CHUKA **UNIVERSITY**

UNIVERSITY EXAMINATIONS
RESIT/SPECIAL EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF

ECON 234: ECONOMICS STATISTICS II

STREAMS: **TIME: 2 HOURS**

DAY/DATE: MONDAY 23/07/2018 **11.30 A.M – 1.30 P.M**

INSTRUCTION: Answer question ONE and other THREE questions

1. (a) What id the relevance of the binomial distribution to sampling theory? [5marks]

   (b) An airline deliberately overbooks its local mini flights because it known from experience that not all passengers who book for a given flight actually arrive for that flight. It is assumed that the probability of any booked passenger arriving for a given flight is 0.8 . This is independent of the probability of any other passenger arriving.
   (c) The airline takes ten booking for an 8 seater. Use the binomial distribution to find the probability for a given flight.
   (i) That the aircraft takes off full. [10marks]
   (ii) That the aircraft takes off with at least two empty seats. [10marks]

2. A survey of 100 drivers shows that 35 drive cars less than one year old.
   (a) Estimate at the 95% confidence level the proportion of drivers in the population from which the survey was taken that drive cars less than one year old. [15marks]
   (b) How big a sample would you need to take to be able t find the proportion to within
   $\pm$ 1% at the same confidence level? [10marks]

3.	(a) (i) Define the term significant testing	[5marks]

(ii) State the necessary steps in constructing a significance testing.	[5marks]

(iii) What is the meaning of a finite population correction factor?	[5 marks]

(b) A market survey company has been contracted by ken cell Kenya to carry out a research on public awareness about ken cell mobile phones in small town. A sample of 1,000 people was taken and it was found that 200 know of ken cell mobile phones. After advertising campaign, a further sample of 1,091 people was made and 209 were found to know ken cell. Test whether there has been an increase in the number of people having awareness of ken cell mobile phones at 5% of significance.	[10marks]

4.	(a) State the two principal types of the chi-squared test.	[5marks]

(b) Brand of matches is claimed on the box to have average content of 40 matches. A single box bough by a friend of yours found to contain 36 matches and he is considering sending a complaint. However, someone has advised him to examine a few more boxes and have a test carried out if he is still not satisfied. Explain to your friend who has lifestyle statistical knowledge, why this is good advice (you are not intended to carry out a test or describe the calculation involved)	[20marks]

5.	(a) Write brief notes on the following:

(i) Type 1 error	[5marks]

(ii) Alternative hypothesis	[5marks]

(iii) Level of significance	[5marks]

(iv) Statistical significance	[5marks]

(v) Continuous variable	[5marks]

(b) The mean lifetime of electric light bulbs produced by a company has in the past been 1120 hours with a standard deviation 125 hours. A sample of 8 electric light bulb recently chosen from a supply of newly produced bulb showed a mean lifetime of 1070 hours. Test the hypothesis that the mean lifetime of the bulb has changed, using a level of significance of

(i) 0.05	[10marks]

(ii) 0.01	[10 marks]

6.   Two sets of variables are observed and the following random sets of observation are made.

Set 1:	X	1	2	3	4	5	6
	Y	7	5	4	3	2	1
Set 2:	X	1	2	3	4	5	6
	Y	2	3	4	5	6	7

For each set of observation, calculate Pearson's coefficient of correlation and interpret your answer.