KENYATTA UNIVERSITY
UNIVERSITY EXAMINATIONS 2018/2019
SECOND SEMESTER EXAMINATION FOR THE DEGREE OF
MASTER OF ARTS IN SOCIOLOGY

AMC 801: STATISTICS IN SOCIAL SCIENCES

DATE: THURSDAY 4TH APRIL, 2019 TIME: 2.00 P.M - 5.00 P.M

INSTRUCTIONS:

- **Question one is compulsory**
- **Answer any two other questions**
- **Scientific calculators are allowed in the exam room**
- **Use of mobile phones is strictly prohibited in the exam room**

Q1- Compulsory (20 marks)

1. With justification, discuss why counselling psychology students should learn statistics [10marks]

b). The mean is a powerful measure of central tendency, however it is not always appropriate. Describe two reasons that will make you use other measures of central tendency other than the mean [4 Marks]

c) With justification, describe the appropriate statistical test you would apply to test the following hypothesis

i. Comparing scores of performance from independent groups
ii. Testing for significant differences in scores from three groups
iii. Testing for associations between groups with test scores that are skewed

{ 6 marks}

2. For this set of population grouped scores, compute the mean, the variance, and the standard deviation.

Population Scores
95-99
90-94
85-89
80-84
75-79
70-74
65-69
60-64
55-59

[10 marks]

b. Laboratory rats commit and average of u= 40 errors before they solve a standardized maze problem. The distribution of error scores is approximately normal with a standard deviation of σ = 8. A researcher is testing the effect of anew dietary supplement on intelligence. A new born rat is selected and given the supplement daily until it reaches maturity. The rat is then tested on the maze and finishes with a total of χ = 24 errors

a. What is the probability that a regular rat without the supplement will solve the maze with a score less than or equal to X= 24 errors [4 marks]
b. Is it reasonable to conclude that the rat with the supplement is smarter than the vast majority of regular rats [2 marks]
c. Does it appear that the supplement has an effect on intelligence? Explain your answer [4 marks]

3. Researchers have developed a 7 minute screen for identifying individuals with high risk of Alzheimer disease. Usually long series of cognitive tests are used. The question however is whether the 7- minute screen is as effective as the long series of cognitive tests. The researcher administer both tests to establish the correlation. The data is shown below

Patient	7-Minute screen	cognitive series
A	3	11
B	8	19
C	10	22
D	8	20
E	4	14
F	7	13
G	4	9
H	5	20
I	14	25

a. Compute the Pearson's correlation to measure the degree of the relationship between the two test scores [6 marks
b. Is the correlation statistically significant? Use two tailed test with $\alpha = 0.01$ [4 marks]

.c Based on the obtained value calculate the coefficient of determination r^2 (4 marks)

d. Describe the three characteristics of the relationship measured in correlation studies [6 marks]

4. Describe five factors that will inform your choice of a statistical test [10 marks]

b), Explain three strengths that make ANOVA attractive to researchers [6 marks]
c. Give the major reasons of conducting a post hoc test [4 mark]

5. Explain different ways of presenting qualitative data [8 marks .]
b. Discuss three approaches used in analysing qualitative data [12 marks]