



# UNIVERSITY OF MINES AND TECHNOLOGY, TARKWA

## SECOND SEMESTER EXAMINATION, MAY 2018

**COURSE NO:** MA 472 [Unihubgh.com](http://Unihubgh.com)  
**COURSE NAME:** MATHEMATICAL ECONOMICS II  
**CLASS:** MA IV **TIME:** Three (3) Hours

Name: \_\_\_\_\_ Index Number: \_\_\_\_\_

### Instruction: Attempt ANY Four (4) Questions

- 1a. What do you mean by macroeconomics?
- 1b. What do you understand by the concept of a consumption function?
- 1c. Differentiate between an Autonomous consumption and Induced consumption.
- 1d. Explain three (3) measures (ways) to raise the propensity to consume.
  
- 2a. Explain the concept of national income.
- 2b. Differentiate between the following pairs of concepts of national income,
  - (i) Gross National Product (GNP) and Gross Domestic Product (GDP)
  - (ii) GDP deflator and Consumer Price Index
- 2c. Explain the product and expenditure methods (approaches) of computing National Income
  
- 3a. Write short notes on two (2) technical attributes (properties) of the Consumption Function.
- 3b. Find the Marginal Propensity to Consume of the following consumption functions;
  - (i)  $C = \text{Ghc}40 + 0.75Y_d$  and (ii)  $C = \text{Ghc}60 + 0.80Y_d$ , where,  $Y_d$  is disposable income.
- 3c.
  - (i) Hence, compute the multiplier  $k_c$  for each of the values of MPC obtained in Q(b) above.
  - (ii) What is the relationship between the MPC and the value of the multiplier?
  - (iii) What is the relationship between the MPC and the slope of the consumption function in Q(b).
- 3d. In a two-sector model where,  $C = \text{Ghc}40 + 0.80Y_d$  and  $I = \text{Ghc}150 - 6i$ ,  $M = \text{Ghc}150$  and  $L = 0.20Y - 4i$ . Find an equation for equilibrium in the good market (IS) and for the money market (LM).
  
- 4a. What do you understand by the concepts IS-LM model.
- 4b. Mention two factors each responsible for shift in (i) IS curve and (ii) LM curve
- 4c. Explain with the aid of a graph how the incorporation of a proportional tax (a tax depending on income) influences the parameters of the income determination models;
  - (i)  $Y = C + I$ , where,  $C = 85 + 0.75Y$  and  $I = 30$
  - (ii)  $Y = C + I$ , where,  $C = 85 + 0.75Y_d$ ,  $I = 30$  and  $T = 20 + 0.2Y$Graph the: (i) model without the tax as a solid line and (ii) model with the tax as a dash line.

5a. Different between the following pairs of terms

- (i) Absolute and Life-cycle Income hypotheses of consumption function
- (i) Cyclical Unemployment and Seasonal Unemployment.

5c. Suppose the economy's short-run production equation is  $y = 14L - 0.04 L^2$ , the demand for labour equation is  $L_d = 175 - 12.5 \left(\frac{w}{p}\right)$ , and the labor supply equation is  $L_s = 70 - 5 \left(\frac{w}{p}\right)$ . Find the labor market equilibrium at price level 1.00 and 1.25,

6a. Explain how equilibrium level of income determined in a closed economy when Aggregate supply exceeds Aggregate demand.

6b. Schedules AD and AS in Figure 6.1(a) are in equilibrium at full employment output  $y_e$  and price level  $p_0$ . This equilibrium condition is also depicted in figure 6.1(b) for goods and money market schedules IS and LM( $p_0$ ). Explain,

- (a) what happens to IS, LM and AD schedules and the equilibrium condition when taxes are increased.
- (b) how the price level corrects for the disequilibrium caused by a tax increase.

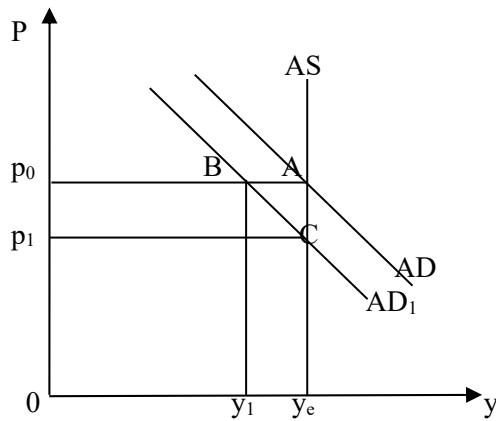
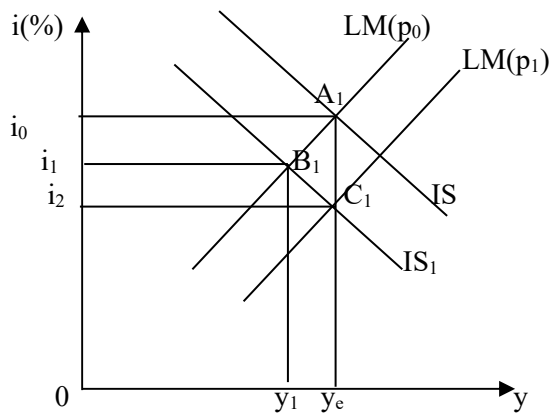


Figure 6.1 (a)



6.1 (b)

*Examiner: Prof F. I. Alao*