**NATIONAL OPEN UNIVERSITY OF NIGERIA**
**FACULTY OF SOCIAL SCIENCES**
**DEPARTMENT OF ECONOMICS**
**2025_2 EXAMINATIONS_**

COURSE TITLE:         **APPLIED ECONOMETRICS I**
COURSE CODE:          **ECO 453**
CREDIT UNITS:         **2 UNITS**
TIME ALLOWED:         **2 HOURS**
INSTRUCTION:          **ANSWER QUESTION ONE AND ANY OTHER TWO (2)**
                      **QUESTIONS**

**QUESTION ONE**

(1a). Explain the concept of Applied Econometrics Research. **(5 Marks)**
(1b). State and explain the four (4) basic stages of an econometric research. **(10 Marks)**
(1sc). Write short notes on these three desirable properties of an estimator
(i). Unbiasedness. **(3 Marks)**
(ii). Efficiency. **(3 Marks)**
(iii). Consistency. **(4 Marks)**

**QUESTION TWO**
(2a) Explain the five (5) assumptions of the linear stochastic model based on the <u>random term</u>. **(10 Marks)**
(2b) Discuss the four (4) assumptions of the linear stochastic model based on the <u>explanatory variables</u>.
**(6 Marks)**
(2c). What are the consequences of violation of the assumptions in (b)? **(4 Marks).**

**QUESTION THREE**

(3a). Discuss clearly the six (6) properties of a good econometric model. **(12 Marks)**
(3b). Clearly distinguish between economic research and econometric research. **(4 Marks)**
(3c). Attempt a critique of an econometric research. **(4 Marks)**

**QUESTION FOUR**

4a. The following table includes Real Gross Domestic Product Annual Growth Rate (Y) and

Crude oil price (X) measured in the United States (US) dollar ($) currency per barrel over

10years period from 2014 to 2023. **(12 Marks)**

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

(ii). Compute the coefficient of determination (R-squared) and find the unexplained variation. **(4 Marks)**

| Year | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|------|------|------|------|------|------|------|------|------|------|------|
| 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 FIVE**

(5a). Distinguished clearly (with examples) between the following pair
(i). Type 1 Error and Type II Error. **(4 Marks)**
(ii). Time series and panel data. **(4 Marks)**
(iii). Simple linear model and Multiple linear model. **(4 Marks)**
(5b). What are the uses of random variable in a model? **(8 Marks)**