



**KISII UNIVERSITY**  
**UNIVERSITY EXAMINATIONS**

**FIRST YEAR EXAMINATION FOR THE AWARD OF THE DEGREE OF**  
**MASTER IN CRIMINOLOGY AND SECURITY STUDIES**  
**FIRST SEMESTER 2023/2024**  
**[SEPTEMBER - DECEMBER, 2023]**

**SCR 802: ADVANCED SOCIAL STATISTICS IN CRIMINOLOGY**

**STREAM: Y1S1**

**TIME: 3 HOURS**

**DAY: WEDNESDAY, 9:00 - 11:00 A.M.**

**DATE: 20/03/2024**

**INSTRUCTIONS**

- 1. Do not write anything on this question paper.**
- 2. Answer Question ONE and any other TWO Questions.**
- 3. Illustrate your answer with relevant cases and statutory provisions where applicable.**

**ANSWER ANY FOUR QUESTIONS**

**QUESTION ONE**

- a) Differentiate between parameters and statistics, descriptive statistics and inferential statistics. (4 marks)
- b) Statistics plays an important role in our daily life; it is useful in almost all sciences – social as well as physical. State situations where statistics is applicable in criminology studies. (4 marks)
- c) The table below represents the marks obtained by students in English subject.

Student	1	2	3	4	5	6	7	8	9	10
Marks	43	48	65	57	35	60	37	48	78	59

Calculate the standard deviation

(7 marks)

## QUESTION TWO

The table below represents the number of crimes committed in ABC sub-location since a new sub-chief was installed.

Year	1	2	3	4	5	6
No. of reported crimes committed	10	8	12	13	16	20

Required

Predict the number crimes that will be committed in year 12. (15 marks)

## QUESTION THREE

a) What are the characteristics of ideal measure of average? (3 marks)

b) A national magazine reports that the average counseling contact minutes of rehabilitation for petty offenders is 24,672 minutes. To see if the average counseling contact minutes of rehabilitation is different at a prison, a researcher selected a random sample of 35 petty offenders and found that the average counseling contact minutes of their rehabilitation is 25,226 minutes. The standard deviation of the population is 3,251 minutes. At  $\alpha = 0.01$ , can it be concluded that the average counseling contact minutes at a prison is different from 24,672 minutes? (12 marks)

## QUESTION FOUR

a) Find Karl Pearson's coefficient of correlation from the following data between % change in population and % change in crime rate in XYZ capital city.

% change in population	64	65	66	67	68	69	70
% change in crime rate	66	67	65	68	70	68	72

Comment on the result.

(15 marks)

### QUESTION FIVE

- a) Using a well labeled table show the situations where the two types errors will occur in hypothesis testing. (4 marks)
- b) Two students A and B in the same class obtained the following marks in five subjects.

Student A	Student B
68	85
75	90
65	80
67	25
70	65

Justify why standard deviation is a good measure of comparing the performance of the above students as opposed to arithmetic mean.

(11marks)

### QUESTION SIX

The tables below were generated by SPSS on a study on effect of E-business strategy (e-data interchange, e-positioning, online advertisement, e-payment) on organizational performance.

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<b>Model Summary</b>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.596 <sup>a</sup>	.355	.311	.47196

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a. Predictors: (Constant), e-data interchange, e-positioning, online advertisement, e-payment

- a) What is the correlation between E-business strategy and organizational performance?  
(2 marks)
- b) Interpret R-square  
(3 marks)

<b>ANOVA<sup>b</sup></b>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.115	4	1.779	7.985	.000 <sup>a</sup>
	Residual	12.919	58	.223		
	Total	20.034	62			

a. Predictors: (Constant), e-data interchange, e-positioning, online advertisement, e-payment

b. Dependent Variable: Organizational performance

Explain the relevance of this table (2 marks)

<b>Coefficients<sup>a</sup></b>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.878	.316		2.782	.007
	Online advertisement	.054	.183	.039	.297	.768
	e-positioning	-.037	.180	-.036	-.207	.837
	e-payment	.500	.143	.595	3.497	.001
	E-data interchange	.021	.117	.022	.180	.857

a. Dependent Variable: Organizational performance

c) Formulate the multiple regression model from the above table and make statements about how well independent variables predict the value of the dependent variable. (8marks)