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

COURSE TITLE: APPLIED ECONOMETRICS
COURSE CODE: ECO 713
UNITS: 3
TIME ALLOWED: 3 HOURS

INSTRUCTION: ANSWER ANY FOUR (4) QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS

QUESTION ONE

1. Using Eviews, the results of the relationship between consumption (C_t) and disposable income (Y_t^d) expressed in functional form as; $C_t = f\left(Y_t^d\right)$ was obtained. If the linear model is stated as; $C_t = \alpha_1 + \beta_1 Y_t^d + \varepsilon_{1t}$ and the estimated parameter are; $\alpha_1 = 31.08$; $\hat{\beta}_1 = 0.36$, t-statistic = 3.565261, $\text{Prob}_y = 0.0020$ and $R^2 = 0.695994$. (17.5 Marks)

(i) State the existing relationship, (ii) Explain R^2 and (iii) determine the relevance of the result in policy forecasting.

QUESTION TWO

2. Given the simple linear model $Y_i = b_0 + b_1 X_i + u_i$, derive the least squares estimates of $\bar{b}_0$, $\bar{b}_1$ *and* $\bar{u}_i$ using the following data shown on the table below (17.5 Marks)

N	1	2	3	4	5	6	7	8	9	10
Y	51	52	55	59	57	58	62	65	68	68
X	5	7	8	10	8	9	10	9	11	10

Where Y is the demand for bread, X stand for the price of the bread, and N is the number of observation

QUESTION THREE

3a. Enumerate five (5) Solutions for Multicollinearit.y (12.5 Marks)
3b. Discuss how a new variable is classified as useful, superfluous or detrimental as follows (5 Marks)

QUESTION FOUR

4a. List and explain the difference between the two main branches of econometrics. (8.5 Marks)

4b. List the three (3) tests for the presence of heteroscedasticity. (4.5 Marks)

4c. After the estimation of a model, we need to test the explanatory power or the goodness of fit of such model, as well as the statistical reliability/significance at a given level in respect of b_i (i = 0,1,2,…n). List three (3)of the tests that can be used to achieve this. (4.5 Marks).

QUESTION FIVE

5a. Identify and discuss the five (5) intending difficulties when estimating the parameters of linear probability model using Ordinary Least Square estimator (First list them before discussion). (10 Marks)

5b. Enumerate four (4) consequences of heteroscedasticity in a model (7.5 Marks)