Strathmore
UNIVERSITY

Strathmore Institute of Mathematical Sciences (SIMS)
Bachelor of Business Science in Financial Economics/Financial Engineering
End of Semester Examination
(BSE 2208: Macroeconomics II)

DATE: 17th January, 2022 **Time: 2 Hours**

Instructions

- **This examination consists of FIVE questions.**
- **Answer Question ONE (COMPULSORY) and any other TWO questions.**

1. (a) Consider the following Neoclassical model of the economy, where r is in percentage terms. Show all your work.

Supply	Demand
$Y = F(K, L) = \sqrt{KL}$	C=20+0.8(Y-T)
$MPL = 0.5\sqrt{K/L}; MPK =?$	I=50-5r
K=900;L=100	G=40,T=50

   (i) Calculate the income that goes to workers and owners of capital. (**6 Marks**).

   (ii) Find the interest rate that produces equilibrium in either the goods market or the loanable funds market **(4 Marks)**

   (b) To increase tax revenue, country X imposed a 2 per cent tax on checks written on bank account deposits. Use the model of the money supply under fractional reserve banking to discuss how this tax affected the money supply. (**4 Marks**).

   (c) Suppose a country has a money demand function $(M/P) = kY$, where k is a constant parameter. The money supply grows by 12 percent per year, and real income grows by 4 percent per year. calculate the average inflation rate. (**4 Marks**).

   (d) Using the IS-LM model, show graphically and explain the effects of a monetary contraction. What is the effect on the equilibrium interest rate and level of output **(4 Marks)**

(e) Suppose we have found a small open economy with perfect capital mobility. If consumers in the country experience a permanent preference shift towards increased consumption (at any level of income), what happens to the long run equilibrium real exchange rate and the real world interest rate? **(5 Marks)**

(f) The Mundell-Fleming model takes the world interest rate as an exogenous variable. Let's consider what happens when this variable changes.What might cause the world interest to rise? Hint: The world is a closed economy) **(3 Marks)**

2. (a) Consider the following short-run, open-economy model of the economy;

Goods market	Money market
$C = 50 + 0.5Y_D$	$M = 20,000$
$I = 150 - 10r$	$P = 100$
$NX = -200$	$\frac{M^d}{P} = Y - 50r$
$Y_D = Y - T$	
$G = 150; T = 100$	

i). Derive and graph the IS and LM relations. Find the equilibrium values of r and Y**(6 Marks)**

ii). Assume that the full employment output is $\overline{Y} = 210$. Individuals do not hold currency ($c = 0$), and the reserve requirement is 10% ($r = 0.10$), and commercial banks do not hold excess reserves ($e = 0$). If the Central Bank desires to return the economy to its full employment level what should they do with reserves (R) and the money supply (M). Show the effect in an ISLM diagram **(8 Marks)**

iii). Ignore part (ii). Policy makers plan to balance the budget by decreasing G. What is the size of the Keynesian cross-government spending multiplier and the horizontal shift in the IS curve. Show this on your diagram in part (i). What is the size of the effective IS-LM government spending multiplier? why is it smaller?**(6 Marks)**

3. (a) Discuss five causes of expected/unexpected costs of inflation **(10 Marks)**

(b) In the context of Mundell-Fleming model, explain what is meant by concept of the "impossible trinity" **(10 Marks)**

4. (a) Use the IS-LM model (diagram) to predict the short-run effects of each of the following shocks on income, the interest rate, consumption, and investment.

(i) After the invention of a new high speed computer chip, many firms decide to upgrade their computer systems **(5 Marks)**

(ii) The appointment of a new "dovish" Central Bank governor increases expected inflation **(5 Marks)**

(b) Assume that the approaching 2022 general elections in Kenya raises political and economic uncertainty which in turn causes consumers to reduce their consumption;

(i) Use the AD-SRAS-LRAS diagram to discuss the predicted short-and-long run impacts on the price level, real GDP and unemployment. Cleraly label your graph and write a concise paragraph to accompany your graph. **(5 Marks)**

(ii) Discuss the possible fiscal and monetary responses to the adverse consumption shock described in part (ii). Use the AD-SRAS-LRAS diagram to support your discussion **(5 Marks)**

5. (a) Explain the two theories of aggregate supply. (Hint: highlight on what market imperfection each theory relies and what do they have in common) (**10 Marks)**

(b) An economy has the following equation for the Philips curve:

$$\pi = E\pi - 0.5(u - 6)$$

People form expectations of inflation by taking a weighted average of the previous two years of inflation:

$$E\pi = 0.7\pi_{-1} + 0.3\pi_{-2}$$

Okun's law for this economy is:

$$(Y - Y_{-1})/Y_{-1} = 3.0 - 2.0(u - u_{-1})$$

The economy begins at its natural rate of unemployment with a stable inflation rate of 5 percent.

(i) What is the natural rate of unemployment for this economy? (**4 Marks)**

(ii) Graph the short-run tradeoff between inflation and unemployment that this economy faces. Label the point where the economy begins as point A. (Be sure to give numerical values for point A.) (**6 Marks)**

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