



TECHNICAL UNIVERSITY OF MOMBASA

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

SOCIAL SCIENCES

UNIVERSITY EXAMINATION FOR:

DIPLOMA

Type unit code: BUSINESS STATISTICS

END OF SEMESTER EXAMINATION

SERIES: APRIL 2016

TIME: 2 HOURS

DATE: Pick Date 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. Attempt question ONE (Compulsory) and any other **TWO** questions.

Do not write on the question paper.

Question ONE

- a) What do you understand by the word statistics? (2mks)

- b) Statistics plays an important role in all fields of life. Explain any four importances of statistics. (8mks)

- c) Explain and differentiate the following terms as used in statistics:
 - (i) Descriptive Statistics

 - (ii) Inferential Statistics (4mks)

d) The following frequency distribution summarizes the length of time taken by workers to travel to work in a community based organization in a month.

<i>Time taken to travel</i>	<i>No. of workers</i>
0 -5hrs	5
5 -10hrs	12
10 -15hrs	20
15 -20hrs	26
20 - 25 hrs	10
25 -30 hrs	10
30 -35hrs	7
35 - 40 hrs	7
40 - 45 hrs	3

- i. Construct a histogram (3mks)
- ii. Calculate the average(mean) hours of travel and the standard deviation (3mks)

Question TWO

a) Differentiate between variables and statistics (2mks)

b) A student obtained the mean and standard deviation of 100 observations as 40 and 5.1 respectively. It was later discovered that he had wrongly copied down an observation 50 instead of 40. Calculate the correct mean and standard deviation. (10mks)

c) Calculate the spearman rank coefficient of correlation between marks assigned to ten students by Judge X and Judge Y in a competitive test.

Student	Judge X	JudgeY
1	52	65
2	53	68
3	42	43
4	60	38

5	45	77
6	41	48
7	37	35
8	38	30
9	25	25
10	27	50

(8mks)

Question THREE

Consider the following frequency distribution of marks scored by 50 students in a statistics exam.

Marks	No. of students
0-10	4
10-20	6
20-30	12
30-40	20
40-50	8

- Construct a histogram showing the marks of 50 students in the statistics exam.(5mks)
- Use the histogram in (a) above for graphical location of the mode (approximate the value of the mode on the graph).(5mks)
- Winners in a charity drew the following numbers.

Table 1

14	08	14	26	34	26	33	42	46
09	56	49	46	28	54	66	04	56
63	32	28	42	48	24	46	12	32
24	24	46	62	22	64	08	16	07
36	46	36	44	36	56	12	42	12

The numbers drawn won the following prizes:

Table 2

Prize won	Numbers between
1000	0 but less than 10
2000	10 " " " 20
3000	20 " " " 30
4000	30 " " " 40
5000	40 " " " 50
6000	50 " " " 60
7000	60 " " " 70

- i. Calculate the mean prize won(4mks)
- ii. Compute the modal prize won (use table 2)(3mks)
- iii. By using table 2, calculate the median prize won (3 mks)

Question FOUR

A. The total monthly wage and variance of monthly wage (Ksh) are given for three factories A, B and C.

FACTORY	NO. OF WORKERS	TOTAL MONTHLY WAGE BILL	VARIANCE OF MONTHLY WAGE
A	100	250,000	40,000
B	120	336,000	62,500
C	150	412,500	67,600

i. Find the pooled(combined) mean and pooled(combined) standard deviation **(6mks)**

ii. Which factory has better consistent salary structure? **(4mks)**

B.The information below shows marks scored by 50 students in Research methods

Marks	No. of students
0-10	4
10-20	6
20-30	12
30-40	20
40-50	8

a) Construct a cumulative frequency curve showing marks for 50 students in a Research methods Exam.(5mks)

b) Use the cumulative frequency curve (above) to graphically locate or estimate the value of the median for a grouped frequency distribution.(5mks)

Question FIVE

a) The following data is available from a certain company

Advertising expenditure (ksh '000)	Sales Revenue (ksh'000)
1	2
2	5
3	7
4	8
5	9
6	11

Estimate the regression equation (line).Determine sales Revenue when advertising expenditure is ksh 9000.(10mks)

b) A newly appointed sales executive requested the sales manager to provide her with a more enhanced budget. To justify her claim, she provided the following information to show the relationship between advertising expenses and sales volume.

Advertising expenses (ksh '000)	Sales Volume (Ksh '000)
1	2
2	4
3	5
4	4
5	6
6	8
7	11

Compute the Karl Pearson correlation coefficient and based on the value, is the sales executive request justified? (10MKS)