

LAIKIPIA



UNIVERSITY

UNIVERSITY EXAMINATIONS

1ST SEMESTER 2023/2024 ACADEMIC YEAR

FOURTH YEAR EXAMINATION FOR THE DEGREE
OF BACHELOR OF ARTS IN CRIMINOLOGY AND
SECURITY STUDIES

CRSS 412: SOCIAL STATISTICS II

STREAM:

TIME: 2 HRS

DAY: WEDNESDAY [8.30-10.30 A.M]

DATE: 13/12/2023

THIS QUESTION PAPER CONSISTS OF THREE (3) PAGES

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INSTRUCTIONS: ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER THREE QUESTIONS**QUESTION ONE**

- a) The area under a normal curve has a relative frequency of one and since the curve is symmetrical, 0.5 of the area is on each side of the mean. Explain other properties of a standard normal curve. (6 Marks)
- b) i. Differentiate between permutation and combination (3 Marks)
 ii. A social statistic discussion group consists of 4 speakers. In how many ways can all 4 speakers be arranged in a row for a photo? (3 Marks)
 iii. In how many ways can 6 different books be arranged on a shelf? (4 Marks)
 iv. A pizza restaurant offers 4 different toppings for their pizzas. If a customer wants to order a pizza with exactly 2 toppings, in how many ways can this be done? (4 Marks)
- c) State at least five guidelines for a good questionnaire design. (5 marks)
- d) With statistics, you can collect data from a population or from a sample. What is the role of descriptive statistics during statistical data collection process? (5 marks)

QUESTION TWO

- a) Probability is usually a number between 0 and 1 which measures the likelihood of the occurrence of some event and or the relative frequency in which an experiment can occur. In a certain experiment, a coin was tossed ten times. Find the probability of getting:
- (i) 2 heads (4 Marks)
 (ii) 5 tails (3 Marks)
 (iii) No head (3 Marks)
- b) The table below shows data collected on taste of beer among a hundred women in Nyahururu town:

	Reeds	Snapp	Guarana	Guinness	Total
Observed	10	20	55	15	100
Expected	25	25	25	25	100

Is there a significance difference in the taste of beer among women? (10 Marks)

QUESTION THREE

- a) The following are marks obtained by ten students in two tests. Calculate Spearman’s rank correlation coefficient between the marks of the two tests (10 marks)

students	A	B	C	D	E	F	G	H	U	J
Test I	70	68	67	55	60	60	75	63	60	72
Test II	65	65	80	60	68	58	75	63	60	70

- b) Supposing men and women take alcohol as follows;

	Redds	Guerona	Tusker	Amarulla	Total
Women	35	25	15	25	100
Men	20	30	70	30	150
Total	55	55	85	55	250

At 5% level of significance, test whether consumption of various brands of alcohol is independent of gender (10 marks)

QUESTION FOUR

- a) Use the data below to answer the questions that follow:

75	79	56	42	80	58	73	94	77	60
28	37	67	55	87	39	55	70	73	81
75	67	73	46	53	69	68	82	84	70
52	55	29	78	64	37	81	76	74	63
59	63	81	77	66	58	63	60	71	82

Use a range starting 20 – 29 to construct a table to enable to calculate:

- (i) The variance (10 Marks)
- (ii) Standard deviation (10 Marks)