UGANDA MARTYRS UNIVERSITY

FACULTY OF BUSINESS ADMINISTRATION AND MANAGEMENT

BUSINESS STATISTICS
(SUPPLEMENTARY/ SPECIAL)

Examination

2013 - 2014

BAM I – NKOZI CAMPUS

Date: 08th / 08/ 2014

Time allowed: 3 hours

Instructions

1. Do not write anything on the question paper
2. Attempt any four questions
3. Show all workings and they have to be clear and tidy

QUESTION ONE

1. The table below shows the income of various groups of people in Kampala.

Income earners	Number in millions
2.0-2.9	4.4
3.0-3.9	8.1
4.0-4.9	10.5
5.0-5.9	14.6
6.0-6.9	9.8
7.0-7.9	4.9

a. Draw a cumulative frequency curve for the data **(5marks)**

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

c. Estimate

i. Average of income people in Kampala **(3marks)**

ii. Median **(4 marks)**

iii. Standard deviation of the income **(5 marks)**

QUESTION TWO

2 a) You are a marketing consultant employed by MTN to determine the size of their market size and elicit views and opinions on their service of mobile money.

i. State the steps you would use to compile the information **(7marks)**

ii. Using an appropriate format prepare a questionnaire for the survey **(6marks)**

b) Using appropriate examples write short notes on the following

i. Simple Random Sampling **(3marks)**

ii. Stratified Random Sampling **(3marks)**

iii. Systematic Random Sampling **(3marks)**

iv. Multi stage Random Sampling **(3marks)**

QUESTION THREE

3. a) A battery manufacturer claims that his batteries have a mean life of 8 hrs. When used in a particular model of a calculator. Describe how you would use a significance test to examine the claim. You should explain clearly the hypothesis you would consider. **(5 marks)**

b) A random sample of 12 batteries has a mean life of 7.56hrs, variance of 5.30hrs. Test whether these data would lead to rejection of the manufacturer's claim of 8 hrs. at 5 % significance level **(5 marks)**

c) The income business firms in masaka follow a normal distribution with a mean of 150.3 million and standard deviation of 5million.

Find the probability that a business picked at random form masaka has income;

i. Less than 153million**(3marks)**
ii. More than 158 million**(3marks)**
iii. Between 150 and 158 million**(5marks)**

d) Explain the difference between a Bernoulli distribution and a binomial distribution using relevant examples **(4marks)**

QUESTION FOUR

4 Two judges at a Talent show award the marks in the table below

Judge A	5.8	5.5	5.9	4.9	5.9	5.6	5.0
Judge B	5.5	5.4	5.8	5.3	5.7	5.7	5.7

i. Plot a scatter graph **(5 marks)**

ii. Comment on the two judges awarding of marks **(3 marks)**

iii. Using the least squares method to determine a regression line for the observations above. **(10 marks)**

iv. Using the regression equation obtained above, predict the scores 5.8,and 5.5 and compute the error associated with the prediction **(7 marks)**

QUESTION FIVE

5 a) A certain firms sells flour bags of mean weight 40kg and standard deviation 2kg. given that the weight is normally distributed , find

i. The probability that the weight of any bag taken at random will lie between 41 and 42.5kg**(6marks)**

ii. The percentage of bags whose weight exceeds 43kg**(5\marks)**

iii. The number of bags rejected out of a 500 bag purchase by a retailer whose consumers cannot accepts a bag whose weight is below 38.5kg**(5marks)**

b) Cartons of Fresh diary milk from a particular grocery store in nkonzi trading centre are advertised as containing 1 litre, but in fact the volume of the contents is normally distributed with a mean of 1012ml and standard deviation of 5ml.

i. Find the probability that a randomly chosen carton contains more than 1010mls**(5marks)**

ii. In a batch of 1000 cartons, estimate the number of cartons that contain less than the advertised volume of milk.**(4marks)**

QUESTION SIX

6 The data below shows the amount of money paid out to suppliers by firm 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 **(2marks)**

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

iv. And coefficient of variation **(1mark)**