



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF MATHEMATICS AND ACTUARIAL SCIENCE

**UNIVERSITY EXAMINATION FOR DEGREE OF BACHELOR OF EDUCATION
AND ACTUARIAL SCIENCE**

2ND YEAR 1ST SEMESTER 2018/2019 ACADEMIC YEAR

MAIN CAMPUS

COURSE CODE: SMA 3221

COURSE TITLE: STATISTICS

EXAM VENUE:

STREAM: ENGINEERING

DATE:

EXAM SESSION:

TIME: 2.00 HOURS

Instructions:

- 1. Answer question one (compulsory) and any other two questions.**
- 2. Candidates are advised not to write on the question paper.**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room.**

QUESTION ONE (30 marks)

a) State and explain two branches of statistics (4marks)

b) Define the following terms as used in statistics

i) Data (2marks)

ii) Population (2marks)

iii) Sample (2marks)

c) i) Calculate the arithmetic mean of following ungrouped data:

20, 18, 15, 15, 14, 12, 11, 9, 7, 6, 4, 1 (3marks)

d) Using the data in the table below, draw a suitable pie chart

Year	1990	1991	1992	1993	1994
Amount of export	60	170	150	190	220

(4marks)

e) The frequency distribution table for weekly wages in pounds of workers in a particular company is given below

Weekly wages	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89
Frequency	5	4	9	6	8	10	8	3

Find:

i) Class boundaries for the table (2marks)

ii) Class width (1mark)

iii) Class mark for the 4th class (1mark)

iv) Class limit for the 6th class (1mark)

f) The data below shows the salary (\$) scale of a certain company

5000, 15000, 25000, 35000, 45000, 55000

Determine the:

i) mean (1mark)

ii) mean absolute deviation (2marks)

iii) variance (2marks)

iv) Standard deviation (1mark)

v) coefficient of variation (2marks)

QUESTION TWO (20 marks)

- a) The following table shows the distribution of marks in percentages scored by a class of forty students in a promotion examination.

Marks	20-29	30-39	40-49	50-59	60-69	70-79	80-89
Students	6	5	7	10	5	4	3

Use the data to compute

- i) Modal class (1mark)
 - ii) mean (4marks)
 - ii) median (5marks)
- b) The following scores obtained by forty students who sat for SMA 3221 examination in JOOUST University.

56, 20, 45, 70, 50, 49, 62, 39, 41, 65, 25, 76, 59, 48, 55, 57, 71, 49, 42, 44, 63, 60, 40, 45, 50, 31, 35, 21, 58, 56, 54, 56, 63, 30, 39, 28, , 49, 53, 64, 66

Construct a frequency distribution having 6 classes for these data. Hence present the grouped data as a frequency polygon. (10 marks)

QUESTION THREE (20 marks)

- a) i) State and explain four uses of statistics (8marks)
- ii) Outline two limitations of statistics (2marks)
- b) i) What is the importance of graphs in statistical data (1mark)
- ii) State and explain two types of graphs (4marks)
- iii) A set of data was obtained and recorded below.
10, 10, 15, 25, 26, 13, 37, 24, 19, 45, 46, 12, 19, 36, 38, 18, 26, 48, 14, 24, 35, 33, 20, 48, 34, 33, 29, 16, 39, 46
Draw a histogram for this data (5marks)

QUESTION FOUR (20 marks)

- a) i) Distinguish between primary data and secondary data (2marks)
ii) List three methods of collecting primary data (3marks)
iii) Outline three merits and two demerits of direct personal interview (5marks)
- b) From the data given below:
30,33,24,28,20,17,25,39,34,42
Calculate the:
- i) Mean (2marks)
ii) variance (6marks)
iii) Standard deviation (2marks)

QUESTION FIVE (20 marks)

- a) From the data given below:

Marks	60-62	63-65	66-68	69-71	72-74
Frequency	5	18	42	21	8

Find:

- i) Range (2marks)
ii) Lower quartile, Q_1 (3marks)
iii) Upper quartile, Q_3 (3marks)
iv) Semi-inter-quartile range (2marks)

- b) In an objective test marked out of 40, the marks scored by 35 students out of 40 are given in the table below:

Marks (%)	1-5	6-10	11-15	16-20	21-25	26-30
No. of students	2	7	12	8	5	1

Use this data to:

- i) Calculate the mode (4marks)
ii) Plot a cumulative frequency curve (6marks)