THE NATIONAL OPEN UNIVERSITY OF NIGERIA
FACULTY OF SOCIAL SCIENCES
DEPARTMENT OF ECONOMICS
2023_1 POP EXAMINATION

 COURSE TITLE: APPLIED ECONOMETRICS
 COURSE CODE: ECO 453
 UNITS: 2
 TIME ALLOWED: 2 HOURS

   INSTRUCTIONS: ANSWER ANY THREE QUESTIONS. ALL QUESTIONS
   CARRY EQUAL MARKS

QUESTION ONE

1a. Explain the assumptions of the linear stochastic model based on the <u>random term</u>. (12 marks).
1b. Discuss the assumptions of the linear stochastic model based on the <u>explanatory variables</u>. (6.3 marks).
1c. What are the consequences of violation of the assumptions in (1b)? (5 marks).

QUESTION TWO

2a. The following table includes Gross Domestic Product Annual Growth Rate (Y) and Domestic

Gasoline Pump Price (X) measured in in Naira currency per litre over 10years period from 2011

to 2020.

(i). Estimate economic growth function $Y = b_0 + b_1X_1 + u$ and interpret the result. (15 marks)

(ii). Compute the coefficient of determination (R-squared) and find the unexplained variation. (8.5 marks).

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Y	5.31	4.23	6.67	6.31	2.65	-1.62	0.81	1.94	2.21	-1.79
X	70	97	97	97	87	145	145	145	146	164

QUESTION THREE
3a. Identify and discuss the properties of a good econometric model? (15 Mark)
3b. Given a regression line, Y = 200 + 0.5X, calculate the value of Y if X = N200,000.
(4 Mark)
3c. Given that price elasticity is $b_i = X_i/Y_i$ where $Y_i = 150,000$, $X_i = 125,000$ calculate price elasticity. Interpret your result. (4.33 Mark)

QUESTION FOUR

4a. Distinguished clearly (with examples) between the following pair
 (i). Type 1 Error and Type II Error. (4 marks)
(ii). Time series and Panel data. (5 marks)
(iii). Simple linear model and Multiple linear model. (4.3 marks)