TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Business and Social Studies

DEPARTMENT OF BUSINESS STUDIES

UNIVERSITY EXAMINATIONS FOR DEGREE PROGRAMMES

BMS 4201: BUSINESS STATISTICS/STATISTICS FOR MASS COMMUNICATION

END OF SEMESTER EXAMINATIONS
SERIES: APRIL 2015
TIME: 2 HOURS

INSTRUCTIONS:

- Answer Question **ONE (Compulsory)** and any other **TWO** questions.
- Do not write on the question paper

This paper consists of Five printed pages

QUESTION 1 (Compulsory)

a) Distinguish between the following terms as used in statistics:
   i) A population and a sample. **(4 marks)**
   ii) A parameter and a statistic. **(4 marks)**

b) A recent study concerning the first salaries (in sh. '000' per month) of a sample of Bachelor of Commerce graduates produced the following data:
   74, 111, 88, 125, 71, 80, 92, 109, 119, 78, 99, 115, 118, 126, 128, 93, 88, 84, 121, 116, 77, 95, 112, 97, 114, 113, 73, 98, 125.

   Required:
   i) Use these data to construct a grouped frequency distribution. **(6 marks)**
   ii) Use your solution in part b (i) to construct a less then cumulative frequency distribution. **(2 marks)**

c) Wakesho has been examining the amount of daily expenditure on food and other household items incurred by the Bahati Estate families for the past six months and has created the following frequency distribution.

Expenditure (sh. '000')	Number of families
5 – 10	8
10 – 15	9
15 – 20	15
20 – 25	11
25 – 30	6
30 – 35	3
35 - 40	2

Required:

Calculate

i) The arithmetic mean **(3 marks)**

ii) The median **(3 marks)**

iii) The mode **(3 marks)**

d) The following table shows the number of students who registered in different courses offered at a commercial college for a period of 4 years.

Course	2011	2012	2013	2014
CPA	60	80	85	80
ATC	40	30	25	50
BA	70	90	100	80
BCOM	30	60	40	90

Required:

Present the above information in a suitable component bar chart.

(5 marks)

QUESTION 2

a) Explain the difference between regression and correlation analysis. **(6 marks)**

b) A bakery bakes cakes under the brand name super cakes. Irene Wekesa, the manager does not know the cost of each cake. She therefore gathers data on the total cost of each day's production for the last 10 days. The results are shown in the table below:

Day Number of cakes	Total cost (sh.)
22.5	230
21	216
27.5	233

21.5	240
30	282
20	224
24	231
26.5	253
18.3	201
17.0	165

Required:

i) Identify the dependent and the independent variable. (2 marks)

ii) Assuming a liner relationship of the form $Y = a + bx$, use the least squares method to find the regression coefficients a and b.

iii) State the fixed cost and the unit cost.

iv) Predict the total cost for a day on which the number of cakes baked is 28.

QUESTION 3

a) Using appropriate diagrams, distinguish between positively skewed and negatively skewed distribution. **(4 marks)**

b) The following distribution give the pattern of overtime work done by 100 employees of a commercial organization during the month of July 2014.

Overtime hours of work	**Number of employees**
10 – 15	11
15 – 20	20
20 – 25	35
25 – 30	20
30 – 35	8
35 - 40	6

Required:

Compute the following measures:

i) Standard deviation. **(6 marks)**

ii) Lower quartile **(2 marks)**

iii) Upper quartile **(2 marks)**

iv) Inter quartile range **(2 marks)**

v) Coefficient of skewness **(4 marks)**

QUESTION 4

a) Briefly explain any **FOUR** uses of consumer price index. **(8 marks)**

b) The following figures show the mean market price of three major categories of livestock and the number during 2009 to 2011.

Livestock	**Price sh.**			**Number sold**		
	2009	**2010**	**2011**	2009	2010	**2011**
Cattle	19,000	22,000	23,000	26	28	25
Goat	1,700	2,100	2,400	8	9	10
Sheep	1,850	2,300	2,500	2	2	3

The year 2009 is selected as the base year.

Required:

i) Laspeyre's price index for each of the two years, 2010 and 2011. **(6 marks)**

ii) Paasche's price index for each of the two years, 2010 and 2011. **(6 marks)**

QUESTION 5

a) Distinguish between primary data and secondary data. **(4 marks)**

b) Explain the following terms in the context of probability theory. Give an example in each case:

i) Mutually exclusive events. **(3 marks)**

ii) Independent events. **(3 marks)**

c) The following table shows the number of male and female students taking various specialization options from a sample of final year students at the Technical University of Kenya.

	Male (M)	**Female (F)**	**Total (T)**
Accounting (A)	40	30	70
Finance (N)	32	44	76
Procurement (P)	24	20	44
Total	96	94	190

Required:

i) The probability that a student picked randomly from this group is male. **(2 marks)**

ii) The probability that a student picked randomly from this group is specializing in procurement. **(2 marks)**

iii) The probability of picking a male student given that the student is taking the accounting option. **(2 marks)**

iv) The probability that a student chosen at random is both female and is taking accounting option. **(2 marks)**

v) The probability that a student picked at random is female or is specializing in finance. **(2 marks)**