Mount Kenya University

UNIVERSITY EXAMINATION 2014/2015

SCHOOL OF PURE AND APPLIED SCIENCES
DEPARTMENT OF MATHEMATICS, STATISTICS AND ACTUARIAL SCIENCE

BEDS/BTECH/BSCN
REGULAR

UNIT CODE: BMA3116   UNIT TITLE: BIOSTATISTICS

DATE: DECEMBER 2014   MAIN EXAM.   TIME: 2 HOURS

INSTRUCTIONS: Answer all questions in section A and any two questions.

1. a) Distinguish between discreet and continuous data with an example each.   (2 Marks)

    i)   Name the four scales.   (4 Marks)

    ii)   List any two advantages of the arithmetic mean.   (2 Marks)

b) A sample of students had a mean age of 35 years with a standard deviation of 5 years. A student was randomly picked from a group of 200 students. Find the probability that the age of the student turned out to be as follows: (6 Marks)

i) Lying between 35 and 40
ii) Lying between 30 and 40
iii)   Lying between 25 and 30

c) The following data relates to the number of children in families of a certain locality. (5 Marks)

1 3 1 0 3 0 2 0 1 2 3 4 2 6 1 0 3 5 1 0 4 3

i) Order the data
ii) Determine the median, mode and the mean of the data.

d) Define the terms below. (4 Marks)
i) Skewness – The degree of assymetry of the frequency polygon
ii) Kurtosis – Degree of peakedness of a frequency polygon

e) Two distribution have the following characteristics. (4 Marks)

Distribution A	Distribution B
Mean=5	Mean=4
Mode=5	Mode=5
Median=5	Median=4.5
Std dev=2	Std dev=1.5

i) State the type of skewness in each distribution.
ii) Calculate the parsons measure of skewness for each distribution

f) Define the term simple linear regression and state two characteristics of the line of best fit. (3 Marks)

Section B

2. a) The quality department of a wine manufacturing company periodically selects a sample of wine specimens in order to test for their shelve life. Past experience has shown that the shelve life life of a certain type of wine is normally distributed with standard deviation of 200hrs. A random sample of 64 specimens gave a mean of 6200hrs. Find out the population mean at 95 level of confidence.

(6 Marks)

b) A random sample of 100 recorded deaths in Kenya during the past one year showed that average lifespan of 7.18 years with a standard