(3)

(Knowledge for Development)

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UNIVERSITY EXAMINATIONS

2021/2022 ACADEMIC YEAR

FIRST YEAR SECOND TRISEMESTER

SPECIAL/SUPPLIMENTARY EXAMINATION

FOR THE DEGREE OF BACHELOR OF SCIENCE IN NURSING

COURSE CODE: **STA 111**

COURSE TITLE: INTRODUCTION TO STATISTICS

DATE: 29/09/2022 **TIME:** 2:00 PM – 4:00 PM

INSTRUCTIONS TO CANDIDATES

Answer Question One and Any other TWO Questions

TIME: 2 Hours

This Paper Consists of 4 Printed Pages. Please Turn Over.

QUESTION ONE (30 MARKS)

a) Statistics is made up of two categories of statistical methods, namely descriptive and Inferential. Differentiate them and give two examples in each category (2 mks)

b) Statistical methods are significant in managerial decision making. Discuss. (6 mks)

c) State and briefly discuss three basic methods used in data collection (6 mks)

d) Discuss the advantages and disadvantages of sampling (4 mks)

e) Explain briefly each of the following sampling techniques

i) Stratified sampling (2 mks)

ii) Systematic sampling (2 mks)

iii) Convenience sampling (2 mks)

f) In the following set of data, y represents the number of annual claims for damage received by an insurance company (in thousands) and x represents the annual rainfall (in centimeters) over a period of 10 years

X	0.0	2.5	2.2	0.0	19.5	2.5	2.0	2.0	3.1	0.0
Y	110	250	250	150	450	200	210	230	290	100

Find the correlation coefficient between X and Y using any suitable method (6 mks)

QUESTION TWO (20 MARKS)

(a) State four basic characteristics of a good measure of central tendency (2 mks)

(b) Explain the term Dispersion in Statistics. What role does a measure of dispersion serve? (4 mks)

(c) Differentiate between symmetric and asymmetrical distributions (2 mks)

(d) The following are marks for students in a business class.

28	29	45	29	36	48	57	67	69
48	40	47	42	41	37	51	62	63
31	32	35	40	38	37	60	51	54
37	46	42	38	61	59	58	44	39
38	44	45	45	47	38	44	47	47

(i) Construct a frequency distribution table for a grouped data using 25 – 34, 35 – 44 etc. (3 mks)

(ii) Compute the Mean, mode, median, standard deviation, coefficient of variation and comment on the symmetry of the distribution (9 mks)

QUESTION THREE (20 MARKS)

g) The data below shows ages (X) and blood pressure (Y) of 8 patients.

X:	52	63	45	36	72	65	47	25
Y:	62	53	51	25	79	43	60	33

Required, obtain the

i) Correlation coefficient using the Pearson - product correlation method (6mks)

ii) Regression equation of Y against X. Find the expected blood pressure of a patient aged 49 years (6mks)

h) The following table shows the points on a scale of 1 to 10 awarded to 10 candidates who attended a job interview by two interviewers: Peter and James. use it to answer the questions that follow

Candidate	A	B	C	D	E	F	G	H	J	K
Peter	20	12	8	16	10	21	26	6	14	24
James	15	14	7	12	18	22	20	4	10	28

(i) Compute the Spearman's rank co-efficient of correlation between the points awarded by the two interviewers (7mks)

(ii) Using the value obtained in (i), comment on the consistency in assessment between the two interviewers (1mk)

QUESTION FOUR (20 MARKS)

(a) Define the term "Index Number" (1 mk)

(b) Discuss the uses and limitations of using Index numbers in decision making (6 mks)

(c) The data below shows the prices of sugar (in shillings) from 2017 t0 2022 in the country

Year	2017	2018	2019	2020	2021	2022
Price/kg	3600	3750	4200	4500	4050	4800

Construct the average price relative (APR) using the chain base index numbers for the data (4 mks)

(d) The table below shows prices and quantities five basic household commodities

commodity	2021		2022	
	Price (USh.)	Quantity (Kgs)	Price (USs.)	Quantity (Kgs)
Wheat flour	1000	800	1000	1400
Rice	1100	3640	1700	6000
Beans	1000	2000	800	2000
Maize flour	600	1200	400	1000
Bananas	800	800	1000	700

Taking 2021 as the base year, obtain the fishers ideal index (9 mks)

QUESTION FIVE (20 MARKS)

(a) Differentiate between the following statistical terms (2mks each)

(i) Primary and secondary data

(ii) Nominal and ordinal levels of measurements

(iii) Deductive and inductive statistics

(iv) Questionnaires and interview methods of data collection

(b) State four basic characteristics of a good measure of central tendency (2mks)

(c) With relevant illustrations what do you understand by the terms Skewness and Kurtosis? Point out their roles in analysis of a frequency distribution. (5mks)

(d) Explain the term Dispersion as used in Statistics. What purpose does a measure of dispersion serve? (5mks)