JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF BUSINESS & ECONOMICS

UNIVERSITY EXAMINATION FOR THE DIPLOMA IN BUSINESS ADMINISTRATION

2ND YEAR 1ST SEMESTER 2018/2019 ACADEMIC YEAR

MAIN CAMPUS

COURSE CODE: BBM 2216

COURSE TITLE: STATISTICS AND QUANTITATIVE METHODS IN BUSINESS

EXAM VENUE:

DATE:

DURATION: 2 HOURS.

INSTRUCTIONS

1. **Answer QUESTION ONE and any other TWO questions**
2. **Show ALL your workings.**
3. **Candidates are advised not to write on the question paper**

QUESTION ONE (30 MARKS)

a) Define the following terms.
   i) Statistics (2 mks).
   ii) Hypothesis (2 mks).
   iii) Variable (2 mks)

b) State the levels of measurement. (4 mks)

c) Distinguish between;
   i) Time series and cross sectional data (4 mks)
   ii) Descriptive statistics and inferential statistics (4 mks)
   iii) Population and a sample (4 mks)
   iv) Regression and correlation (4 mks)

d) State FOUR applications of probability in business (4 mks)

QUESTION TWO

a) State and explain four users and their use of statistical data (4 mks)

b) The following is the distribution of salaries of 62 employees in a financial institution;

Salary (sh."000")	Number of employees
Less than 20	3
20 – 29	5
30 – 39	8
40 – 49	8
50 – 59	12
60 – 69	9
70 – 79	7
80 – 89	4
90 – 99	4
Above 99	2

Required;
   i) The modal salary (4 mks)
   ii) Median Salary (4 mks)
   iii) State two advantages and the limitation of the mode as a measure of central tendency (3 mks)

c) State **FIVE** applications of statistics in business. (5 mks)

QUESTION THREE

a) The data below shows the net profit (loss) and share prices of a sugar processing company in Kenya over a five year period.

Year	Net profit (loss) sh.	Share price (sh.)
2013	(2,000,000)	3
2014	980,000	5
2015	1,200,000	8
2016	(500,000)	4
2017	(150,000)	2

Required:

i)   Karl Pearson's coefficient of correlation (r).   (8 mks)

ii) Interpret the value of r.   (2 mks)

b) Amanufacturing company produces a certain product whose information is given below.

Output (x) units "000"	Expenditure on Energy (y) ksh "000"
20	106
22	138
25	158
26	172
21	120
23	142
28	184
20	102
25	164
29	192

Required:

i)   Fit a predictive line of Y on X.   (8 mks)

ii) What will be the level of expenditure if the planned output is 27,000 units and 34,000 units?   (2 mks)

QUESTION FOUR

a) The following data shows weekly sales of a company:

Week	1	2	3	4	5	6	7	8
Sales (sh 000)	452	385	401	298	500	480	358	468

Required:

Given exponential smoothing constants (α) of 0.1 and 0.5, forecast the sales of the 9th week.   (10 mks)

b) Define Type I and Type II errors in hypothesis testing   (4 mks)

c) Distinguish between qualitative and quantitative variables   (4 mks)

d) Explain the limitations of statistical data   (2 mks).

QUESTION FIVE

a) A manufacturer has available 3 machine operators. The first and most experienced operator A, produces defective items only 1% of the time, whereas the other two operators B and C have defective rates of 5% and 7% respectively. The experienced operator is on the job 50% of the time, B works 30% of the time and C , 20%. A defective item is produced. What is the probability that it was produced by operator A?

(10mks)

b) Consider an investment project that is likely to yield an average cash inflow of £500. The past accounting data indicate that variability of returns / cash flow over time has always been £ 60.

Required; Determine the following probabilities;

i)   The cash flow will be less than £ 420.   (2 mks)

ii)   The cash flow will be more than £ 560.   (2 mks)

iii)   The cash flow will lie between £ 460 and £ 540.   (4 mks)

iv)   The cash flow will be more than £ 680.   (2 mks)