



MURANGA UNIVERSITY COLLEGE

(A constituent College of Jomo Kenyatta University of Agriculture & Technology)

MAIN CAMPUS

ORDINARY UNIVERSITY EXAMINATIONS

2015/2016 ACADEMIC YEAR

FIRST/SECOND YEAR FIRST SEMESTER EXAMINATIONS

**FOR THE DEGREE
OF**

**BACHELOR OF COMMERCE/BACHELOR OF BUSINESS
INFORMATION TECHNOLOGY/BACHELOR OF
ENTREPRENEURSHIP AND SMALL ENTERPRISES
MANAGEMENT**

COURSE CODE: HBC2110/BHE2101

**COURSE TITLE: INTRODUCTION TO BUSINESS
STATISTICS/ BUSINESS STATISTICS**

DATE: 21ST APRIL 2016

TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES

**Question ONE (1) is Compulsory
Answer ANY OTHER TWO (2) questions**

MRUC observes ZERO tolerance to examination irregularities

This Paper Consists of 5 Printed Pages. Please Turn Over. ►

QUESTION ONE (30 MKS)

- a). Mention five characteristics of a good average. (5mks)
- b). The mean age of a combined group of men and women is 30 years. If mean age of the group of men is 32 and that of the group of women is 25, find out the percentage of men and women in the group. (4mks)
- c). The probability that a new marketing approach will be successful is 0.6. The probability that the expenditure for developing the approach can be kept within the original budget is 0.5. The probability that both of these objectives will be achieved is 0.30. What is the probability that at least one of these objectives will be achieved? For the two events described above determine whether the events are independent or dependent. (4mks)
- d). You are working as a purchase manager for a company. The following information has been supplied to you by two manufacturers of electric bulbs.

	CompanyA	Company B
Mean life (in hours)	1,300	1,288
Standard deviation (in hours)	82	93
Sample size	100	100

Which brand of electric bulbs are you going to purchase if you desire to take a risk of 5%? (5mks)

- e). The following table gives the length of life (in hours) of 400 T.V. picture tubes.

Length of life (in hours)	Number of picture tubes
4,000-4,200	22
4,200-4,400	38
4,400-4,600	65
4,600-4,800	75
4,800-5,000	80
5,000-5,200	70
5,200-5,400	50

Calculate

- i). Mode (3mks)
- ii). Standard deviation. (5mks)
- f). Compute an appropriate measure of skewness for the following data. (4mks)

Sales (millions)	Number of Companies
Below 50	12
50 - 60	30
60 - 70	65
70 - 80	75
80 - 90	80
90 - 100	55
100 - 110	45
110 - 120	25
120 and above	10

QUESTION TWO (20 MKS)

- a). Mention five limitations of statistics. (5mks)
- b). The data below show the distribution of profits realized by 1,000 Air-money agents within Mombasa for the financial year ended 30 June 2015.

Profits (sh.million)	Frequency
80 - 96	17
96 - 112	53
112 - 128	199
128 - 144	194
144 - 160	327
160 - 176	208
176 - 192	2

Calculate;

- i). Mean annual profit. (3mks)
 - ii). The coefficient of variation. (5mks)
- c). The table below shows the quantities of four types of cereals consumed by a certain household in the years 2013 and 2014 and the unit price for each type of cereal.

Type of cereal	2013		2014	
	Price per kg (Sh)	Quantity (kg)	Price per kg (sh)	Quantity (kg)
Maize	50	100	80	120
Rice	80	140	100	120
Beans	40	150	80	110
Peas	50	100	90	100

Using year 2013 as the base year

- (i) Calculate Fisher's ideal index number. (6mks).
- (ii) Briefly explain the advantage of using Paasche's index rather than Laspeyres index. (1mk).

QUESTION THREE (20 MKS)

- (a) Mention five considerations to be made when designing a questionnaire. (5mks).
- (b) A mobile telephone service provider is undertaking a promotion in which 40% of the scratch cards reveal a prize. A customer has in possession three of the promotional scratch cards.
 - (i) Represent the above information in a tree diagram. (2mks).
Find the probability
 - (iii) of receiving one prize. (2mks).
 - (iv) of receiving no prize. (2mks).
 - (v) of receiving two prizes. (2mks).
 - (vi) of winning a prize. (2mks).
- (c) In a certain sample of 2000 families, 1400 are consumers of Mulzik milk, out of 1800 Kalenjin families' 1236 families consume Mulzik. Using Chi-Square test at 5% significance level, test whether there is any significant difference between consumption of tea among kalenjin and non-Kalenjin families. (5mks).

QUESTION FOUR (20 MKS)

- (a) Mention four components of time series. (4mks).
- (b) Two salesmen A and B are working in a certain county. From a sample survey conducted by the Head office the following results were obtained. Is there any significant difference in the average sales between the two salesmen? (Take $\alpha = 0.05$) (6mks).

	A	B
Number of sales	10	18
Average sales (in millions sh).	190	205
Standard deviation (millions sh).	20	25

- (c) The following data show the experience of machine operators and their performance ratings as given by the number of good parts turned out per 100 pieces.

Operator	1	2	3	4	5	6	7	8
Experience	16	12	18	4	3	10	5	12
Performance rating	87	88	89	68	78	80	75	83

Obtain the regression line of performance ratings on experience and estimate the probable performance if an operator has 10 years' experience. (10mks).