NATIONAL OPEN UNIVERSITY OF NIGERIA
FACULTY OF SOCIAL SCIENCES
DEPARTMENT OF ECONOMICS
2021_2 EXAMINATION

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
		1980(P_0)	1981(P1)	$I = P_1/P_0 \times 100\%$
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**