



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF SCIENCE
AND TECHNOLOGY**

**UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR**

**THIRD YEAR SECOND SEMESTER EXAMINATIONS
MAIN EXAMINATION**

**FOR
THE BACHELOR OF EDUCATION DEGREE**

COURSE CODE: PSY 311

**COURSE TITLE: EDUCATIONAL MEASUREMENT AND
EVALUATION**

DATE: 19/04/2022

TIME: 12:00 - 2:00 PM

INSTRUCTIONS TO CANDIDATES

Answer Question ONE and any other TWO Questions

TIME: 2 Hours

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2051

1. a) With specific examples in your subject area, explain the following terms (3 marks)

i) Measurement

ii) Test

b) Citing relevant examples, explain how the following types of evaluation are important in your subject area (4 marks)

i) Internal evaluation

ii) External evaluation

c) Describe the concept of reliability as used in measurement and evaluation (5 marks)

d) The data below consists of marks obtained in Mathematics test in a form one class.

68	76	66	45	57	81	74	54
78	73	70	42	71	58	78	67
48	68	81	47	65	52	64	69
76	58	56	47	62	52	83	63
71	51	53	61	69	62	41	50

Using $i=5$ and starting with 40:

i) Prepare a frequency distribution table for the data set (6 marks)

ii) Draw a frequency polygon super imposed on a histogram (6 marks)

iii) Compute the mode, median and mean (6 marks)

2. a) When is the mode preferred over the mean as a measure of central tendency? (3 marks)

b) Explain THREE types of validity a teacher should use when setting a test (5 marks)

c) Why must learning process in school be subjected to measurement and evaluation (12 marks)

3. a) Differentiate between interval and ratio scales (4 marks)

b) Explain four procedures for constructing multiple test questions (8 marks)

c) Explain any eight qualities of a good test (8 marks)

4. a) Citing relevant examples explain the characteristics of discriminative power and difficulty value of a test (8 marks)

b) Prepare a specification test matrix of six topics in any one of your study subjects (12 marks)

5. a) Calculate the standard deviation for the following scores: 6 3 7 5 9 12 (4 marks)

b) With Illustrations, explain the differences between positively and negatively skewed scores in a test result (4 marks)

c) Kenya Institute of Curriculum Development (KICD) investigated the performance of competence based curriculum in a computer subject. Two tests were given to 12 students a pilot school and the results were as follows:

TEST 1 60 33 52 65 47 65 57 74 66 46 73 42

TEST 2 43 64 55 22 63 45 74 57 45 70 64 58

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Using Spearman's rank order correlation coefficient, determine whether the KICD got value for its newly rolled out curriculum (12 marks)

Formula sheet PSY 311

$$\bar{X} = \frac{\sum x_i}{N} \quad \bar{X} = \frac{\sum fx}{\sum f} \quad \text{or} \quad \bar{X} = A + \frac{\sum f(x-A)}{\sum f}$$

$$Mo = L + \left[\frac{d_1}{d_1 + d_2} \right] i \quad 4. \quad Md = L + \left[\frac{N/2 - Cumf_b}{f_w} \right] i$$

$$SIQR = \frac{Q_3 - Q_1}{2} \quad \text{Where } Q_1 = L + \left[\frac{N/4 - Cumf_i}{f_q} \right] i$$

$$Q_3 = L + \left[\frac{3N/4 - Cumf_i}{f_q} \right] i$$

$$\sigma^2 = \frac{\sum d^2}{N} \quad \text{or} \quad \sigma^2 = \frac{\sum x^2 - \frac{(\sum x)^2}{N}}{N} \quad \text{or} \quad \sigma^2 = \frac{\sum f(x-\bar{x})^2}{N}$$

$$\sigma = \sqrt{\frac{\sum (x-\bar{x})^2}{n}} \quad \text{or} \quad \sigma = \sqrt{\frac{\sum fx^2}{\sum f} - \left(\frac{\sum fx}{\sum f} \right)^2}$$

$$r_{xy} = \frac{\sum (x-\bar{x})(y-\bar{y})}{\sqrt{[\sum (x-\bar{x})^2][\sum (y-\bar{y})^2]}} \quad \text{or}$$

$$r_{xy} = \frac{n \sum xy - \sum x(\sum y)}{\sqrt{[n \sum x^2 - (\sum x)^2][n \sum y^2 - (\sum y)^2]}}$$

$$rho / P = 1 - \frac{6 \sum D^2}{N(N^2 - 1)} \quad r_{mn} = \frac{(n)(r_{tt})}{1 + (n-1)r_{tt}} \quad r_{xx} = \frac{2r_{11}}{1 + r_{22}}$$

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$$b = \frac{N \sum XY - \sum X \sum Y}{N \sum x^2 - (\sum x)^2}$$

$$md = \frac{\sum f|x - \bar{x}|}{\sum f} \text{ or } md = \frac{\sum f|x - \bar{x}|}{n} \quad Se = Sx \sqrt{1 - r_{xy}}$$

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