

**KABARAK**



**UNIVERSITY**

**EXAMINATIONS**

**2008/2009 ACADEMIC YEAR**

**FOR THE DEGREE OF BACHELOR OF COMMERCE**

**COURSE CODE: BMGT 210**

**COURSE TITLE: BUSINESS STATISTICS I**

**STREAM: Y3S1**

**DAY: FRIDAY**

**TIME: 11.00-1.00 P.M.**

**DATE: 19/12/2008**

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**INSTRUCTIONS:**

1. Attempt question ONE and any other TWO
2. Question ONE carries 30 marks while the rest carry 20 marks each.

**PLEASE TURN OVER**

1.
  - a) Explain four ways in which statistics is crucial in solving management problems **(3 marks)**
  - b) Distinguish between the following pairs of statistical concepts
    - i) Descriptive statistics and inferential statistics **(3 marks)**
    - ii) A statistic and a parameter **(3 marks)**
    - iii) Validity and reliability in data collection instruments **(3 marks)**
  - c) Explain in detail the following:
    - i) Quantitative research **(4 marks)**
    - ii) Qualitative research **(4 marks)**
  - d) Explain, giving examples various levels of measurement **(8 marks)**
  - e) What is the importance of a sampling frame **(2 marks)**
2.
  - a) As a researcher, what factors would lead you to carry out a sample survey as opposed to carrying out census? **(4 marks)**
  - b) Under what circumstances is each of the following sampling designs applicable? Precisely explain their weaknesses
    - i) Simple random sampling **(4 marks)**
    - ii) Systematic sampling **(4 marks)**
  - c) Unilever, with branches in four urban centres in Kenya is experiencing high rate of labour turnover. The management team intends to conduct a survey in order to establish the cause(s) of the problem. There are 400 employees in Nairobi, 250 in Nakuru, 150 in Mombasa and 100 in Kisumu.
    - i) Suggest the most suitable sampling method for this study and justify the choice **(3 marks)**
    - ii) Show how a researcher would find a sample whose size is 10 percent of the population **(4 marks)**

3. a) 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 of the above earnings **( 6 marks)**  
 ii) Draw a histogram and a frequency polygon for this distribution **(5 marks)**  
 iii) From the histogram, comment on the distribution of income in this firm **(2 marks)**

- b) i) State the Kuznet's hypothesis **(2 marks)**  
 ii) Using hypothetical Lorenz curves, demonstrate and explain income distribution. **(3 marks)**

- c) What is Gini coefficient? **(2 marks)**

- 4 a) Explain why the mean is the most preferred measure of central tendency in a normally distributed population **(2 marks)**

- b) Explain why the measures of central tendency are usually complemented with the measures of dispersion. **(2 marks)**

- c) 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 and comment on the skew  
(12 marks)
- ii) Of the three averages, which is the most appropriate in representing this data? Give reasons  
(2 marks)
- iii) Suppose this data series gives a standard deviation of 23.16, Calculate and interpret the coefficient of skewness.  
(2 marks)
5. a) What is an index number?  
(2 marks)
- b) In statistical analysis, why is it necessary to convert nominal data series to real data series. What is the specific name for this process  
(2 marks)
- c) Explain the problems one is bound to face in the computation and use of the consumer price index as a measure of the cost of living.  
(6 marks)
- d) Explain the two types of probability. Give examples  
(4 marks)
- e) Explain why there must be a mistake in each of the following.
- i)  $P(A) = 0.46$  and  $P(\bar{A}) = 0.44$   
(1 mark)
- ii)  $P(B) = -0.06$   
(1 mark)
- iii)  $P(A) = 0.45$  and  $P(AB) = 0.53$   
(1 mark)
- f) Machine A has a probability of 0.1 of stopping because of a breakdown. Machine B has a probability of 0.2. Machine A and B are assumed to be statistically independent of each other. What is the probability that both machines will stop at the same time.  
(2 marks)