

**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**SCHOOL OF EDUCATION**

**UNIVERSITY EXAMINATION FOR MASTER OF EDUCATION IN SPECIAL NEEDS**

**1STYEAR2NDSEMESTER 2017/2018 ACADEMIC YEAR**

**MAIN CAMPUS SCHOOL BASED**

**COURSE CODE: ENE 304**

**COURSE TITLE: COMPUTER APPLICATION IN RESEARCH**

**EXAM VENUE: -- STREAM: MED SNE**

**DATE: 23/12/17 EXAM SESSION: 11.00 – 2.00PM**

**TIME: 2 HOURS**

**Instructions:**

1. **Answer ANY 3 questions**
2. **Candidates are advised not to write on the question paper.**
3. **Candidates must hand in their answer booklets to the invigilator while in the examination room.**
4. (a) What are the conditions for conducting a one-way between groups ANOVA? (4 mks)

(b) A researcher wanted to find out whether there is a significant difference between the

total optimism score on the optimism scale across three age groups. While analyzing

the data by conducting an ANOVA test using SPSS, the researcher obtained the output shown in tables below. Use the output tables to answer the questions that follow.

**Output from a one-way between groups ANOVA**

Oneway

Descriptives

Total Optimism

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | N | Mean | Std.  Deviation | Std.  Error | 95% Confidence  Interval for Mean | | Minimum | Maximum |
| Lower  Bound | Upper  Bound |
| 1 18-29  2 30-44  3 45+  Total | 147  153  135  435 | 21.36  22.10  22.96  22.12 | 4.551  4.147  4.485  4.429 | 375  335  386  212 | 20.62  21.44  22.19  21.70 | 22.10  22.77  23.72  22.53 | 7  10  8  7 | 30  30  30  30 |

Test of Homogeneity of variance

Total Optimism

|  |  |  |  |
| --- | --- | --- | --- |
| Levene  Statistic | df1 | df2 | Sig. |
| 746 | 2 | 432 | .475 |

ANOVA

Total Optimism

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Sum of  Squares | Df | Mean Square | F | Sig. |
| Between Groups  Within Groups  Total | 179.089  833.951  8513.021 | 2  432  434 | 89.535  19.292 | 4.641 | .010 |

Robust Tests Of Equality Of Means

Total Optimism

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Statistic | df1 | df2 | Sig. |
| Welch  Brown-Forsythe | 4.380  4.623 | 2  2 | 284.508  423.601 | .013  .010 |

Multiple Comparisons

Dependent Variable: Total Optimism

Tukey HSD

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| (I)Age.3 groups (J)age 3 groups | Mean  Difference  (I-J) | Std. Error | Sig | 95% Confidence Interval | |
| Lower Bound | Upper Bound |
| 1 18-29 2 30-44  3 45+ | -.744  -1.595\* | .507  .524 | .308  .007 | -1.94  -2.83 | .45  -.36 |
| 2 30-44 1 18-29  3 45+ | -.744  -.851 | .507  .519 | .308  .230 | -.45  -2.07 | 1.94  .37 |
| 3 45+ 1 18-29  2 30-44 | 1.595\*  .851 | .524  .519 | .007  .230 | .36  -.37 | 2.83  2.07 |

\* The mean difference is significant at the 0.05 level

1. What was the total number of individuals that were studied? (1 mk)

(ii) With a reason state whether the assumption of homogeneity of variances was violated or not. (2 mks)

(iii) With a reason, state whether there is a significant difference between

the groups. (3 mks)

(c ) Describe how you would screen data for errors (10 mks)

1. A researcher collected data from four schools in two districts concerning the perception of the students about some aspects of their school. The schools were St. Anne, St. Cecilia, St. Ignatius and St. Paul and the districts were Kisumu and Migori. The questionnaire for data collection is shown below:-

**Students’ questionnaire**

1. District …………
2. School …………
3. Gender …………
4. Age …………
5. Indicate your level of agreement with the statements after the key below

**KEY**

1 = Strongly disagree

2 = Disagree

3 = Undecided

4 = Agree

5 = Strongly Agree

1. My school is the best 1 2 3 4 5
2. Our head teacher is good 1 2 3 4 5
3. Our deputy is good 1 2 3 4 5
4. We have the best diet 1 2 3 4 5
5. We are a disciplined school 1 2 3 4 5

Use the above questionnaire to answer the questions that follow:-

1. Prepare a code book for the data collected. (9 mks)
2. From the questionnaire which data items will give you:-
   * Continuous data (2 mks)
   * Discrete data (2 mks)
   * Ordinal data (2 mks)
3. Outline the rules for naming variables. (5 mks)
4. (a) What assumptions are common to all techniques used to explore relationships

among variables? (6 mks)

(b) Describe the procedure for requesting Pearson’s r from SPSS . (7 mks)

(c ) Describe the procedure for carrying out standard multiple regression using SPSS. . (7 mks)

1. A researcher conducted a research to explore sex differences in self-esteem scores and obtained the output as shown in the tables below. Use the output tables to answer the questions that follow:-

**The output generated from this procedure is shown below**

Group Statistics

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| SEX | N | Mean | Std. Deviation | Std. Error Mean |
| Total self MALES  esteem FEMALES | 484  352 | 34.02  33.17 | 4.91  5.71 | 36  36 |

Independent samples t-test

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  | |
| F | Sig. | t | df | Sig.  (2-tailed) | Mean  Difference | Std. Error  Difference | 95% Confidence  Interval of the  Difference | | |
| Lower | | Upper |
| Total Equal variances  self assumed  esteem Equal variances  not assumed | 3.505 | .062 | 1.622  1.661 | 434  422.349 | .105  .098 | 85  85 | 52  51 | 18  18 | | 1.87  1.85 |

1. How many males and females participated in the study?

(i) Males (1 mk)

(ii) Females (1 mk)

1. What is the function of Levene’s test for equality of variances.? (2 mks)
2. What was the P value for the t-test? (2 mks)
3. State whether there was a significant difference between the means for males and females and why you think so? (4 mks)
4. What are the conditions for conducting independent samples t-test?(4 mks)
5. Distinguish between parametric and non-parametric techniques used to compare groups. Give two examples in each case. (6 mks)
6. (a) Distinguish between
7. Data view and variable view in the data editor window of SPSS. (2 mks)
8. Warm booting and cold booting of a computer (2 mks)
9. Code book and data file (2 mks)

(b) Identify the types of variables for the following variable names.

(i) Age (1 mk)

(ii) Gender (1 mk)

(iii) Percentage marks (1 mk)

1. School (1 mk)

(c ) How would you copy variable definition attributes to a number of other

Variables? (2 mks)

(d) What are the stages involved in creating data file and entering data? (3 mks)

(e) How can one find and correct errors in a data file? (5 mks)