



MACHAKOS UNIVERSITY

University Examinations for 2018/2019 Academic Year

SCHOOL OF BUSINESS AND ECONOMICS

DEPARTMENT OF ECONOMICS

SECOND YEAR SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF ECONOMICS AND STATISTICS

BACHELOR OF ECONOMICS

BACHELOR OF ARTS

EES 201: MATHEMATICS FOR STTISTICS I

DATE: 26/9/2019

TIME:11.00-1.00 PM

INSTRUCTIONS:

- (i) Answer question one (Compulsory) and any other two questions**
- (ii) Do not write on the question paper**
- (iii) Show your working clearly**

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) State merits and demerits of mean and median (6 marks)
- b) State three uses of index numbers (3 marks)
- c) When computing average statistical score for thirty Economics students in Machakos University, the computer analyst found mean of 70. However, he immediately realized that three entries of 84, 72 and 66 were erroneously used instead of 64, 92 and 86 respectively. (4 marks)
- d) Discuss five different types of sampling methods/techniques (10 marks)
- e) Highlight four qualities of enumerator (4 marks)
- f) Describe characteristics of normal distribution (3 marks)

QUESTION TWO (20 MARKS)

- a) Discuss four functions of statistics (8 marks)
- b) Suppose the customs official claims that 30% of all persons returning from a trip to Europe fail to declare one or more purchases on which there is duty.
- i) Find the probabilities that among 6 randomly selected persons returning from Europe fails to declare one or more purchases on which there is duty. (4 marks)
 - ii) Construct a histogram of this binomial distribution (4 marks)
 - iii) Determine the mean and standard deviation of this distribution (4 marks)

QUESTION THREE (20 MARKS)

- a) Highlight limitations of index numbers (6 marks)
- b) Discuss any three methods of primary methods of data collection (6 marks)
- c) What are the sources of non-sampling errors (4 marks)
- d) What is the probability of obtaining a six (6) on either the first or second roll of a die or even obtaining both? (4 marks)

QUESTION FOUR (20 MARKS)

- a) State two characteristics of probability distributions (2 marks)
- b) Explain the following terms as used in index numbers
- i) Price index (2 marks)
 - ii) Total Cost Index (2 marks)
 - iii) Consumer price index (2 marks)
- c) Suppose you are given the following data

	2000		2008	
Commodity	Price	Quantity	Price	Quantity
A	4	50	10	40
B	3	10	9	2
C	2	5	4	2

Use provided data to compute the index numbers using the following methods (8 marks)

- i) Fisher's method
- ii) Laspeyers method
- iii) Marshallian Method

iv) Paasche's method

- d) Differentiate between primary and secondary sources of data (4 marks)

QUESTION FIVE (20 MARKS)

- a) Discuss any two graphical methods of data representation (4 marks)
- b) Highlight factors to be considered when drafting questionnaire(s) (4 marks)
- c) The following data was obtained in an air pollution study:

9.0 15.8 26.4 13.2 17.2 17.3 11.2 23.9 24.8 18.7 13.9
17.6 22.7 9.8 23.7 6.2 14.7 17.5 26.1 12.8 28.6
16.7 26.8 22.7 10.7 18.0 20.5 11.0 20.9 15.5 19.4
16.9 19.1 15.2 19.0 22.9 26.6 20.4 21.4 19.2 21.6
23.5 18.5 23.0 14.5 24.6 20.1 16.2 18.0 7.7 13.5
19.4 14.4 29.6 18.1 19.4 17.0 20.8 24.3 22.5 24.6
25.5 8.3 21.9 31.8 12.3 22.3 13.3 11.8 19.3 20.0
20.1 25.9 10.5 28.5 15.9 27.5 18.1 17.9 9.4 24.1

Require;

- i. Construct a frequency distribution table (6 marks)
- ii. Compute the mean and standard deviation (6 marks)