



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**SCHOOL OF EDUCATION**  
**UNIVERSITY EXAMINATION FOR DEGREE IN MASTERS IN EARLY**  
**CHILDHOOD EDUCATION**  
**1<sup>ST</sup> YEAR 2<sup>ND</sup> SEMESTER 2013/2014 ACADEMIC YEAR**  
**CENTRE: MAIN SCHOOL BASED**

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**COURSE CODE: ECE 814**

**COURSE TITLE: COMPUTER APPLICATION**

**EXAM VENUE:                      STREAM: MASTERS IN EARLY CHILDHOOD EDUCATION**

**DATE: 17/12/13                      EXAM SESSION: 9.00 – 12 NOON**

**TIME: 3 HOURS**

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**Instructions:**

- 1. Answer question 1 ( compulsory ) and ANY other 2 questions.**
- 2. Print all you SPSS data views and outputs and analysis**
- 3. Candidates are advised not to write on the question paper.**
- 4. Candidates must hand in their answer booklets to the invigilator while in the examination room.**

### Question 1:

1. The following is a sample of Weight of **18 students** in a school in Kilograms.

**Table 1: Weight of girls and boys in a school in Kilograms**

NO.	Weight (kg)	Gender	NO.	Weight (kg)	Gender
1	65	Boy	10	56	Girl
2	59	Girl	11	57	Boy
3	79	Boy	12	54	Girl
4	60	Boy	13	55	Boy
5	56	Girl	14	49	Girl
6	56	Boy	15	53	Girl
7	65	Girl	16	54	Boy
8	61	Boy	17	48	Girl
9	48	Girl	18	58	Boy

- a) Enter the data into the SPSS data editor and print .(**6 marks**)
- b) Analyze sample data using SPSS to:
- Find the means, mode, standard deviation, maximum, minimum, kurtosis of the samples.(**4marks**)
  - Give output of a pie charts to show the distributions of the students by gender. (**2 marks**)
  - Give an output of a histogram with a normal curve to show the distributions of students' weight. (**4 marks**)
  - Use an appropriate statistical test to find out whether the mean difference in weight of boys and girls statistically significant.  $p = 0.05$  (4marks).(4 **marks**)

**Question 2:**

- a) Name the four factors to be considered when choosing an inferential statistical test. (2 marks)
- b) A researcher is interested in determining whether **Teachers' Gender (Male or Female)** is associated with **teaching Subject (Sciences or Humanities)** and collected the following data from a sample of 15 teachers.

**Table 2: Teachers and Teaching Subject**

No	Teachers' Gender	Teaching Subject
1.	Male	Sciences
2.	Female	Humanities
3.	Female	Sciences
4.	Male	Sciences
5.	Female	Humanities
6.	Male	Humanities
7.	Female	Sciences
8.	Female	Humanities
9.	Male	Sciences
10.	Male	Sciences
11.	Female	Humanities
12.	Female	Humanities
13.	Male	Sciences
14.	Female	Humanities
15.	Female	Humanities

- i. Enter the data into the SPSS data editor and print. (6 marks)
- ii. Analyze sample data using SPSS to:
- Give output of a cross tabulation (contingency table) of the Observed and expected frequencies. (2marks)
  - Give output of a pie charts to show the distributions of the students by **Teachers' Gender** and **teaching Subject** .(4marks)
  - Analyze sample data using Pearson's Chi-square test (Chi-square test of association) ( $\chi^2$ ) to find out whether there is association between **Teachers' Gender (Male or Female)** and **teaching Subject (Sciences or Humanities)**. (4 marks)
  - Produce an output of display of clustered bar charts for **Teachers' Gender (Male or Female)** and **teaching Subject**. (2 marks)

**Question 3:**

- a) Illustrate graphically the weak positive and strong negative correlation coefficient .(2 marks)
- b) The Table 1 shows the CAT(x) scores and End Term Exam(y) scores of a sample of 12 students.

**Table 3: The CAT(x) scores and End Term Exam(y) scores of a sample of 12 students.**

CAT(x)	56	42	72	36	63	47	55	49	38	42	68	60
End Term Exam (y)	147	125	160	118	149	128	150	145	115	140	152	155

- i. Enter the data into the SPSS data editor and print. (4 marks)
- ii. Use SPSS to ::
- a) Compute the mean and standard deviation of CAT(x) and End Term Exam (y) . (2 marks)
- b) Find Pearson's Product-Moment Correlation coefficient (r) and describe the nature of relationship between CAT(x) and End Term Exam (y) . (4 marks)
- c) Obtain a scatter diagram of the data CAT(x) scores and End Term Exam (y) scores. (2 marks)
- d) Perform a simple regression analysis and determine the Least Squares Regression Line equation of Y on X. (4 marks)
- e) Estimate the End Term Exam(y) scores of a student whose CAT scores are known to be 45. (2 marks)

**Question 4:**

The data in **Table 4** is for a study to compare the performances in Physics of the students who are involved in three different sports (Rugby, athletics and tennis) and find out if there are any differences in these students' performance in Mathematics.

**Table 4: Student Sporting activities and their performance in Mathematics**

<b>NO</b>	<b>sport</b>	<b>student performance in Physics</b>
1.	Rugby	65
2.	Athletics	62
3.	Tennis	67
4.	Rugby	56
5.	Athletics	58
6.	Tennis	61
7.	Athletics	63
8.	Rugby	72
9.	Athletics	69
10.	Tennis	66
11.	Rugby	62
12.	Rugby	51
13.	Athletics	49
14.	Tennis	52
15.	Tennis	56

- i. Enter the data into the SPSS data editor and print **(6 marks)**
- ii. Give an output of a pie chart to show the distributions of the **Sporting activities of the students.** **(2 marks)**
- iii. Give an output of a histogram with a normal curve to show the distributions **student performance in Physics .** **(2 marks)**
- iv. Analyze sample data using:
  - a. ANOVA , giving the descriptive analysis and find out if the test is statistically significant at  $p = 0.05$ . **(3 marks)**
  - b. Tukey post hoc analysis to show the significance of the difference in **student performance in Physics** amongst the 3 groups of **Sporting activities of the students.** **(3 marks)**

**Question 5:**

Some 12 children in an ECDE class performed a high jump sports before and after lunch and their records of performance was as shown.

**Table 5 : High Jump performance of ECDE pupils before and after lunch**

<b>Pupil</b>	<b>High jump before lunch(<math>x_1</math>) cm</b>	<b>High jump after lunch (<math>x_2</math>) cm</b>
1	132	136
2	146	145
3	135	140
4	141	147
5	139	142
6	162	160
7	128	137
8	137	136
9	145	149
10	151	158
11	131	120
12	143	150

- i. Enter the data into the SPSS data editor and print . **(6 marks)**
- ii. Analyze sample data using SPSS to:
  - a) Find the means, mode, standard deviation, maximum, minimum, kurtosis of the two samples ( $x_1, x_2$ ). **(4 marks)**
  - b) Give outputs of a histograms with a normal curves to show the distributions the two samples ( $x_1, x_2$ ). **(4 marks)**
  - c) Use an appropriate statistical test to find out whether the mean difference  $x_1$  and  $x_2$  statistically significant.  $p = 0.05$ . **(4 marks)**
  - d) what is the degree of freedom. **(2 marks)**