

CHUKA



UNIVERSITY

## UNIVERSITY EXAMINATIONS

## SUPPLEMENTARY EXAM

## EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE

## ECON 235: ECONOMICS STATISTICS

STREAM: BSC

TIME: 2 HOURS

DAY/DATE: TUESDAY 17/11/2020

11.30 A.M. – 1.30 P.M.

INSTRUCTIONS: ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS

## QUESTION ONE

A survey was conducted on the age of the respondents and the degree of pressure the sales people felt in connection with their job. The ages and amount of job pressure were cross classified as follows:

Age in Y	Degree of pressure (no of sales people)		
	Low	Medium	High
Less than 25	25	18	22
25-30	50	46	44
40-60	58	63	59
60 and over	34	43	43

- a) Examine whether there is any relationship between age and degree of job pressure at 5% significant level. (10 Marks)
- b) Describe systematically the procedure of testing the hypothesis in a given sample (10 Marks)
- c) Distinguish between
  - i. Correlation analysis and Regression Analysis (2 Marks)
  - ii. Population and Sample (2 Marks)
  - iii. Parameter and Statistic (2 Marks)

### ECON 235

- d) The distribution of annual bank teller earnings with 5-year experience has a mean of Ksh 15,000 and a standard deviation of kshs 2,000. If sample of 30 tellers are drawn at random, what is the probability their annual earning average more than 15,750.  
(4 Marks)

### QUESTION TWO

- a) A rubber company is in financial difficulties because of poor reputation for the product quality. The company has come up with advertising campaigns claiming the mean lifetime for the rubber tiles is 60,000 KM. Skeptical consumer buys 36 of the tiles and tests them on the highway. The mean tire-life of the sample is found to be 58,341.69 KM with sample standard deviation of 3632.53. At 5% significance level, find whether the company's claim hold.  
(10 Marks)
- b) Distinguish between type I error and type II error  
(2 Marks)
- c) Two different types of drugs were tried on certain patients for reducing weights. Five persons were given drug A and seven people were given drug B. The data for the weight reduction was given as follows:

Drug A	8	12	16	9	3		
Drug B	10	8	12	15	6	8	11

Test whether there is significant difference in the weight loss due to the drugs

(8 Marks)

### QUESTION THREE

The table below shows the number of cards sold by six students on internship.

Students	No of Cards
1	13
2	33
3	14
4	7
5	36

**ECON 235**

6	17
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- a) Test whether the number of cards sold by the six students are the same (8 Marks)
  
- b) Explain what you understand by the term ‘Binomial Distribution’ and discuss different situations when this approach can be used. (12 Marks)

**QUESTION FOUR**

- a) Discuss different properties of a good estimator (8 Marks)
  
- b) Given the following data, calculate the spearman’s rank correlation coefficient and hence interpret your results: (12 Marks)

X	12	8	16	12	7	10	12	16	12	9
Y	6	5	7	7	4	6	8	13	10	10

