



**NATIONAL OPEN UNIVERSITY OF NIGERIA  
FACULTY OF SOCIAL SCIENCES  
DEPARTMENT OF ECONOMICS  
2024\_2 EXAMINATION**

**COURSE TITLE: APPLIED ECONOMETRICS**  
**COURSE CODE: ECO 713**  
**CREDIT UNITS: 3 UNITS**  
**TIME ALLOWED: 3 HOURS**  
**INSTRUCTION: ANSWER FOUR QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS**

**Question 1**

- a) As an econometrician, your objective is to estimate the relationship between Investment and interest rate in Nigeria using the Ordinary Least Square (OLS) estimation technique and not other estimation techniques. State reasons for adopting the OLS estimation technique. **5marks**
- b) An estimated regression between inflation and oil price in Nigeria revealed a strong deviations of observations from the regression line. Discuss factors that may cause such deviation. **10marks**
- c) Discuss the possible reasons for including a random variable in an econometric model. **2.5marks**

**Question 2**

- a) In a simple term, define cointegration. **2.5marks**
- b) What is an Error Correction Model? **1marks**
- c) Discuss the importance of ECM. **4marks**
- d) Using a simple long-run model, derive an ECM model. **5marks**
- e) State the characteristics of the coefficient an Error correction term in a model. **5marks**

**Question 3**

- a. Define the term multicollinearity and state the causes of multicollinearity in an econometric model. **5marks**
- b. Highlight method of detecting multicollinearity based on Frisch confluence approach. **5.5marks**
- c. State the solution for multicollinearity if detected in a model. **7marks**

**Question 4**

- a) Discuss the assumption about the distribution stochastic error term used in the OLS estimation. **4marks**
- b) List the steps in estimating a regression model using Eviews **6.5marks**

c) Given the following regression result where oil price (OIP) and per capita income (PCI) are to determine the variation in transportation fuel demand in Nigeria:

Dependent Variable: LNTFD  
 Method: Least Squares  
 Date: 06/14/23 Time: 06:11  
 Sample: 1990 2019  
 Included observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNOIP	0.192530	0.215384	0.893889	0.3793
LNPCI	-0.025786	0.091072	-0.283138	0.7792
C	15.36636	0.642555	23.91446	0.0000
R-squared	0.046618	Mean dependent var		15.75414
Adjusted R-squared	-0.024003	S.D. dependent var		0.434960
S.E. of regression	0.440149	Akaike info criterion		1.291231
Sum squared resid	5.230735	Schwarz criterion		1.431351
Log likelihood	-16.36847	Hannan-Quinn criter.		1.336057
F-statistic	0.660117	Durbin-Watson stat		2.263818
Prob(F-statistic)	0.524933			

- i. Specify the regression model **2marks**
- ii. Interpret the result **5marks**

### Question 5

- a) Provide justification for identification problem in a model and state model that identification problem may occur. **7.5marks**
- b) On what condition can we say a model is identified or not identified? **5marks**
- c) State clearly the techniques that are most appropriate if an equation or model is
  - i. exactly identified **2.5marks**
  - ii. underidentified **2.5marks**