



**THE NATIONAL OPEN UNIVERSITY OF NIGERIA
FACULTY OF SOCIAL SCIENCES
DEPARTMENT OF ECONOMICS**

COURSE TITLE: INTRODUCTION TO ECONOMETRICS I

COURSE CODE: ECO 355

UNITS: 3

TIME ALLOWED: 3 HOURS

INSTRUCTIONS: ANSWER QUESTIONS 1 AND 3 OTHER QUESTIONS. A MARK WILL BE GIVEN FOR CLARITY AND ORDERLY PRESENTATION

Q1. Given the following information:

Y	5	6	4	5	7	8
X	4	8	3	5	9	3

Using the absolute value of the variables, find:

- (a) Constant term (β_0)
- (b) Slope coefficient (β_1)
- (c) Specify the estimated model
- (d) Interpret your results with respect to β_0 and β_1

25marks

Q2. Use the information in Q1 to answer the following:

- (a) Total sum squares (TSS).
- (b) Estimated sum squares (ESS).
- (c) Residual sum squares (RSS)
- (d) Coefficient of determination (R^2)

15marks

Q3. Give eight (8) basic assumptions of classical linear regression model (CLRM) on which the observations are generated.

15marks

Q4. Highlight the four (4) desirable properties of OLS estimators under the assumption of normality.

15marks

Q5. Given the following information:

Null hypothesis $H_0: \beta_2(MPC) = 0.50$; Estimated value of $MPC (\hat{\beta}_2) = 0.5091$; Standard error (Se) of $\hat{\beta}_2 = 0.0357$. Test whether to accept or reject the null hypothesis. **15marks**

Q6. Explain the five (5) differences between econometrics modeling and machine learning.

15marks