KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2016/2017

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN LIBRARY AND INFORMATION SCIENCE

ISC 905: STATISTICS

DATE: Wednesday, 17th May 2017 **TIME: 9.00a.m-12.00p.m**

INSTRUCTIONS:

SECTION 1: COMPULSORY

1. The following distributions represents time taken in days to prepare and forward management reports by staffs in two different information service departments under one management entity.

   Department A (0.5, 4, 19, 20, 3, 3, 6, 9, 10, 10, 18, 18, 30, 30, 16, 16)

   Department B (2, 2, 4, 4, 4, 0.1, 5, 6, 7, 9, 10 19, 19, 4, 17, 17, 2, 17)

   (i) Using statistical range, determine the problems affecting department A. (5 marks)

   (ii) Basing your argument on standard deviations for the two departments, explain the advice you would give to the manager overseeing the operations of the two departments. (15 marks)

2. Using Z-statistics for the following distributions, showing your working and stating your reasons, approve or disapprove the following hypothesis about characteristics of students in a university. (20 marks)

   Hours spent in library (1, 3, 5, 6, 6, 7, 9, 17, 3, 20, 9, 20, 9, 10, 10)

   English performance % (10, 10, 33, 44, 30, 30, 60, 80, 50, 10, 20, 20, 16, 12, 50)

   Hypothesis 1: Students perform well because of reading

SECTION 2

Answer TWO questions only

3. Explain the conclusion that can be drawn from the from the following correlation coefficients.

   a) r=0.9 (1 mark)

   b) r=0.2 (1 mark)

   c) r=0.0004 (1 mark)

   d) Compute and interpret the correlation (r) of the two variables presented in the table below (7 marks)

Variable x	Variable y
34	1895
40	3285
38	2920
41	3657
41	3260
36	2030
29	1440
40	3260
35	3090
40	3285
37	2690

4. Using appropriate examples, explain the circumstances in which the following scales of measurement should and should not be used in data environment. (10 marks)

   (i) Nominal

   (ii) Ordinal

   (ii) Interval

   (iv) Ratio

5. Using sketch diagrams, explain the mathematical characteristics of the following distributions.

   i) Normal distribution (4 marks)

   ii) Negatively skewed distribution (3 marks)

   iii) Positively skewed distribution (3 marks)