

Midterm Exam 2

Name _____

Id # _____

Instructions: There are two parts to this midterm. Part A consists of multiple choice questions. Please mark the answers to the multiple choice questions on the exam paper and fill in the relevant bubble on the Scantron sheet. Part A is worth 60%.

Part B is worth 40% and consists of short answer questions. Please answer in the space provided. Please attempt both parts and turn the exam in at the end.

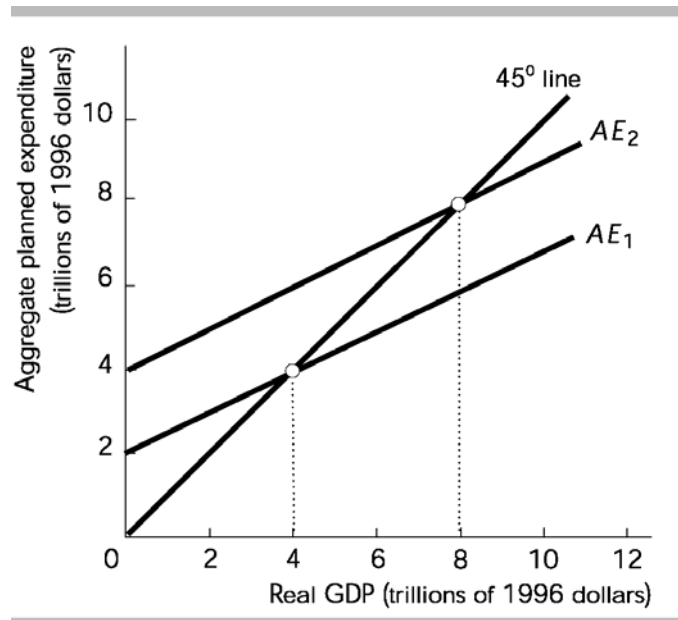
Part A: MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) If the required reserve ratio is 10 percent, currency in circulation is \$400 billion, checkable deposits are \$1000 billion, and excess reserves total \$1 billion, then the money supply is
A) \$4000. B) \$1400. C) \$10,000. D) \$10,400.

Answer: B

- 2) Other things equal, a decrease in autonomous consumption shifts the _____ curve to the _____.
A) IS; left B) IS; right C) LM; right D) LM; left

Answer: A



- 3) In the above figure, equilibrium expenditure along AE_1 is
A) \$8 trillion. B) \$2 trillion.
C) \$4 trillion. D) an amount not given in the above answers.

Answer: C

- 4) For a marginal propensity to consume of 0.75, the value of the multiplier is
 A) 3.75. B) 0.25. C) 5.00. D) 4.00. E) 3.00.

Answer: D

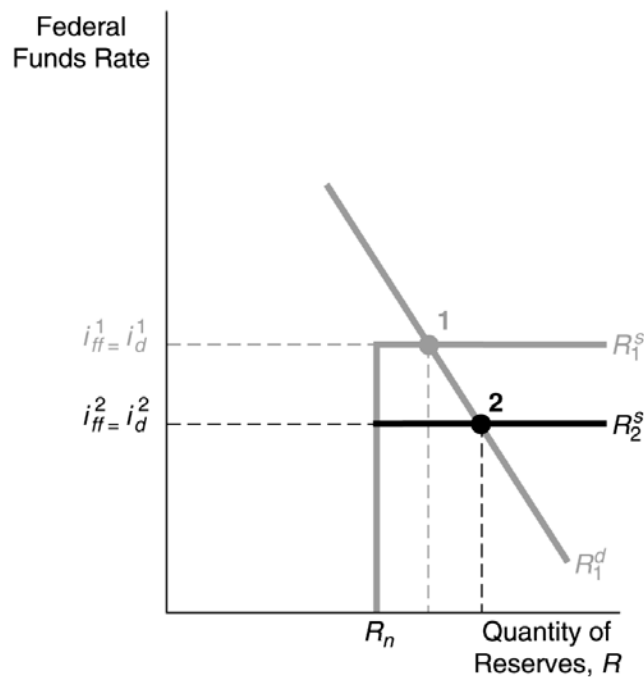
Consumption expenditure:	$C = 8 + 0.7Y$
Investment:	$I = 5$
Government purchases:	$G = 7$
Exports:	$X = 10$
Imports:	$M = 0.2Y$

- 5) The equations above describe the economy of Kessel. What is the equation for the aggregate expenditure curve?
 A) $AE = 30 - 0.5Y$. B) $AE = 30 + 0.5Y$. C) $AE = 30 + 0.9Y$. D) $AE = 13 + 0.5Y$.

Answer: B

- 6) In the market for reserves, an open market _____ shifts the supply curve to the _____, lowering the federal funds interest rate.
 A) purchase; right B) sale; left C) purchase; left D) sale; right

Answer: A



- 7) In the figure above, the vertical section of the supply of reserves lengthened by
 A) an increased discount rate.
 B) an increase in excess reserves.
 C) a cut in the federal funds rate.
 D) a decrease in required reserves.
 E) open market sales.

Answer: A

- 8) For the classical economists, the quantity theory of money provided an explanation of movements in the price level. Movements in the price level result
- A) only partially from changes in the quantity of money.
 - B) from changes in factors other than the quantity of money.
 - C) primarily from changes in the quantity of money.
 - D) solely from changes in the quantity of money.

Answer: D

- 9) The money multiplier is smaller than the simple deposit multiplier when
- A) the excess reserves ratio is greater than zero.
 - B) the currency-checkable deposit ratio is greater than zero.
 - C) the excess reserves ratio is zero.
 - D) all of the above are true.
 - E) only A and B of the above are true.

Answer: E

- 10) An increase in government spending causes the equilibrium level of aggregate output to _____ at any given interest rate and shifts the _____ curve to the _____.
- A) fall; LM; left
 - B) fall; IS; left
 - C) rise; IS; right
 - D) rise; LM; left
 - E) rise; LM; right

Answer: C

- 11) According to Keynes' theory of liquidity preference, velocity increases when
- A) income increases.
 - B) the money supply falls.
 - C) wealth increases.
 - D) brokerage commissions increase.
 - E) interest rates increase.

Answer: E

- 12) The classical economists believed that if the quantity of money doubled,
- A) prices would double.
 - B) output would double.
 - C) prices would fall.
 - D) prices would remain constant.

Answer: A

- 13) If reserves in the banking system increase by \$100, then checkable deposits will increase by \$2,000 in the simple model of deposit creation when the required reserve ratio is
- A) 0.10.
 - B) 0.05.
 - C) 0.20.
 - D) 0.01.

Answer: B

- 14) In the money market, a condition of excess demand for money can be eliminated by a _____ in aggregate output or a _____ in the interest rate, both of which reduce the quantity of money demanded.
- A) rise; fall B) fall; rise C) rise; rise D) fall; fall

Answer: B

- 15) In the long-run ISLM model, the long-run effect of an expansionary fiscal policy is to
- A) increase real output and the interest rate.
B) increase the interest rate and leave real output unchanged.
C) increase real output and leave the interest rate unchanged.
D) decrease real output and the interest rate.
E) not change either real output or the interest rate.

Answer: B

Part B: SHORT ANSWER QUESTIONS (40%)

Write brief answers to the questions below being as succinct and clear as possible. **Show any calculations** as necessary in answering the questions. Note: You will not receive full credit for just simply writing down the answer, without showing any working!

16. (20%) Suppose that you are given the following pieces of information regarding Proklarush which has a closed economy:

Goods Market:

$$\begin{array}{ll} \text{Households:} & C = 400 + 0.5YD \quad YD \equiv Y - T \\ \text{Firms:} & I = 150 - 500r \\ \text{Government:} & G = 250 \quad T = 250 \end{array}$$

Money Market:

$$\begin{array}{ll} \text{Demand:} & M^d = 100Y - 500000r, \\ \text{Supply:} & M^s = 262500 \\ & P = 100 \end{array}$$

- a. [4 pts] Recall that for goods market equilibrium, $Y=C+I+G$. What is the equation for the IS curve? [Hint: Using the information above, write an equation with Y on the left-hand side, and all other terms on the right hand side.]

Answer

$$\begin{aligned} Y &= C + I + G = 400 + 0.5(Y-250) + 150 - 500r + 250 \\ &= 675 + 0.5*Y - 500r \\ \Rightarrow Y &= 1350 - 1000r \quad \quad \quad (IS \text{ Curve} - \text{Equation 1}) \end{aligned}$$

- b. [4 pts] Suppose that the money market is in equilibrium. What is the equation for the LM curve? [Hint: Recall that in equilibrium in the money market, the supply for **real** money balances equals the demand for **real** money balances.]

Answer

$$\begin{aligned} \frac{M^s}{P} &= m_0 + kY - hr \\ \Rightarrow \frac{262500}{100} &= \frac{100Y - 500000r}{100} \\ \Rightarrow 2625 &= Y - 5000r \end{aligned}$$

$$\text{Hence LM curve: } r = -0.525 + 0.0002Y \quad \quad \quad (\text{Equation 2})$$

- c. [4 pts] Solve for the equilibrium real output and the equilibrium interest rate.

Answer

Using equations (1) and a rearrangement of (2):

Equation (1): $Y = 1350 - 1000r$

Equation (2): $Y = 2625 + 5000r$

Subtract (1) from (2): $0 = 1275 + 6000r$

$\Rightarrow r^* = -0.2125$; [Note: Gross real interest rate is still positive, i.e. $1+r = 0.7875$]

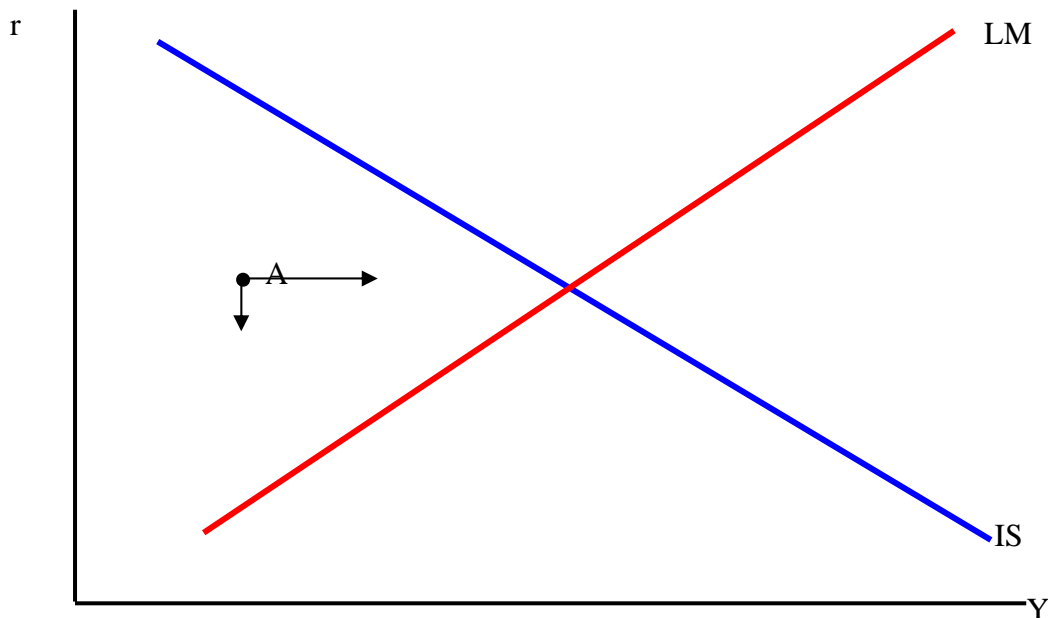
$\Rightarrow Y^* = 1562.5$

- d. [3 pts] What is the value of consumption and investment in equilibrium? Verify that $Y=C+I+G$.

Answer

$$\begin{aligned} C+I+G &= 400 + 0.5(1562.5 - 250) + 150 - 5000*(-0.2125) + 250 \\ &= 1562.5 \\ &= Y^* \end{aligned}$$

- e. [5 pts] In the diagram below, draw what happens if the economy (for whatever reason) is initially at point A? Explain what would happen to interest rates and what would happen to real GDP, Y.

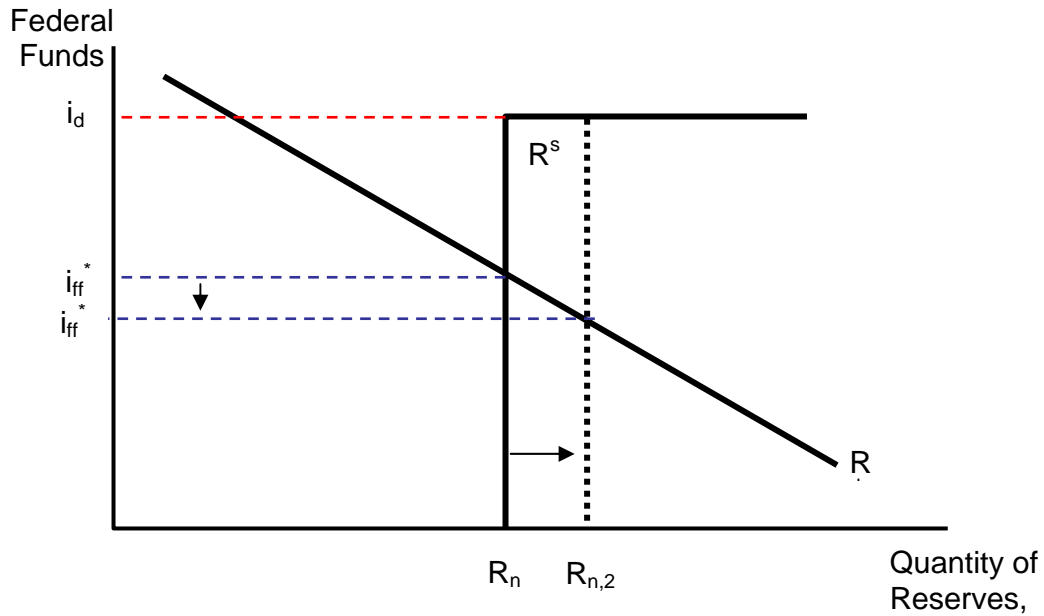


Answer

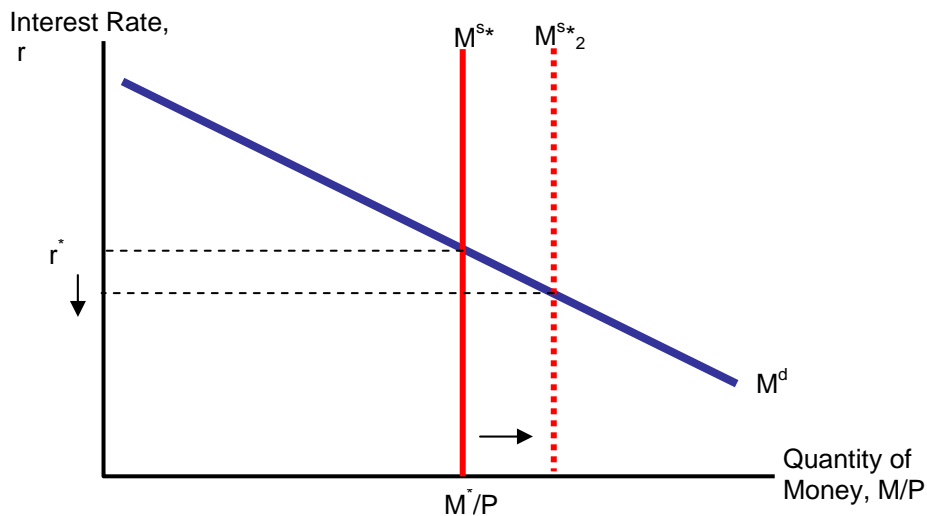
At point, A, we have a shortage in the goods market (i.e. Y is too little compared to what is needed for goods market equilibrium to hold) so real GDP, Y, would increase. Similarly, at point A, we have a surplus in the money market since interest rates are too high for what is needed for equilibrium to hold, so r would fall.

17. (20%) Consider the effects of an open market purchase of securities. You may assume that we are looking at the short run, so that **prices are fixed**, and hence nominal interest rates equal real interest rates. In addition, **assume we start from an initial long run equilibrium**.

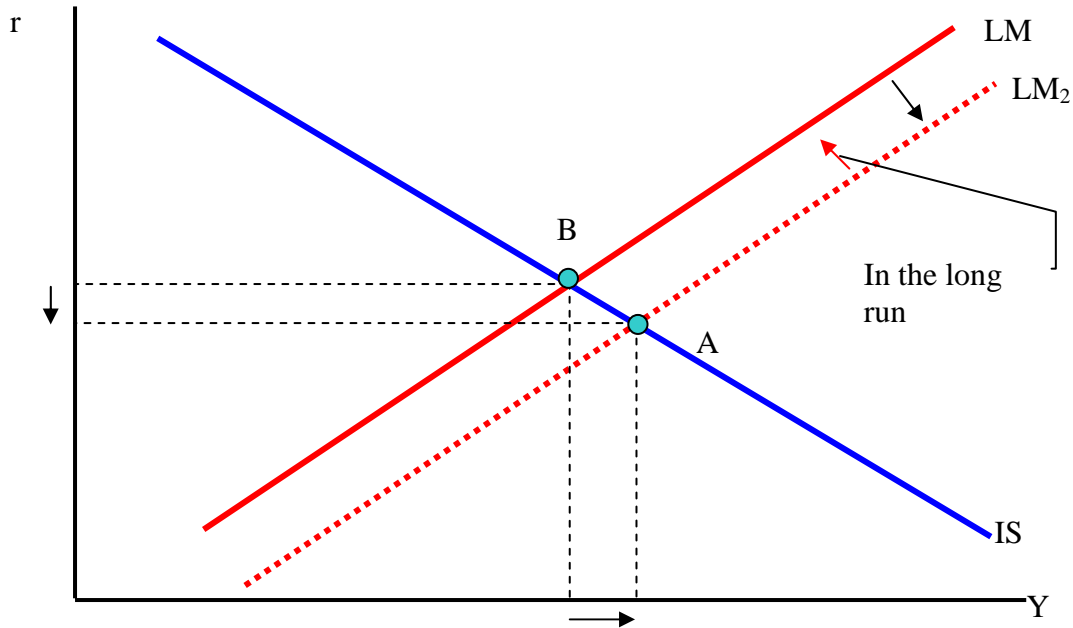
a. [5 pts] In the diagram below, show the effects of an open market expansion on the amount of equilibrium non-borrowed reserves, R_n and equilibrium interest rates, i_{ff}^* in the overnight interbank market:



b. [3 pts] In the diagram below show the corresponding effects in the money market from an open market purchase of securities. What happens to equilibrium interest rates and to the equilibrium quantity of real money balances?



- c. [4 pts] Depict the same effect (of an open market expansion) within the IS-LM framework. What happens to equilibrium interest rates and equilibrium GDP in the short run? Label the new short run equilibrium point A.



- d. [4 pts] Recall that we initially started from an initial long run equilibrium. Now consider what happens as we move from the short run to the long run. Depict the effects on the diagram above, and label the new long run equilibrium point B. What happens to interest rates and GDP **in the long run**?

Answer

In the long run, prices rise, decreasing real money balances. Thus interest rates rise to choke off any excess demand for money in the money market. As interest rates rise, investment falls, decreasing GDP. Thus we end up back at position B.

- e. [4 pts] In this economy, the demand for money is very volatile, and hence lots of shocks impact the money market. Should central banks try and target interest rates or money supply when conducting monetary policy in order to try and stabilize GDP? Why?

Answer

In an economy where the money market (LM curve) is very volatile, central banks should target interest rates to stabilize GDP. Under interest rate targeting, you can perfectly offset shocks to the money market. Under money supply targeting, real GDP will vary. (See lecture notes for more details).