



MUEO

# MOI UNIVERSITY

OFFICE OF THE DEPUTY VICE CHANCELLOR  
(ACADEMICS, RESEARCH & EXTENSION)

## UNIVERSITY EXAMINATIONS 2022/2023 ACADEMIC YEAR

### FOR THE DEGREE OF BACHELOR OF BUSINESS MANAGEMENT/ BACHELOR OF SCIENCE IN HUMAN RESOURCE MANAGEMENT

**COURSE CODE:** BBM 211/BHR 200/ECF 210/BPM 123

**COURSE TITLE:** BUSINESS STATISTICS

**DATE:** 18<sup>TH</sup> AUG 2023

**TIME:** 9.00 AM – 12.00 NOON

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INSTRUCTION TO CANDIDATES

- SEE INSIDE

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**BBM 211/ECF 210/BHR 200/PPM 123: BUSINESS STATISTICS/STATISTICS I**

**INSTRUCTIONS: Attempt Question ONE and any other THREE Questions**

**QUESTION ONE**

- a) In a survey process there are steps taken in investigative process, evaluate the steps taken in a statistical process (4mks)
- b) Distinguish the following concepts as used in statistics
- i) Population and Sample (2mks)
  - ii) Discrete variable and Continuous variable (2mks)
  - iii) Dependent variable and independent variable (2mks)
  - iv) Qualitative variable and quantitative variable (2mks)
- c) The price of the ordinary shares of Manco PLC quoted on the stock exchange, at the close of the business of successive Fridays is tabulated below

126	120	122	105	129	119	131	138
125	127	113	112	130	122	134	136
128	126	117	114	120	123	127	140
124	127	114	111	116	131	128	137
127	122	106	121	116	135	142	130

**Required**

- i. Determine classes for representing the above data. (4 marks)
- ii. Construct the ogive and establish the median value, quartile values and the Semi-interquartile range. (5 marks)
- iii. Calculate the mean of your frequency distribution. (4 marks)

**QUESTION TWO**

- a) Define Kurtosis and Moments. (3marks)
- b) What are the different types of skewness and their features? (6 marks)

- c) Calculate coefficients of skewness using the four methods and kurtosis and comment on the answers: (6 marks)

Weekly Sales	Number of Companies
10-12	12
12-14	18
14-16	35
16-18	42
18-20	50
22-24	30
24-26	8

### QUESTION THREE

- a. Explain the uses regression analysis (5 mks)
- b. A company has a fleet of vehicles and is trying to predict the annual maintenance cost per

Vehicle number	Age in years	Maintenance cost Per annum (£)
1	2	60
2	8	132
3	6	100
4	8	120
5	10	150
6	4	84
7	4	90
8	2	68
9	6	104
10	10	140

vehicle. The following data have been supplied for a sample of vehicles:

Required:

- i) Using the least squares technique formulate a mathematical relationship between maintenance cost and the age of the vehicle.

ii) Estimate the maintenance costs of a 12-year-old vehicle. (10mks)

#### QUESTION FOUR

- a. Define the term coefficient of variation. (2mks)
- b. Discuss the properties of measures of Dispersion (4 mks)
- c. The following table gives profits (in ten thousands of shillings) of two supermarkets over a duration of one year.

Month	Supermarket A	Supermarket B
January	65	28
February	48	33
March	15	20
April	28	23
May	41	69
June	59	45
July	41	53
August	10	15
September	24	35
October	56	57
November	92	99
December	120	136

Required:

- i. Compute the coefficient of variation for each supermarket. (7mks)
- ii. Indicate for which supermarket the variability of profits is relatively greater. (2mks)

#### QUESTION FIVE

- a. Distinguish between descriptive and inferential statistics. (3 marks)
- b. State the limitations of statistics in decision making. (4 marks)

- c. In two factories A and B engaged in the same industry, average weekly wages and standard deviation are as follows:

Factory	Average weekly <u>Wages (\$)</u>	S.D of <u>wages</u>	No. of wage <u>earners</u>
A	460	50	100
B	490	40	80

**Required:**

- i) Which factory shows greater variability in the distribution of wages? (3 marks)
  - ii) What is the mean of all the workers in two factories taken together? (2marks)
- d. Highlight areas in which statistics can be applied (3 marks)

### QUESTION SIX

- (a) What is an Index Number? (2mks)
- (b) Explain four importance of index numbers. (3mks)
- (c) Explain two limitations of index numbers. (2mks)
- (d) The Kenya Bureau of statistics has provided the flowing data to estimate the cost of living of several households over a two-month period

Commodity	Quantity(Kg)		Price per kg(sh)	
	July	August	July	August
Rice	400	500	30	32
Sugar	20	15	110	100
Maize	80	100	25	28
Beans	90	90	40	42

You are required to compute:

- i) The Laspeyre's Price index. (2mks)
- ii) The Paasches's Price index. (2mks)
- iii) The Fisher's Price ideal index. (2mks)
- iv) Marshall Edgeworth price index (2mks)