NATIONAL OPEN UNIVERSITY OF NIGERIA
14/16 AHMADU BELLO WAY, LAGOS

SCHOOL OF EDUCATION
MAY/JUNE 2013 EXAMINATION

COURSE CODE: EDU821 (3 Units)
COURSE TITLE: STATISTICAL METHODS
TIME: 3 HOURS
INSTRUCTION: ANSWER QUESTION **ONE** AND ANY OTHER **THREE**QUESTIONS.

1. (a) (i) Enumerate THREE types of errors in measurement. (3 marks)
(ii) What is a variable? Give TWO examples. (4 marks)
(ii) Differentiate between cluster and purposive sampling techniques (2 marks)

(b) (i) The TMA1 scores of 20 NOUN students in EDU 821 are as follows:

3, 5, 4, 8, 6, 4, 7, 7, 6, 6
5, 7, 6, 8, 5, 4, 7, 3, 5, 6

Calculate (i) Range (ii) Mode (iii) Mean (iv) Standard deviation of the scores (7 marks)

b (ii) List FOUR laws that you would observe to reduce sampling errors when carrying out a research. (4 marks)

(c) (i) Sketch a graph to show each of the following relationships:
- Positive linear correlation
- Negative linear correlation
- No correlation (3 marks)

(ii) Four groups of ODL students, consisting of 15, 20, 10 and 18 individuals, reported mean weights of 162, 148, 153 and 140 respectively. Find mean weight of all the students. (4 marks)

2. (a) (i) Differentiate between bar chart and histogram (2 marks)
(ii) Explain the concept of Pearson Product Moment correlation (3 marks)

(b) If the probability the A will be alive in 20 years is 0.7 and the probability that B will be alive in 20 years is 0.5. What is the

probability that they will both be alive in 29 years.
(5 marks)

(c) Sketch a graph to represent each of the following:

- Normal curve
- Negative skewness
- Positive skewness
- Mesokurtic
- Leptokurtic (5 marks

3. (a) (i) List FOUR types of data you know. (4 marks)

(ii) Write the symbols of these statistical terms:
I. Mean II. Summation of frequency III. Square root IV. Variance (2 marks)

(b) Given the scores of three students in EDU 821 as follows: 45, 90 and 75

(i) Compute the Z-score of each of the scores (7 marks)

(ii) Mention ONE function of Z-score (1 mark)

4. (a) Enumerate FIVE reasons why an educational researcher needs the knowledge of statistics. (5 marks)

(b) (i) Explain inferential statistics (2 marks)

(ii) List THREE processes you would take in order to draw statistical inference.
(3 marks)

(c) (i) The Z-score of Kunle's score Statistical method is -1.5. Calculate his T-score.
(3 marks)

(ii) Give ONE advantage T-score has over Z-score (2 marks)

5. (a) Distinguish between Type I and Type II errors. (4 marks)

(b) Two researchers were studying the relationship between amount of sleep each night and energy burned on an exercise for 10 men and women. They were interested if people who slept more got more energy to use in their exercise session. They obtain a correlation of .28 which has a two-tailed probability of 0.8. Alpha was .10.

(i) What is the correct term for the variable "amount of sleep"? (2 marks)

(ii) Interpret this result (2 marks)

(iii) What conclusion would you draw from this study? (2 marks)

(c) List any FIVE assumptions which are to be satisfied when using a t-test

To analyse data for a study. (5 marks)