Economics Department - Carleton University

Practice Midterm: ECON 2102

Charles Saunders

Name: _____

Student #: _____

Exam Format and Instructions:

The exam duration is X.X hours. The exam consists of 3 parts:

- (15 %) Part I - Multiple Choice
- (40 %) Part II - Graphs
- (45 %) Part III - Problems

Calculators are permitted, but CANNOT be shared.
The use of smart phones, tablets, and laptops are not permitted.

Exam Materials:

Exam booklet includes exam questions and formula sheet.

Please write answer in the exam booklet.
An exam booklet with no name will not be graded.
After the exam, the students must hand-in the exam booklets.

PART I: Multiple Choice

Circle the answer that is most appropriate.

1. Okun's law depicts a relationship between the:
   (a) percentage change in real GDP and the change in the unemployment rate.
   (b) percentage change in nominal GDP and the change in the labour force.
   (c) absolute change in real GDP and the percentage change in the unemployment rate.
   (d) absolute change in real GDP and the percentage change in the GDP deflator.

2. The variable that is held constant for a given production function is the
   (a) amount of labour input.
   (b) amount of output.
   (c) amount of capital input
   (d) production technology.

3. With output fixed and national savings unrelated to the real interest rate, an increase in taxes will
   (a) shift the vertical saving schedule to the left.
   (b) decrease investment.
   (c) increase consumption.
   (d) decrease the equilibrium interest rate and increase investment.

4. Suppose the nominal interest rate is 7% and *ex post* inflation is 4%, then
   (a) the *ex ante* real interest rate is 3%.
   (b) the *ex post* real interest rate is 3%.
   (c) the *ex ante* real interest rate is -3%.
   (d) the *ex post* real interest rate is -3%.

5. Real output rises by 2%, nominal money supply increases by 4%, and the income velocity declines by 1%, then by the quantity theory of
   (a) inflation is 1%.
   (b) inflation is 2%.
   (c) inflation is -1%.
   (d) inflation is -2%.

6. If the government of a small open economy increases personal income taxes, then the country's
   (a) net exports increase.
   (b) investment increases.
   (c) equilibrium real exchanges rates rise.
   (d) consumption rises.

7. In a small open economy, if capital becomes more productive then
   (a) the investment demand curve will shift to the left.
   (b) net exports are increased.
   (c) real exchange rate rises.
   (d) all of the above.

PART II: Graphs.

1. Illustrate in the graphs provided, the impact of an income tax increase on a small open economy. Assume the world real interest rate is initially above the closed economy equilibrium real interest rate.

2. Illustrate in the graphs provided, the impact of an increase the marginal propensity to consume on a small open economy. Assume the world real interest rate is initially above the closed economy equilibrium real interest rate.

PART III: Problems.

Answer in the space provided.

1. Suppose the entire economy consists of two products: coffee and books. The quantity and price of coffee are denoted as Q_c and P_c, repectively. The quantity and price of books are denoted as Q_b and P_b, repectively.

Year	Q_c	P_c	Q_b	P_b
2000	20	3	4	25
2005	15	4	10	35
2010	25	6	12	40

   (a) Compute nominal GDP for each year.

   (b) Compute real GDP in terms of 2000 prices, for each year.

   (c) Was GDP inflation higher from 2000 to 2005 or from 2005 to 2010?

2. Consider the following economy:

$$\begin{aligned} Y &= F(K,L) = \sqrt{KL} \\ T &= 100 \\ G &= 100 \\ C &= 175 + 0.75(Y - T) \\ I &= 200 - 10r \\ \bar{K} &= 1200 \\ \bar{L} &= 1200 \end{aligned}$$

   (a) Assume the economy is closed and solve for equilibrium output, consumption, and the real interest rate.

(b) Assume this is a small open economy with a world real interest rate of 5 percent. Solve for equilibrium output, consumption, and net exports. Is this country a net exporter or net importer?

(c) Assume this is a small open economy with a world real interest rate of 5 percent. The government decides to increase government spending to $G = 150$, what is the effect on investment and net exports?

Formula Sheet

$Y = C + I + G$, $Y = C + I + G + NX$, $Y = F(K,L)$,

$Q^d = D(P,Y)$, $Q^s = S(P,P_s)$, $Q^d = Q^s$,

$d(PY) = Y\,dP + P\,dY$, $\%(XY) = \%X + \%Y$, $\%(X/Y) = \%X - \%Y$,

$M \times V = P \times T$, $(M/P)^d = kY$, $i = r + \pi$,

$E\pi = \pi$, $M/P = L(i,Y)$, $IM = C^f + I^f + G^f$

$S - I = NX$, $r = r^* + \theta$, $\%e = \%\epsilon + \pi - \pi^*$,

$L = E + U$, $UR = U/L$, $w = W/P$,

$r = R/P$, $MPK = f(k+1) - f(k)$, $c = (1-s)y$,

$k = K/L$, $k = K/(LE)$, $n = \Delta L/L$,

$g = \Delta E/E$, $\Delta K = I - \delta K$, $Y = C + I$,

$y = f(k)$, $Y = F(K, L \times E)$, $F(zK,zL) = z^{\alpha} F(K,L)$,

$MPL = F(K,L+1) - F(K,L)$, $POP = L + NILF$, $PR = L/POP$,

$NX = NX(\epsilon)$,