



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2010/2011

FIRST SEMESTER EXAMINATION BACHELOR OF SCIENCE

SSST: 200: INTRODUCTION TO COMPUTER INTERACTIVE STATISTICS

DATE: MONDAY 22ND NOVEMBER 2010

TIME: 8.00 A.M – 10.00 A.M

INSTRUCTIONS:

Answer Question ONE and any other TWO Questions

- Q1) a) What is statistics? (4 marks)
- b) Give at least three example of data collection problems that required prompt action (6 marks)
- c) The distance from my house to KU is 40 km. I drove to KU at a speed of 40 Km per hour and returned home at a speed of 80 km per hour. What was my average speed for the whole trip? (4 marks)
- d) The distance from my house to KU is 40 km. I drove to KU at a speed of 40 km per hour and returned home at a speed of 80 km per hour. What was my average speed for the whole trip? (4 marks)
- e) What is the difference between Primary and Secondary data? (4 marks)
- f) What do you understand by data cleaning? (6 marks)

- Q2) a) Quality control is a proactive measure taken to ensure proper data collection.
How can this be best demonstrated? (6 marks)
- b) Given the following hypothetical marks for the end of year total marks for the second year statistics unit at KU,
Student: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
Mark; 62 32 62 75 77 66 59 74 41 50 77 65 51 81 59
Student: 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Mark 59 56 46 69 61 51 54 55 73 73 71 45 67 62 70
- a) Sketch a line graph for the individual marks
- b) Give the range and range limits
- c) Give the median and mode scores if they exist
- d) Give the interquartile range
- e) Using the appropriate KU cut-off marks for the different grades, create a frequency table from the above data
- f) Sketch a histogram from the table generated in e) above (14 marks)
- Q3) a) How can the selection of data collection instruments comprise data integrity? (8 marks)
- b) You have just purchased a new 6 sided die and would like to see whether it is biased (in combination with you when you roll it) (12 marks)
- i) Use the standard equation to find the arithmetic mean.
- ii) Here are the numbers that you collect after a hundred throws:
1 5 6 4 1 3 5 5 6 4 1 5 6 6 4 5 1 4 3 6
1 3 6 4 2 4 1 6 4 2 2 4 3 4 1 1 6 3 5 5
4 3 5 3 4 2 2 5 6 5 4 3 5 3 3 1 5 4 4 5
1 2 5 1 6 5 4 3 2 4 2 1 3 3 3 4 6 1 1 3
6 6 1 4 6 6 6 5 3 1 5 6 3 4 5 5 5 2 4 4
- iii) Create a histogram to see if there is any significant difference in the distribution of the numbers.

- Q4) a) Distributions can be grouped into two categories, name the two categories giving 3 examples in each (6 marks)
- b) What purpose do statistical test serve? (4 marks)
- c) Explain the difference between significance testing and hypothesis testing. (10 marks)
- Q5) a) A variety of sampling procedures are available to reduce the likelihood of drawing a biased sample. List 3 (5 marks)
- b) Which questions should be addressed I the selection of instruments to be used for data collection? (5 marks)
- c) Consider a box with 3 coins, with probabilities of showing heads respectively $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$. We choose arbitrarily one of the coins. After 5 throws, in which $x=4$ times heads came up. What is the probability that the coin is coin number 1? (10 marks)