

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

SECOND YEAR EXAMINATION FOR THE AWARD OF DEGREE
OF BACHELOR OF SCIENCE IN ECONOMICS AND STATISTICS AND
ECONOMICS & SOCIOLOGY

ECON 233: ECONOMICS STATISTICS I

STREAMS: BSC (ECON & STATS/ECON & SOCI)

TIME: 2 HOURS

DAY/DATE: MONDAY 09/12/2019

8.30 A.M. – 10.30 A.M.

INSTRUCTIONS:

- Answer question ONE and any other TWO questions
- Do not write on the question paper

QUESTION ONE (30 MARKS)

- (a) All statistics are numerical statements of facts but all numerical statement of facts are not statistics. Discuss this statement and give clear illustrations [14 marks]
- (b) Calculate the mean, median and mode for the following data pertaining to marks in statistics out of 140 marks for 80 students in a class [10 marks]

Marks more than	0	20	40	60	80	100	120
No. of students	80	76	50	28	18	9	3

- (c) Distinguish between the following pair of terms as used in statistics [6 marks]
- Descriptive statistics vs inferential statistics
 - Census vs sample
 - Primary data vs secondary data

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QUESTION TWO (20 MARKS)

- (a) The figure below represent the daily wages in kshs. of 60 workers in a tea factory

23	46	85	75	49	39	82	46	42	69	55	57
35	48	51	68	56	32	52	56	54	57	53	50
41	88	51	20	55	51	54	48	33	40	20	42
82	73	77	64	16	52	63	67	64	50	55	57
75	44	62	65	72	62	45	59	46	49	42	71

Required:

- (i) Form a frequency distribution taking the lowest class interval as 10 – 20 [6 marks]
(ii) Calculate the standard deviation and coefficient of variation of this distribution [8 marks]
- (b) The following table gives data regarding income of workers in two factories. Draw a Lorenz curve to show the factory with greater inequalities of income [6 marks]

Income (kshs)	Factory A	Factory B
Below 1500	6000	5000
1500-2000	4250	4500
2000-3000	3600	4800
3000-4000	1500	2200
4000-5000	650	1500

QUESTION THREE (20 MARKS)

- (a) What is an index number? Describe briefly its application in economics [4 marks]
(b) Compute the Laspeyre's and Paasche's price index numbers for the year 2004 using the following data concerning four commodities [6 marks]

	Commodity quantity (kg)			
	A	B	C	D
In 2003	8	10	15	20
In 2004	6	5	10	15
Price per kg (kshs)				
In 2003	20	50	40	20
In 2004	40	60	50	20

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- (c) The data below shows the frequency distribution of weekly wages of 100 workers in a factory

Weekly wages	No. of workers
3000 – 3500	3
3500 – 4000	5
4000 – 4500	12
4500 – 5000	23
5000 – 5500	31
5500 – 6000	10
6000 – 6500	8
6500 – 7000	5
7000 – 7500	3

Draw the Ogive for the distribution and use it to determine the median wage of a worker

[10 marks]

QUESTION FOUR (20 MARKS)

- (a) (i) Critically examine the classical and relative frequency approaches on probability

[6 marks]

- (ii) The human resource department of a company has records which shows the following analysis of its 200 engineers

Age	Bachelor's degree only	Master's degree	Total
Under 30	90	10	100
30 to 40	20	30	50
Over 40	40	10	50
Total	150	50	200

If one engineer is selected at random from the company,

Find;

- (a) The probability that he has only a bachelor's degree [2 marks]

- (b) The probability that he has a master's degree, given that he is over 40 [3 marks]

- (c) The probability that he is under 30, given that he has only a bachelor's degree

[3 marks]

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- (b) As a result of tests on 20,000 electric fans manufactured by a company, it was found that the lifetimes of the fans was normally distributed with an average life of 2,040 hours and standard deviation of 60 hours. On the basis of the information estimates the number of fans that is expected to run for;
- (i) More than 2,150 hours [2 marks]
 - (ii) Less than 1,960 hours [2 marks]
 - (iii) State the applications of the normal distortion [2 marks]
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