MAASAI MARA UNIVERSITY

REGULAR UNIVERSITY EXAMINATIONS
2020/2021 ACADEMIC YEAR
FIRST YEAR FIRST SEMESTER

SCHOOL OF BUSINESS AND ECONOMICS
BACHELOR OF SCIENCE IN ECONOMICS/FINACIAL ECONOMICS/ECONOMICS AND STATISTICS

COURSE CODE: ECO 1105
COURSE TITLE: ECONOMIC STATISTICS

DATE: 31ST MAY, 2021   **TIME: 1100 – 1300 HRS**

Question 1

a. For each of the following situations, state the appropriate sampling technique that should be used giving appropriate reasons?

    i.   Selecting a sample of product to use in assessing the number of defectives in a production line.   **(2 marks)**

    ii.   Identifying individuals who have come into contact with COVID-19 infected persons during contact tracing.   **(2 marks)**

b. The table below shows the distribution of number of defective items in the production line of a manufacturing company.

Number of Defectives	2	4	6	7	10
Probability	0.1	X	0.2	0.3	Y

If the average number of defective items is 6, calculate the standard deviation for the number of defective items.   **(5 marks)**

c. The data below shows the distribution of sales of a company product in a week by sales agents.

Number of products	Number of sales Agents
15 – 19	4
20 – 24	10
25 – 29	15
30 – 34	22
35 – 39	10
40 – 44	8
45 – 49	3

Draw an ogive curve to represent the sales information above.   **(4 marks)**

d. The table below shows the daily demand of a certain product from a given shop for a period of 100 days. Use the data to construct a continuous frequency distribution with the lowest observation as the lower class boundary of the first class. Using the frequency distribution, verify that harmonic mean< geometric mean<arithmetic mean.   **(7 marks)**

61	55	24	50	64	71	44	83	53	81
45	46	60	71	57	87	67	66	99	54
34	64	82	74	46	92	95	75	99	41
69	56	55	32	53	48	23	61	90	63
37	79	99	34	39	30	24	52	42	57
94	50	50	62	93	72	25	76	62	89
61	44	51	85	26	50	95	48	46	64
29	69	50	27	65	90	46	85	59	25
87	86	94	37	39	97	64	79	98	63
86	32	66	78	37	84	96	63	33	49

Question Two

The table below shows the results for the prediction of an increase in return of portfolios by a certain prediction model.

Predicted increase in return	Actual Increase in Return	
	Yes	No
Yes	346	7
No	17	400

Determine the probability of

i. The model predicting an increase in return or there being an actual increase in return. **(3 marks)**

ii. False positive prediction by the model. **(2 marks)**

iii. False negative prediction by the model. **(2 marks)**

iv. Correct Prediction by the model. **(2 marks)**

v. An increase in return despite model predicting otherwise. **(3 marks)**

vi. A non-increase in return given that the model predicted so. **(3 marks)**

Question Three

a. Give **Four** reasons why complete enumeration is sometimes impossible to carry out. **(4 marks)**

b. The data below illustrate the price and quantities of items purchased at the particular prices in the year 2018 and 2020 respectively;

Year 2018		Year 2020	
Quantity	Price	Quantity	Price
6	300	4	400
8	320	4	360
4	220	2	300
20	200	10	360
14	220	6	340
16	260	6	420

Required;

    a) Laspeyre's Price index number. **(3 marks)**
    b) Paasche's Price index number. **(3 marks)**
    c) Fisher's Price index number. **(2 marks)**
    d) Marshal' Price Index number. **(3 marks)**

Question Four

a. The table below shows the distribution of 1400 job adverts made by the 47 counties in Kenya in a particular year.

Number of job Adverts	Number of Counties
10	P
25	12
40	8
50	Q
65	2

Required;

i. The value of P and Q. **(4 marks)**

ii. The Kelly's coefficient of skewness. **(6 marks)**

iii. Interquartile deviation. **(5 marks)**

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