INSTRUCTIONS TO CANDIDATES

Answer Question One and Any other TWO (2) Questions

TIME: 2 Hours

Question One (30 Marks)

a) Define the following concepts as used in statistics

   i) Directional hypothesis (1mark)

   ii) Inferential statistics (1mark)

   iii) Sampling unit (1mark)

   iv) Mean (1mark)

   v) Test of significance (1mark)

   vi) Accessible population (1mark)

   vii) Sample (1mark)

   viii)   Raw data (1mark)

b) Using a well-illustrated diagram explain three characteristics of a normal curve (3 marks)

c) Justify four importance of statistics to a student pursuing a course in criminology (4 marks)

d) Given the data set: 43, 35, 18, 20, 18, 36 and 12, Calculate the:

   i) Mean (2 marks)

   ii) Standard deviation (3 marks)

   iii) State the importance of mean (1mark)

e) Data on the relationship between the number of days absent and level of discipline are given below

Level of discipline	Number of days absent		
	< 5	5 - 10	> 10
Good	4	7	8
Average	3	4	7
Poor	4	10	12

   i) State the null hypothesis (1mark)

   ii) Using a Chi-square, test your null hypothesis at 0.05 level of significance (5 marks)

f) Explain three ways researchers can minimize errors in data collected (3 marks)

Question 2 (20 marks)

a) Explain two properties of the mean (2 marks)

b) State three ethical considerations in research (3 marks)

c) The following are scores of students of criminology in statistics

   43, 50, 61, 52, 45, 67, 60, 91, 30, 55, 48, 76, 51, 79, 60, 70, 35, 65, 57 and 78

   i) Using a starting class of 30-36 construct a grouped frequency distribution table for the data
   (4 marks)

   ii) Using a frequency table, determine the mean, median and standard deviation of the data set
   (8 marks)

   iii) Draw a histogram for the data set (3 marks)

Question 3 (20 marks)

a) Using a diagram explain the regions where a researcher may or may not reject a null hypothesis
   (4 marks)

b) Using examples explain the four levels of measurement scales in research (8 marks**)**

c) Explain four ways in which data can be classified (8 marks)

Question 4 (20 marks)

a) Using diagrams explain the concept of positively skewed and negatively skewed distributions (3 marks)

b) Discuss three advantages of sampling (6 marks)

c) State two considerations made before sampling (2 marks)

d) Using appropriate examples explain the following strategies of sampling

   i) Simple random sampling (3 marks)

   ii) Stratified sampling (3 marks)

   iii) Snowball sampling (3 marks)

APPENDICES

Appendix 1: Critical Chi Square Values

	Level of Significance					
df	0.20	0.10	0.05	0.02	0.01	0.001
1	1.642	2.706	3.841	5.412	6.635	10.828
2	3.219	4.605	5.991	7.824	9.210	13.816
3	4.642	6.251	7.815	9.837	11.345	16.266
4	5.989	7.779	9.488	11.668	13.277	18.467
5	7.289	9.236	11.070	13.388	15.086	20.515