JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

UNIVERSITY EXAMINATIONS 2012/2013

2ND YEAR 2ND SEMESTER EXAMINATIONS FOR DIPLOMA IN COMMUNITY HEALTH AND DEVELOPMENT

(KISUMU LEARNING CENTRE)

COURSE CODE: HDC 2223

COURSE TITLE: INTRODUCTION TO BIOSTATISTICS

DATE: **24/4/2013** **TIME: 11.00-13.00PM**

DURATION: 1.5 HOURS

INSTRUCTIONS TO CANDIDATES:

1. Write your University Registration Number on every Page that you use
2. Do not write your name on any paper you use.
3. This paper consists of TWO SECTIONS
4. Read carefully the additional instructions preceding each section

SECTION 1

ATTEMPT ALL QUESTIONS IN THIS SECTION (30mks)

1. How many classes are recommended in a frequency distribution for a data set with 100 observations? (3) Marks)

2. Ten out of the 500 randomly sampled children attending out-patient clinic at Kisumu District hospital are found to be having malaria. What is the probability that the next child in this hospital is found to be having malaria? (3mks)

3. In a group of 100 men, 35 are found to in favour of male circumcision, 25 are against it and 40 have no opinion.
    i. What is the probability that if a man is chosen at random he will be in favour of male circumcision.(3mks)
4. Identify the level of measurement for following type of data.
    i. Blood group(1.5mks)
    ii. Temperature (Celsius)(1.5mk)
5. Explain using examples the main difference between a ratio and proportion as used in Biostatistics.(3mks)
6. "True or False" Rate is probability of an event occurring while risk is the measure of how fast an event is occurring in the community.(3mks)
7. Explain the meaning of the following terms as used in Biostatistics
    i. Sample(1.5mk)
    ii. Variable 1.5mk)
8. List three uses of probability in Biostatistics(3mks)
9. Using examples differentiate between Qualitative and Quantitative variable(3mks)
10. Which of the following can be calculated from both qualitative and quantitative type of data(3mks)
    a. Mean
    b. Median
    c. Mode
    d. Standard Deviation

SECTION B: CHOOSE AND ANSWER ANY TWO (2) QUESTIONS FROM THIS SECTION (30)

1. A total of ten mothers were seen at Obama clinic and their weights (measured in kg) taken as shown in the following data set: 60 49 30 50 48 62 40 75 53 50. Determine the:
    i. Mode (2mk)
    ii. Median weight (3mks)
    iii. Standard deviation of their weight(4mks)
    iv. Variance (4mks)
    v. Mean weight(2 mks)
2. Using the following data set containing the age in years of eight men in a community health project 18, 32,59,24,42, 21, 23, 24,. Determine the:
    i. Range(2mk)
    ii. Inter-quartile Range(4mk)
    iii. The position of the 45^{th} Percentile (4mk)
    iv. The Median (2mk)
    v. The percentile rank of a man aged 42 years (3mk)
3. The following data are number of clients seen at Kisumu VCT clinic in 2012
   Construct a frequency distribution and draw bar graphs to represent the data. (15mks)

80	65	80	92	86	55	57	59
60	67	78	89	77	75	65	68
120	90	112	80	81	82	58	86

4. In a national survey conducted by the Kenya Medical Research Institute to determine health-risk behaviors among college students, college students were asked, “How often do you wear a seat belt when riding in a matatu. The frequencies were as follows:

RESPONSE	***FREQUENCY***
Never	125
Rarely	324
Sometimes	1257
Most of the time	552
Always	1200
Total	***3458***

a) Construct a relative frequency distribution. (6 mks)

b) What percentage of respondents answered “Always”? (1mk)

c) What percentage of respondents answered “Rarely”? (1mk)

d) Construct a relative frequency bar graph. (5mks)

e) Suppose that a representative from the KEMRI says, “52.7% of all college students in Kenya always wear a seat belt.” Is this a descriptive or inferential statement? (2mks)