Suppose a population consists of 800 employees of Technical University of Mombasa. A sample of 40 employees is to be selected from that population. Cleary explain how sampling can be done using simple random sampling. (4 marks)