KABARAK UNIVERSITY

UNIVERSITY EXAMINATIONS

2010/2011 ACADEMIC YEAR

FOR THE DEGREE OF BACHELOR OF SCIENCE IN ECONOMICS AND MATHEMATICS

COURSE CODE: ECON 222

COURSE TITLE: ECONOMIC STATISTICS. (MC)

STREAM: Y2S2

DAY: TUESDAY

TIME: 2.00 – 4.00 P.M

DATE: 14/12/2010

INSTRUCTIONS:

- ➢ Answer question **ONE** and any other **TWO** questions**.**

PLEASE TURNOVER

1. (a) The mean and standard deviating of two distribution, of 100 and 150 items are 50, 5 and

40, 6 respectively. Find the standard deviation of all the 250 items taken together.

(4 marks)

(b) You are given two variables A and B: using quartile deviation, state which of the two is

more dispersed? (5 marks)

A		B	
Mid-point	Frequency	Mid-point	Frequency.
15	15	100	340
20	33	150	492
25	56	200	890
30	103	250	1420
35	40	300	620
40	32	350	360
45	10	400	187
		450	140

(c) Explain the importance of statistics. (5 marks)

(d) From a bag containing 4 white and 6 black balls, two balls are drawn at random. If the balls

are drawn one after the other without replacement, Find the probability that:

(i) Both the balls are white. (I mark)

(ii) Both the balls are black (1 mark)

(iii) The first ball is white and the second is black. (1 mark)

(iv) One ball is white and the other is black. (1 mark)

(c) The following table gives the population and earnings of two towns A and B

Town A		Town B	
Persons	Earning (Daily)	Persons	Earnings (Daily)
100	75	50	80
100	100	70	120
100	150	30	60
100	225	25	140
100	325	100	200
100	375	45	200
100	450	30	140
100	600	80	460
100	850	20	120
100	1850	50	480

Required.

Represent the above data graphically so as to bring out the inequality of the distribution of earnings. (5 marks)

(f) In a certain factory which employs 500 men, 2% of all employees have a minor accident

in a given year, of those 30% had safety instructions whereas 80 % of all employees had no

safety instructions.

Required:

Find the probability of an employee being accident free given that he had:

(i) No safety instructions (3 marks)

(ii) Safety instructions (4 marks)

2 (a) Explain the main characteristics of normal distributions. (2 marks)

(b) Invoices at a particular depot have amounts which follow a normal distribution with

a mean of sh. 103.60 and a standard deviation of sh. 8.75.

(i) What percentage of invoices will be over sh.120.05 (3 marks)

(ii) What percentage of invoices will be below sh.92.75 (3 marks)

(iii) What percentage of invoices will be between sh.83.65 and sh.117.60.   (4 marks)

 (iv) What will be the invoice amount such that approximately 25% of invoices are for greater

      amounts .   (4 marks)

  (v) Above what amount will 90% of invoices lie,   (4 marks)

3. (a) What difference does it make whether the lespeyres or the psyche index is used to show

        Price or quantity changes.   (6 marks)

 (b) Explain some of the uses of index numbers.   (3 marks)

 (c) Given the following information on prices and quantities of sales of beef, Fish, butter and

     Cheese.

	1995	1995	2009	2009
	Qty (000'kg	Price (shskg)	Qty '000''kg	Price (sh/kg)
Beef	10	30	5	50
Fish	10	40	15	40
Butter	5	32	10	38
Cheese	2	25	3	30

Construct both the laspeyres and paasche price indices for 1995 and 2009 with 2009 as base
year. Comment on your results.   (8 marks)

(d) What are some of the limitations of index numbers?   (3 marks)

4. On average a bank cashier serves 1.5 customers per minute. Find the probability using the

   appropriate probability distribution that during a minute chosen at random, the bank

   cashier would serve:

  (i) No customer   (4 marks)

  (ii) Exactly one customer   (4 marks)

  (iii) Exactly two customers   (4 marks)

  (iv) At least two customers   (4 marks)

  (v) At most three customers.   (4 marks)

5. (a) List and explain the factors that should be considered when determining the appropriate

   Sample size for a study.   (6 marks)

  (b) Under what kind of conditions would you recommend the use of census and not

   sample.   (2 marks)

(c) Explain the following probability approaches.

   (i) Systematic sampling.   (3 marks)

  (ii) Stratified sampling.   (3 marks)

  (iii) Cluster sampling.   (3 marks)

  (iv) Double sampling.   (3 marks)