KABARAK UNIVERSITY

UNIVERSITY EXAMINATIONS
2010/2011 ACADEMIC YEAR

FOR THE DEGREE OF BACHELOR OF COMMERCE

COURSE CODE: BMGT 210

COURSE TITLE: BUSINESS STATISTIC I

STREAM: Y2S1

DAY: THURSDAY

TIME: 2:00 – 4:00 P.M.

DATE: 16/12/2010

INSTRUCTIONS:
1.) Question **ONE** is compulsory. Answer **THREE** questions in total.
2.) Question one carries 30 marks while other questions carry 20 marks each.
3.) Illustrate where possible.

PLEASE TURNOVER

1. (a) Explain **four** ways in which statistics is used in dealing with business/economic issues **(4 marks)**

(b) Distinguish between the following concepts;

    i.) Marginal probability and joint probability **(3 marks)**

    ii.) Descriptive statistics and inferential statistics **(3 marks)**

(c) Evaluate mail questionnaire as a tool of data collection **(5 marks)**

(d) Explain any **four** weaknesses associated with secondary data **(2 marks)**

(e) Giving reasons, state whether you support the following statements:

  (i) A probability sample of workers in a firm may be obtained by taking every tenth name in the firm's payroll list **(2 marks)**

  (ii) A probability sample of households in a state may be obtained by taking every thousandth name from the state's automobile registration directory **(2 marks)**

  (iii) Simple random sampling is only appropriate when the target population is heterogeneous **(2 marks)**

(f) (i) When is coefficient of variation applied? **(2 marks)**

  (ii) Suppose two investments have the following expected returns and standard deviations of returns:

Project	Expected Returns	Standard Deviation
X	Ksh. 50,000	Ksh. 40,000
Y	Ksh. 250,000	Ksh. 125,000

Using coefficient of variation, determine which among the two projects is riskier and why? **(3 marks)**

(d) The mean and standard deviation of two distributions, of 100 and 150 items are 50, 5 and 40, 6 respectively. Find the standard deviation of all the 250 items taken together. **(2 marks)**

2 (a) Why is sampling preferred to complete enumeration (census) in most cases?

(5 marks)

  (b) (i) What is sampling frame? **(1 mark)**

   (ii) What is the importance of sampling frame? **(2 marks)**

   (iii) In the absence of a sampling frame, what option does a researcher have?

(1 mark)

  (c) A local management consultancy firm intends to conduct a survey on the reasons for the decline in business levels for its clients: small scale business entrepreneurs (SSEs). Available information shows that there are approximately 2000 successful small business units in Naivasha. 20% of these business units engage in transport services, 25% are hotels and restaurants, 28% are small scale manufacturers and the rest are engaged in wholesale and retail business.

   i.) Suggest, with reasons, the suitable sampling method for this study

(2 marks)

   ii.) Using the selected sampling method in (i) above, explain how the researcher could obtain a final sample whose size is 40% of the population **(4 marks)**

  (d) Avenue supermarket has been the target of many shoplifters during the past three months but owing to increased security measures, 250 shoplifters have been caught and each shoplifter's gender is noted. Also recorded is whether the offender was a first time offender or repeat offender. The data collected was summarized as:

Sex	First time offender	Repeat offender	Total
Male	60	70	130
Female	44	76	120
Total	104	146	250

Assuming that an apprehended shoplifter is selected randomly, find;

   (i)   the probability that the shoplifter is male   **(1 mark)**

   (ii)   the probability that the shoplifter is a first time offender, given that the shoplifter is male.   **(2 marks)**

   (iii)   the probability that the shoplifter is female, given that the shoplifter is a repeat offender.   **(2 marks)**

3. (a) The data below gives the incomes of the management staff in a manufacturing firm

Incomes ('000)	Workers
140-149	4
150-159	5
160-169	8
170-179	5
180-189	11
190-199	13
200-209	17
210-219	21
220-229	14
230-239	2

   (i) Find the mean, median and mode of the distribution   **(10 marks)**

   (ii) Using the measures in (i) above, comment on the skew   **(2 marks)**

   (iii) Of the three measures, which is the most appropriate in representing the nature of data provided? Give reasons   **(2 marks)**

(b) Compare and contrast variance and standard deviation as measures of dispersion

                                                                          (5 marks)

(c) Why is Range considered as a weak measure of variability?   **(1 mark)**

4. (a) Explain any four uses of index numbers   **(4 marks)**

   (b) Fill in the spaces provided in the following table   **(4 marks)**

Nominal Wage	Consumer Price Index	Real Wage
40000	100	……….
45000	115	……….
47500	130	……….
48000	145	……….
50000	175	……….
56000	210	……….
60000	250	……….

(c) A random sample of 50 households in Nakuru town has been selected to establish a price index for household needs. The average monthly data obtained is as follows;

Item	Prices		Quantities (units)	
	2000	2001	2000	2001
Maize flour	2.00	2.50	10	20
Cabbages/unit	3.00	3.60	5	6
Milk/unit	1.60	2.00	3.5	40
Bread/unit	2.00	2.30	15	20
Butter/unit	10.00	11.00	2.5	2

(i) Calculate and interpret the Laspeyres and Paasche price indexes   **(8 marks)**

(ii) Which of the two indices is better and why?   **(2 marks)**

(iii) Explain any two weaknesses of CPI   **(2 marks)**

5. (a) Explain the following

   (i) Mutually exclusive events   **(2 marks)**

   (ii) Non mutually exclusive events   **(2 marks)**

(b) A firm has tendered two independent contracts. If it estimates that it has a probability of 0.5 of obtaining contract A and probability 0.2 of obtaining contract B, find the probability that the firm;

     i)   Obtains both contracts   **(2 marks)**

     ii)   Obtains neither of the contracts   **(2 marks)**

     iii)   Obtains exactly one contract   **(2 marks)**

(c) The data below shows the incomes of the workers of a small firm in Nakuru town in thousands

6	15	8	4	13	4
3	10	5	3	9	11
5	4	13	12	6	2
3	6	4	5	3	3
9	3	5	11	7	5

    (i) Establish an interval distribution for the above earnings   **(6 marks)**

    (ii) Draw a histogram for the distribution   **(2 marks)**

(d) Explain Snowball sampling   **(2 marks)**