INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR

Mid Spring Semester Examination 2023-24

Date of Examination:____________ **Session: (FN/AN)**____ **Duration:** 2 Hrs **Full Marks:** 30

Subject No. : EP60008 **Subject:** Economics of Entrepreneurship

Department/Center/School: Rajendra Mishra School of Engineering Entrepreneurship

Specific charts, graph paper, log book etc., required ____________

Special Instructions (if any): Draw the graphs in answer scripts. No graph paper required.

Please write in brief and to the point. No queries will be entertained during the examination. Please clearly state the assumptions made in the solution. ***All questions are compulsory.***

Q1. Answer the following; **[2 x 4 = 8]**

a. Suppose that investment depends on both income and interest rate. The investment function is: $I = \bar{I} + aY - br$ where $0 < a < 1$ and measures the influence of national income on investment, and $b > 0$ which measures influence of interest rate on investment. Use the IS-LM model to consider the short-run impact of an increase in government purchases on national income Y, the interest rate r, consumption C, and investment I. How might the investment function alter the conclusions implied by the basic IS-LM model?

b. Consider a firm that experiences temporary booms and busts in sales. Rather than adjusting production to match the fluctuations in sales, the firm may find it cheaper to produce goods at a steady rate. What firm should do to produce goods at a steady rate and with what motives? Explain with the help of inventory investment model.

Q2. Some believe that taxes have an important effect on labor supply. They argue that higher taxes cause people to want to work less and that lower taxes cause them to want to work more. Consider how this effect alters the analysis of tax changes. **[2 x 2 = 4]**

a. If this view is correct, how does a tax cut affect the natural rate of output?

b. What is the short-run and long-run impact of a tax cut on output and the price level? How does your answer differ from the case without the labor-supply effect?

Q3. Explain the following: **[2 x 3 = 6]**

a. How does the sensitivity of investment to the interest rate affect the slope of the AD curve?

b. How does the sensitivity of money demand to the interest rate affect the slope of the AD curve?

c. How does the MPC affect the response of AD to changes in government purchases?

Q4. The following equation describes an economy: **[2 x 2 = 4]**

Consumption $C = 100 + 0.8Y_d$

Investment $I = 150 - 6i$

Government Expenditure, $G = 100$

Income tax $t = 0.25Y$

Real demand for money, $M_d = 0.2Y - 2i$

Nominal money supply, $M_s = 300$

Price level, $P = 2$

a. Compute the equilibrium level of income, Y and interest rate, i. Suppose the economy opens up with exports (X) and import (M) equations: $X = 100$ and $M = 20 + 0.1Y$. Find the new level of equilibrium income and interest rate if all other equations remain unchanged. What change is observed in Y and i.

b. Find direction and magnitude of the shift in the LM curve if the nominal money supply is doubled. How is your answer in beginning affected if price is also doubled along with nominal money supply?

Q5. $Z = C + I + G$ **[2 x 4 = 8]**

$C = 100 + .75(Y-T)$

$I = 80 + 0.1Y - 150i$

$G = 60, T = 40$

$M_d = Y - 3000i$

$M_s = 1000$

a. Find the equilibrium values of i and Y.
b. Assume the government adjusts taxes to eliminate the budget deficit. On a graph, show the effects of this change on the model. Do not redo the algebra, simply show how the curves move as a result of the change. Show both the old and the new equilibrium levels of Y and i. What is the effect of the policy on equilibrium output and interest rate? Is this a fiscal expansion or contraction?
c. What can the central bank do to offset the effect of the tax change on equilibrium output? How will the central bank intervene in the bond market to accomplish its goal? Using the IS-LM model, show the effects of the central bank's actions on a new graph that also includes all of the lines from your graph in part (b). What is the effect on equilibrium output and interest rate relative to part (b)?
d. Now return to the original assumptions of the model, where G and T are fixed. The leaders of the government decide that they would like to increase investment in the economy. They institute successful policies – such as advertisements, speeches, etc. — that increase the personal savings rate (i.e. lower the marginal propensity to consume). At the same time, they ask the central bank to use monetary policy to lower interest rates. After these policies take effect, the government is surprised to find that output has not changed at all. Are you surprised? Why or why not? Why might the government want to encourage investment?