UGANDA MARTYRS UNIVERSITY
FACULTY OF BUSINESS ADMINISTRATION AND MANAGEMENT

BUSINESS STATISTICS

Examination

2017-2018

RUBAGA CAMPUS

Date: 8/8/2018
Duration: 3 hours

Instructions

(i) Do not write anything on the question paper.

(ii) Attempt any four questions.

(iii) Show all workings, they must be clear and tidy.

Question 1

The table below shows the weights of first year students of UMU in 2018/2019 academic year who under went medical examination at the sick bay.

Weight (kg)	Number of students
40 - 44	3
45 - 49	10
50 - 54	16
55 - 59	10
60 - 64	4
65 - 69	5
70 - 74	4
75 - 79	6
80 - 84	1

(a) Draw a cumulative frequency curve (less than orgive) for the data **(5 marks)**

(b) Draw a histogram and use it to estimate the modal weight **(8 marks)**

(c) Estimate

(i) Average weight of students in UMU. **(3 marks)**

(ii) Median **(4 marks)**

(iii) Standard deviation of the weight **(5 marks)**

Question 2

Suppose you are appointed a sales manager of a particular brand which has been sold at a substantial reduction in price. You have analyzed the sales figures for the past two years and found that the percentage of sales has increased steadily. You have also gone further by tabulating the sales data by areas of the city and found that the increase in sales has been greatest in areas with higher incomes. Questions have often been raised regarding the consumer acceptance of the brand, for instance whether the consumers can tell the difference between this brand and other related brands. Management has therefore decided that information be collected about consumer acceptance of this brand in the hope that questions such as those given above can be answered.

(a) State with reasons the most appropriate method that can be used to collect the above data. **(10 marks)**

(b) State three other alternatives that could be used in collecting the data clearly giving two merits and demerits for each of them. **(15 marks)**

Question 3

Define the following terms as used in the field of business statistics.

(a) (i) Data **(1 mark)**

(ii) Attribute **(1 mark)**

(iii) Continuous variable **(1 mark)**

(iv) Sampling **(1 mark)**

(v) Population **(1 mark)**

(b) Explain any five characteristics of business statistics. **(10 marks)**

(c) Give five importances of business statistics. **(5 marks)**

(d) Business statistics affects all spheres of life and there are some important areas where its knowledge is applied. Mention any five of such areas. **(5 marks)**

Question 4

The table below shows the percentage preference of nine most popular holiday destinations as sampled by Home to Africa Tours and Travel company for the years 2017 and 2018.

Holiday place	2017(x)	2018(y)
K	90	79
I	80	90
H	78	80
N	78	60
M	50	60
B	40	35
V	30	30
C	20	60
F	10	22

(a) Plot a scatter diagram for the data above. **(5 marks)**

(b) State any observations on the percentage preference of the holiday destinations. **(2 marks)**

(c) Use the least squares regression method to determine a regression line for the observations above. **(12 marks)**

(d) Using the regression equation obtained above, predict the percentage preference of

(i) Holiday place N in 2018 and compute the error associated with the prediction. **(3 marks)**

(ii) Holiday place F in 2018 and compute the error associated with the prediction. **(3 marks)**

Question 5

(a) State any 3 types of statistical diagrams used in assessing non-numerical data. **(3 marks)**

(b) In United States presidential elections, the number of votes got by the three candidates in three states was as follows:

State	Hillary Clinton	Gary johnson	Donald Trump
Alabama	153	109	289
California	195	160	435
Montana	129	126	306

NB: not actual results.

Present the performance of each candidate using:

(i) Component bar chart **(4 marks)**

(ii) Percentage bar chart **(4 marks)**

(iii) Compound bar chart **(4 marks)**

(iv) Present any two observations **(4 marks)**

(c) In a school, there are 750 students in Year 1, 420 students in Year 2 and 630 students in Year 3. Draw a pie-chart graph to represent the numbers of students in these groups. **(6 marks)**

Question 6

The data below shows the weights of luggage to be loaded on an aircraft by Precision Air Services over a certain period of time

7.0	4.1	3.4	5.5	4.5	6.6	7.3	7.7	8.0	3.0
5.0	4.5	7.2	5.0	2.7	7.0	5.5	7.0	8.5	7.0
3.0	5.0	6.0	5.3	4.0	4.5	3.5	5.5	2.0	8.1
2.5	5.1	3.5	6.2	6.0	3.0	4.5	3.5	5.0	8.9
5.3	2.3	2.8	6.5	6.8	5.0	6.5	3.4	3.5	7.6

(a) Beginning with the 2.0 - 2.9 class and using intervals of equal width, construct a frequency for the data **(5 marks)**

(b) Using the frequency table;

(i) Draw a cumulative curve for the data and hence estimate the median and semi inter quartile range **(14 marks)**

(ii) Calculate the mean **(2 marks)**

(iii) Standard deviation **(3 marks)**

(iv) Coefficient of variation **(1 marks)**

END