



MURANGA UNIVERSITY COLLEGE

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

MAIN CAMPUS

SPECIAL /SUPPLIMENTARY UNIVERSITY EXAMINATIONS

2014/2015 ACADEMIC YEAR

FIRST YEAR SECOND SEMESTER EXAMINATIONS

FOR THE DEGREE

OF

BACHELOR OF COMMERCE/ BUSINESS INFORMATION TECHNOLOGY

COURSE CODE: HBC2110

COURSE TITLE: INTRODUCTION TO BUSINESS STATISTICS

DATE:

TIME: 2HOURS

INSTRUCTIONS TO CANDIDATES

Question ONE (1) is compulsory
Answer any TWO (2) questions

MRUC observes ZERO tolerance to examination irregularities

QUESTION ONE (30mks)

- a) Mention five mathematical properties of standard deviation (5mks)
- b) The mean of marks in statistics of 100 students of a class was 72. The mean of marks of boys was 75 while their number was 70. Find the mean marks of girls in the class. (5mks)
- c. The growth rates in enrollment of students at Maralal University College for the last five years are given below.

Year	2008	2009	2010	2011	2012
Growth Rate (%)	6	50	12	16	18

Calculate the average growth rate in enrollment of the students. (5mks)

- d. The data collected below shows the distribution of profits realized by 1000 Mpesa agents within Mombasa for the financial year ended 30 June 2013.

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

- i. Calculate the mean annual profit (4mks)
- ii. The coefficient of variation (6mks)
- e. Mention five qualities of a good measure of average. (5mks)

QUESTION TWO (20mks)

- a) A buyer of electric bulbs bought 100 bulbs each of the two famous brands .Upon testing these he found that brand A had a mean life of 1500 hours with standard deviation of 50 hours whereas brand B had a mean life of 1530 hours with standard deviation of 60 hours. Can it be concluded at 5% level of significance that the two brands of bulbs differ significantly in quality. (4mks)
- b) Explain the following terms as used in probability theory. (6mks)
- i. Probability Space
 - ii. Random experiment
 - iii. Mutually exclusive events.
- a) The managing director of Neema Wholesalers has received complaints from trade union that the monthly salaries of his employees at the various outlets vary widely. The accountant of the firm has provided the data with respect to the largest retail outlets as follows.

Monthly Salary	Number of Employees	Number of Employees
Shs` 000`	Nakuru branch	(Baricho branch)
5-10	3	1
10-15	20	22
15-20	16	15
20-25	6	8
25-30	2	8
30-35	2	4
35-40	1	2

Find

- i. The mean monthly salary for each branch (5mks)
- ii. The standard deviation of monthly salary for each branch (5mks)

QUESTION THREE (20mks)

- a. The following table gives the aptitude test scores and productivity indices of 10 workers selected at random.

Aptitude scores	60	62	65	70	72	48	53	73	65	82
Productivity	68	60	62	80	85	40	52	62	60	81

Estimate the productivity index of a worker whose test score is 92. (10mks)

- b. Mention five properties of the chi-square distribution. (5mks)
- 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 0.50. 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? (5mks)

QUESTION FOUR (20mks)

- a. A company has three establishments E_1 , E_2 and E_3 in three cities. Analysis of the daily wages paid to the employees in the three establishments is given below. (5mks).

	E_1	E_2	E_3
Number of Employees	20	25	40
Average daily Wages	305	300	340
Standard Deviation	50	40	45.

Find the average and the standard deviation of the wages of all the 85 employees in the company

- b. The time series given below shows the number of television sold by a company since 2004.

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
TV sold (000)	42	50	61	75	92	111	120	127	140	138

Find the linear equation that describes the trend in the number of television sold .Also estimate the sale of television in 2015. (10mks)

- c. Mention five qualities of a good measure of average (5mks)