JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF HEALTH SCIENCES

UNIVERSITY EXAMINATION FOR DIPLOMA IN COMMUNITY HEALTH AND DEVELOPMENT

2st YEAR 2st SEMESTER 2015/2016 ACADEMIC YEAR

KISII CAMPUS

COURSE CODE: HDC-2223

COURSE TITLE: INTRODUCTION TO BIOSTATISTICS

EXAM VENUE: STREAM: (Dip. Comm Hlth & Dev)

DATE: xxxxx EXAM SESSION:

TIME: 1 HOUR 30 MINUTES

Instructions:

1. **Answer all questions in section A and any other 2 questions in Section B.**

2. **Candidates are advised not to write on the question paper**

3. **Candidates must hand in their answer booklets to the invigilator while in the examination room**

SECTION A;   Answer all questions in this section (30 marks)

1.   (i) What is a statistic?   (1mk)

      (ii) Differentiate between discrete data and continuous data   (2 mks)

2. Define the following terms as used in biostatistics;
      i) Experimental unit   (1 mk)
      ii) Experimental error   (1 mk)
      iii) Replication   (1 mk)
      iv) Treatment   (1 mk)
       v) Randomization   (1 mk)

3. i) What is a normal curve?   (1 mk)

      ii) State three elements of the normal curve   (3 mks)

      iii) Draw a graph to show different types of kurtosis   (3 mks)

 4. i) Give three examples of measures of dispersions.   (3 mks)
       ii) List three examples of measures of central tendency   (3 mks)
       iii) Identify the members of the lower quartile from the data below by showing
              8, 2, 3, 6, 5, 7, 4   (2 mks)
  5. i) Differentiate between qualitative variables and quantitative variables   (2 mks)
          ii) The probability of a patient gaining weight on treatment is 1/3, while the
probability that he recovers when he has taken drug is 3/5. Calculate the probability if three
patients are chosen at random they will all recover.   (5 mks)

SECTION B; Answer any two Questions (30 Marks)

   1. a) Using Sturge's rule, draw a frequency distribution table from the following data;
       (9 mks)

       4   12   17   5   16   10   10   13   8   18   13   15   12   9   19   14   21   6   17

       11   20   27   15   26   20   20   23   18   28   23   25   22   19   29   24   11   16

       23   22   20

       b) Use the table drawn above to calculate the standard error.   (6 mks)

   2. a) The following masses in kgs of 20 patients were ;

        50, 56, 54, 58, 62, 59, 65, 51, 62, 59, 65, 54, 59, 50, 54, 59, 58, 56, 62, 65.

       Calculate the quartile deviation   (6 mks)

b) The table below shows   height measured in the nearest cm of 20 patients

Height cm	20-24	25-29	30-34	35-39	40-44	45-49
Frequency	2	4	4	8	1	1

   i.   State the medium class   (3mks)

  ii. Calculate the means height using assured mean of 30   (6mks)

 iii. Calculate the standard deviation   (6 mks)

3   a) Use binomial expansion to evaluate $(x+3)^5$. Hence evaluate $(97)^5$ (5 mks)

b) The Probability the husband & wife will be alive 25 years from now is 0.6 and 0.7 respectively. Find the probability that in 25 years time :

i) Both will be alive (4 mks)

ii) Neither will be alive (2mks)

iii) One will be alive (2mks)

iv) At least one will be alive (2 mks)

4   a) Explain the three conditions that form Bernoulli process in a sequence of
Bernoulli's trials.   (6 mks)

b) Give nine statements which describe the poison process.   (9 mks)