



KISII UNIVERSITY

UNIVERSITY EXAMINATIONS

THIRD YEAR EXAMINATION FOR THE AWARD OF THE DEGREE OF BACHELOR IN PUBLIC HEALTH

FIRST SEMESTER, 2021/2022

(FEBRUARY - JUNE, 2022)

PHES 302: INTRODUCTION TO BIOSTATISTICS

STREAM: Y3 S1

TIME: 3 HOURS

DAY: MONDAY, 2:00 – 5:00 P.M.

DATE: 09/05/2022

INSTRUCTIONS

- 1. Do not write anything on this question paper.***
- 2. Answer ALL questions in section A and TWO questions in section B.***

QUESTION ONE-30 MARKS

- Define Biostatistics [2 Marks]
- Explain 5 importances of studying Biostatistics [5 Marks]
- State and explain two types of data [4 Marks]
- State and explain 4 common statistical terms. [4 Marks]
- Differentiate between Type I error and Type II error. [4 Marks]
- The following are weights in pounds of 57 children in a day-care centre;
68 63 42 27 30 36 28 32 79 27 22 23 24 25 44 65 43 25 74 51 36 42 28 31 28
25 45
12 57 51 12 32 49 38 42 27 31 50 38 21 16 24 69 47 23 22 43 27 49 28 23 19
46 30
43 49 12.
 - Prepare a frequency distribution table of the data. [5 Marks]
 - Find the variance of the data [6 Marks]

QUESTION TWO-20 MARKS

Find the Mean, Mode and Median for the following frequency distribution of ages of patients who visited a certain health center;

Class Interval

5-9 10-14 15-19 20-24 25-29 30-34 35-39

Frequency 5 12 32 40 16 9 6

QUESTION THREE-20 MARKS

Suppose that 25% of the people in a certain population have low hemoglobin levels.

The experiment is to choose 5 people at random from this population and check whether their hemoglobin levels are either low or not. Let the discrete random variable X be the number of people out of 5 with low hemoglobin levels.

i) Find the probability distribution of X . [8 Marks]

ii) Find the probability that at least 2 people have low hemoglobin levels. [4Marks]

iii) Find the probability that at most 3 people have low hemoglobin levels [4Marks]

iv) Find the expected number of people with low hemoglobin levels out of the 5 People [4 Marks]

QUESTION FOUR-20 MARKS

Suppose that the number of snake bites cases seen at Kenyatta National Hospital in a year has a Poisson distribution with average 6 bite cases

i) What is the probability that in a year;
a) The no. of snake bite cases will be 7? [5 Marks]

b) The no. of snake bites bite cases will be less than 2? [4 Marks]

ii) What is the probability that there will be 10 snake bite cases in 2 years? [5 Marks]

iii) What is the probability that there will be no snake bite cases in a month? [5 Marks]

QUESTION FIVE-20 MARKS

In a competitive examination of 5000 nursing students, the marks of the examinees

in biostatistics were found to be distributed normally with mean 45 and standard deviation 14. Determine the number of nursing students whose marks out of 100 were

i) Less than 30 [5 Marks]

ii) Between 30 and 70 [5 Marks]

iii) More than 40 [5 Marks]

iv) Between 90 and 100 [5 Marks]