JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

UNIVERSITY EXAMINATIONS 2013/2014

SECOND YEAR SEMESTER TWO EXAMINATION FOR THE DEGREE OF BACHELOR OF BUSINESS ADMINISTRATION WITH IT

(KISII LEARNING CENTRE)

COURSE TITLE: BUSINESS STATISTICS

COURSE CODE: ABA 206

DATE: AUG 2013 DURATION: 2HOURS

DAY: TIME:

INSTRUCTIONS

1. **Answer QUESTION ONE and any other TWO questions**
2. **Show clearly and neatly all the workings**
3. **Do not write anything on the question paper**

QUESTION ONE (30 MARKS) - COMPULSORY

(a) (i)State and explain any five methods of data collection (5 marks)
(ii)Examine the relevance of Business statistics as a tool of management (5 marks)

(b) A company gave bonus to its employees. The rates of bonus in various salary groups are:

Monthly Salary in US $	1000- 2000	2000- 3000	3000 -4000	4000- 5000
Rate of Bonus in US $	2000	2500	3000	3500

The actual salaries of staff members are as given below:
1120, 1200, 1500, 4500, 4250, 3900, 3700, 3950, 3750, 2900, 2500, 1650, 1350, 4800, 3300, 3500, 1100, 1800, 2450, 2700, 3550, 2400, 2900, 2600, 2750, 2900, 2100, 2600, 2350, 2450, 2500, 2700, 3200, 3800, 3100. Determine:
(i) Total amount of bonus paid and (3 marks)
(ii) Average bonus paid per employee. (4 marks)

(d) The price of a certain Product increased from K.sh 500 in the year 2010 to Ksh. 650 in the year2011. Using 2010 as the base year, calculate simple price index. (3 marks)

(c) (i) What is a Permutation? (2 mks)
(ii)In how many ways the first, second and third prize can be given to 10 competitors?(2mk)

(e) The following data was collected regarding sales and advertising expenditure for Safaricom.

Sales ($ millions)	Advertising Expenditure($ 'thousands)
8.5	210
9.2	250
7.9	290
8.6	330
9.4	370
10.1	410

Calculate the product moment coefficient of correlation (r) for the above data and give interpretation. (6 marks)

QUESTION TWO (20 MARKS)

(a) (i) What is conditional probability? (2mks)
(ii) In a class of 100 students studying at JOOUST- Kisii Campus, 36 are male and studying BBA, 9 are male but not studying BBA, 42 are female and studying BBA, 13 are female and are not studying BBA. Calculate the probability that a student is studying BBA given that he is male (8 marks)

b) (i) Evaluate: $^{10}C_{10}$ (3 mark)

(ii)A committee of five people is to be selected from twenty people of which 8 are men and 12 are Women. How many selections are possible if at least one Man has to be included? (5mks)

(c) State Bayes theorem (2 marks)

QUESTION THREE (20 MARKS)

UAP Insurance Company, Kisii branch sells life insurance policies using door-to-door salespersons. The management is interested in investigating the effect of additional salespersons on its sales. The following data for the past years is available.

Year	Number of sales persons X	Number of Policies sold Y
2007	10	150
2008	10	170
2009	20	230
2010	20	200
2011	30	220
2012	30	260

Required:

(a) (i)Explain the term 'correlation'. (2marks)

(ii)Plot the above data on a scatter diagram, and using your judgment, decide whether there is a correlation between Number of sales persons and Policies sold. (6 marks)

(b) (i). by taking number of salespersons(X) as the independent variable and Number of policies(Y) as the dependent variable obtain the simple linear regression equation in the form Y = a + bX (10 mks)

(ii).The company management projects to make 1025 sales in the year 2013. How many salespersons should be hired to achieve this target? (2mks)

QUESTION FOUR (20 MARKS)

(a)(i)What is the importance of mode as a measure of central tendency in Business management?. (2 marks)

(ii)The following is the distribution of monthly expenditure on food incurred by a sample of 100 families in a town.

Expenditure (Rs) :	500-999	1000-1499	1500-1999	2000-2499	2500-2999	3000-3499
No. of families :	6	25	31	26	8	4

Find the modal size of expenditure. (6 marks)

(b)The managers of an import agency are investigating the length of time that customers take to pay their invoices, the normal terms for which are 30 days net. They have checked the payment record of 100 customers chosen at random and have compiled the following table:

Payment in days	5 -9	10-14	15-19	20-24	25-29	30-34	35-39	40-44
Number of customers	**4**	**10**	**17**	**20**	**22**	**16**	**8**	**3**

Required:

(i) Calculate the standard deviation (7mks)

(ii) Hence, the variance. (1 mk)

(c)(i) What is a Lorenz curve? (2 marks)

(ii)State the significance of a Gini Coefficient (2 mark)

QUESTION FIVE (20 MARKS)

(a) (i)What is a Price index? (2mks)

(ii)What is the relevanceof Price index? (3 marks)

(b) The table below shows prices of food crops in Suna sub location in 2011 and 2012

Items	Price Ksh.(2011)	Quantity	Price Ksh (1012)	Quantity
Maize (per 90Kgs)	950	5	1120	5
Wheat (per 90Kgs)	1300	2	1420	2
Beans (per 90Kgs)	2400	4	2200	4
Vegetables, Kales (per one full sack)	600	3	630	3
Millet (per 90Kgs)	800	1	970	1

Required:

Calculate

(i) Laspeyre's price index taking 2012 as the base year and interpret the result. (8 marks)

(ii) Given that Laspeyre's index number is 128 and Fisher index is 134, Calculate Paasche's index number. (4 marks)

(iii) Give reasons why Fishers index is said to be ideal. (3 marks)

END