# HERBERT CHITEPO SCHOOL OF LAW AND BUSINESS SCIENCES

## DEPARTMENT OF ECONOMICS ANF FINANCE

## MAIN EXAMINATION

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| **BACHELOR OF COMMERCE DEGREE** | **PART 4 SEMESTER 1** |
| **ECONOMETRICS 2/FINANCIAL ECONOMETRICS 2** | **HEC412/HEF415** |
| **DATE** | **2024** |
| **DURATION** | **3 HOURS** |



### *INSTRUCTIONS TO CANDIDATES*

*1. Answer any four questions*

*2. All questions carry equal marks*

*3.Start each answer on a fresh page*

*4.Show all workings, where applicable*

**QUESTION 1**

(a) Differentiate between a random walk and a stationary time series. [6 marks]
(b) Explain the importance of the error term in a model. [7 marks]
(c) Explain how Ramsey RESET test is used to test for specification errors in regression analysis. [12 marks]

**[Total 25 marks]**

**QUESTION 2**

(a) Explain what is meant by identification problem. [5 marks]
(b) Given the model

$$C_t = \beta_0 + \beta_1 Y_t + \mu_t \ldots\ldots\ldots\ldots 0 < \beta_1 < 1$$
$$Y_t = C_t + + I_t (= S_t)$$

Where *C* is consumption; *Y* is income; *I* is investment and *S* is savings

(i) Identify the exogenous and endogenous variables. [4 marks]
(ii) Prove that the reduced form equations are $Y_t = \prod_0 + \prod_1 I_t + w_t$ and $C_t = \prod_2 + \prod_3 I_t + w_t$ respectively. [10 marks]
(iii) If in the preceding model, investment expenditure is increased by \$1 and marginal propensity to consume (MPC) is assumed to be 0.8 calculate $\prod_1$ and interpret the results. [6 marks]

**[Total 25 marks]**

**QUESTION 3**

Given the following demand and supply model;

$$Q_t = \alpha_0 + \alpha_1 P_t + \alpha_2 I_t + \mu_{1t} \ldots\ldots\ldots\ldots \alpha_1 < 0, \alpha_2 > 0 \ldots\ldots\ldots 1$$
$$Q_t = \beta_0 + \beta_1 P_t + \beta_2 P_{t-1} + \mu_{2t} \ldots\ldots\ldots\ldots \beta_1 > 0, \beta_2 > 0 \ldots\ldots\ldots\ldots 2$$

where Equation 1 is the demand function

Equation 2 is the supply function

*Q* is quantity

*I* is income

*P* is price

$\mu$ is error term