



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2016/2017

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF MASTER OF ARTS

AMC 801: STATISTICS AND DATA ANALYSIS

DATE: Friday 19th May 2017

TIME: 5.30p.m -8.30p.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

Question 1

- a) Describe the following concepts and show how they apply in data analysis
- Hypothesis testing
 - Inferential statistics
 - Alpha value
 - Main effect
- [8marks]
- b) Discuss the role of descriptive statistics in analysis of data. [12marks]

Question 2

- a) Explain the concept of Z scores and how it is applies in data analysis. [10marks]
- b) Many people experience stress related to adjustment after retiring from active service. A husband and wife retired from active service at the same time. Six months later they were tested on adjustment scale. The wife scored 70. The mean adjustment for retired women is 65 with $S = 5$. The husband scored 70 as well. The

mean adjustment for retired men is 72 with $S = 3$. Based on the data, who is doing better at adjustment. Give reasons for your answer. [4marks]

c) The retirees were further interviewed about the process of adjustment that this to say

Wife: *Life out here is not easy but with friends you are able to learn and cope. At least I have my fellow women to talk to and I do not have to worry much about being late.*

Husband: *It is not easy out here. Everything requires money and because we have been out we are expected to entertain the friends you have which is sometimes beyond your means.*

Analyze the data and explain the main challenges experienced in adjustment after retirement and draw a conclusion based on the quotes. [6marks]

Question 3

A researcher wanted to test the effect of imagination of safety in treatment of phobia. He/she designed an experiment in which the participants were to sit in front of a screen and relax. Participants are then shown an image of feared object. The researcher then recorded the amount of time that the participant was able to endure looking at the image. The participant is then allowed 2 minutes to imagine a safe place before the image is presented again. The amount of time that the participants are able to endure looking at the image is recorded.

- State the hypothesis that guided the study. [2marks]
- Which type of experiment design was used and what is the advantage of the design? [4marks]
- Fill in the missing value in the table. [2marks]

The data from the experiment is presented below

Participant	Time before Imagination	Time after Imagination	D	D ²
1	15	24	+9	81
2	10	23	13	160
3	7	11	-	-
4	18	25	+7	-
5	5	14	-	-
6	9	14	-	-
7	12	21	+9	-

- iv. Calculate the sample variance [4marks]
- v State the df and identify the critical value for this sample in t statistics table. [2marks]
- vi. If $t = 7.05$ is there a significant difference and what conclusion would you draw, based on this results. [4marks]
- vii. Report the findings as per APA style. [2marks]

Question 4

- a) With examples discuss two methods that you would use to confirm validity of qualitative data. [8marks]
- b) With examples discuss the difference between discourse and thematic analysis in qualitative data analysis. [12marks]

Question 5

- a) Describe the four prerequisites to meet before using parametric tests in data analysis. [8marks]
- b) Describe the four factors that make ANOVA an attractive statistical test for researchers. [12marks]