



**NATIONAL OPEN UNIVERSITY OF NIGERIA
FACULTY OF SOCIAL SCIENCES
DEPARTMENT OF ECONOMICS
SEPTEMBER, 2020_1 EXAMINATIONS**

COURSE TITLE: APPLIED STATISTICS

COURSE CODE: ECO 452

UNITS: 2

TIME ALLOWED: 2 HOURS

INSTRUCTIONS: ANSWER ANY THREE QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS. ONE MARK FOR CLARITY

1. (a) Define the following concept in Statistics:

- i. Sample
- ii. Sampling
- iii. Sampling frame
- iv. Sampling Theory
- v. Complete Enumeration

8marks

(b) Given the population: 9, 10, 11, 12, 13, 18, 21, 30, 34, 36 Calculate the mean, standard deviation and the variance.

15marks

2. The table below represents the sample of scores of applied statistics by three lecturers in NOUN Accountancy, Business Administration and Economics respectively.

Students	Accountancy	Business Administration	Economics
1	10	10	15
2	14	12	11
3	9	13	16
4	15	9	14
	48	44	56

Is there a difference in the approaches used by the three lecturers in teaching applied statistics in the three different departments?

23 marks

3a. State the assumptions that underpins the use of multiple regression analysis. **5marks**

b. The table below shows the data sets of Gross Domestic Products (Y), Gross Fixed Capital Formation (X_1) and Investment (X_2). Estimate the regression plane.

YEAR	1991	1992	1993	1994	1995	1996
GDP	2	1	1	1	2	3
GFC	3	2	2	1	2	3
INV	3	9	8	7	9	7

18marks

4(a) Describe the concept of sampling distribution.

6marks

(b) If a coin is tossed 60 times, find the probability that head will appear between 40% and 60%

9marks

(c) If standard error is defined as the square root of the population, find standard error when $P = 0.5$ and $n = 80$.

8marks

5(a) State the assumptions of ANOVA

6 marks

b) Outline the steps in conducting overall significant test using ANOVA. **10marks**

c) The calculation of price relatives for selected food items in 1980 – 1982 is presented the table below:

Food items	unit	Unit Price		Price Relatives $I = P_1/P_0 \times 100\%$
		1980(P_0)	1981(P_1)	
Potatoes	Kg	40k	50	125.0
Bread	Loaf	50k	60	120
Peak Milk	Tin	20k	40	200
Eggs	dozen	₦1.20k	₦2.00	166.7

Interpret the result.

7marks