

**ECON 3010 Intermediate Macroeconomics
Solutions to Exam #2**NAME: **Multiple Choice Answers. (75 points; 3 pts each)**

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| #1. | <input data-bbox="246 504 357 562" type="text" value="C"/> | #11. | <input data-bbox="734 504 844 562" type="text" value="A"/> | #21. | <input data-bbox="1213 504 1323 562" type="text" value="D"/> |
| #2. | <input data-bbox="246 636 357 695" type="text" value="A"/> | #12. | <input data-bbox="734 636 844 695" type="text" value="B"/> | #22. | <input data-bbox="1213 636 1323 695" type="text" value="B"/> |
| #3. | <input data-bbox="246 768 357 827" type="text" value="C"/> | #13. | <input data-bbox="734 768 844 827" type="text" value="D"/> | #23. | <input data-bbox="1213 768 1323 827" type="text" value="A"/> |
| #4. | <input data-bbox="246 905 357 963" type="text" value="A"/> | #14. | <input data-bbox="734 905 844 963" type="text" value="C"/> | #24. | <input data-bbox="1213 905 1323 963" type="text" value="A"/> |
| #5. | <input data-bbox="246 1041 357 1100" type="text" value="C"/> | #15. | <input data-bbox="734 1041 844 1100" type="text" value="C"/> | #25. | <input data-bbox="1213 1041 1323 1100" type="text" value="A"/> |
| #6. | <input data-bbox="246 1178 357 1236" type="text" value="C"/> | #16. | <input data-bbox="734 1178 844 1236" type="text" value="B"/> | | |
| #7. | <input data-bbox="246 1314 357 1373" type="text" value="A"/> | #17. | <input data-bbox="734 1314 844 1373" type="text" value="A"/> | | |
| #8. | <input data-bbox="246 1451 357 1509" type="text" value="C"/> | #18. | <input data-bbox="734 1451 844 1509" type="text" value="A"/> | | |
| #9. | <input data-bbox="246 1587 357 1646" type="text" value="C"/> | #19. | <input data-bbox="734 1587 844 1646" type="text" value="A"/> | | |
| #10. | <input data-bbox="246 1724 357 1782" type="text" value="C"/> | #20. | <input data-bbox="734 1724 844 1782" type="text" value="C"/> | | |

Multiple Choice Questions. (75 points; 3 pts each)

1. Economists use the term *money* to refer to:

A) income.	C) assets used for transactions.
B) profits.	D) earnings from labor.

2. Money that has no value other than as money is called _____ money.

A) fiat	C) commodity
B) intrinsic	D) government

3. The quantity of money in the United States is essentially controlled by the:

A) President of the United States.	C) Federal Reserve.
B) Department of the Treasury.	D) system of commercial banks.

4. If there is no currency and the proceeds of all loans are deposited somewhere in the banking system and if rr denotes the reserve–deposit ratio, then the total money supply is:

A) $1/rr$.	C) reserves times rr .
B) reserves divided by rr .	D) reserves divided by $(1 - rr)$.

5. If currency held by the public equals \$100 billion, reserves held by banks equal \$50 billion, and bank deposits equal \$500 billion, then the monetary base equals:

A) \$50 billion.	C) \$150 billion.
B) \$100 billion.	D) \$600 billion.

6. If there are 100 transactions in a year and the average value of each transaction is \$10, then if there is \$200 of money in the economy, transactions velocity is _____ times per year.

A) 0.2	C) 5
B) 2	D) 10

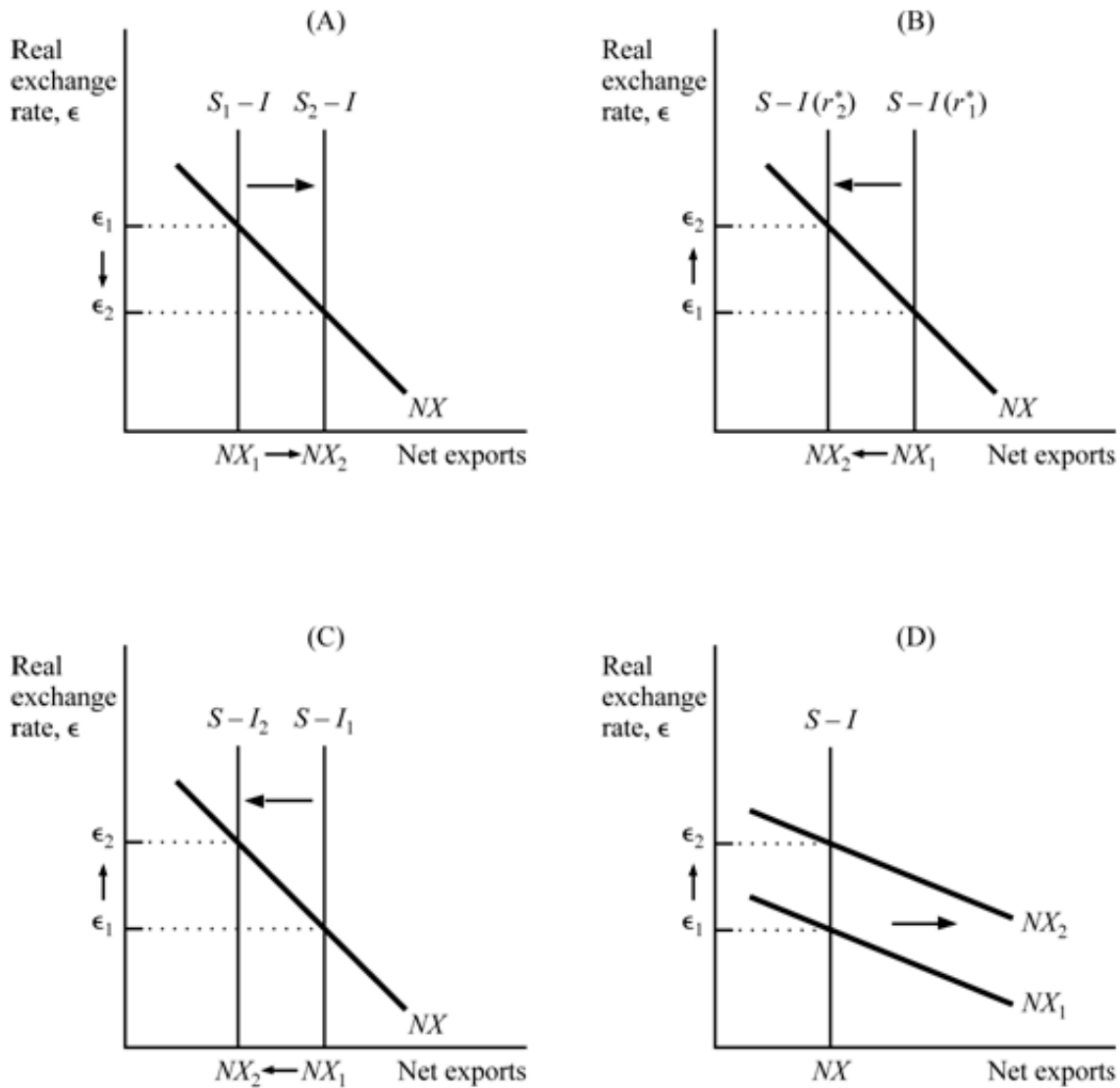
7. If velocity is constant and, in addition, the factors of production and the production function determine real GDP, then:

A) the price level is proportional to the money supply.
B) real GDP is proportional to the money supply.
C) the price level is fixed.
D) nominal GDP is fixed.

8. The real interest rate is equal to the:

A) amount of interest that a lender actually receives when making a loan.
B) nominal interest rate plus the inflation rate.
C) nominal interest rate minus the inflation rate.
D) nominal interest rate.

9. One possible benefit of moderate inflation is:
- A) a reduction in boredom attributable to the changing prices.
 - B) the elimination of menu costs.
 - C) better functioning labor markets.
 - D) increased certainty about the future.
10. If inflation is 6 percent and a worker receives a 4 percent nominal wage increase, then the worker's real wage:
- A) increased 4 percent.
 - B) increased 2 percent.
 - C) decreased 2 percent.
 - D) decreased 6 percent.
11. If domestic spending exceeds output, we _____ the difference—net exports are _____.
- A) import; negative
 - B) export; positive
 - C) import; positive
 - D) export; negative
12. In a small open economy, if exports equal \$20 billion, imports equal \$30 billion, and domestic national saving equals \$25 billion, then net capital outflow equals:
- A) -\$25 billion.
 - B) -\$10 billion.
 - C) \$10 billion.
 - D) \$25 billion.
13. Holding other factors constant, legislation to cut taxes in an open economy will:
- A) increase national saving and lead to a trade surplus.
 - B) increase national saving and lead to a trade deficit.
 - C) reduce national saving and lead to a trade surplus.
 - D) reduce national saving and lead to a trade deficit.
14. Protectionist policies in a small open economy do not alter the trade balance because the:
- A) quantity of imports and exports is fixed.
 - B) interest rate adjusts to offset any reductions in imports.
 - C) exchange rate appreciates to offset the increase in net exports.
 - D) level of net capital outflow is fixed by the world interest rate.



15. (Exhibit Above: Policies Influence Real Exchange Rate) Which of the panels illustrates the impact on the real exchange rate of an increase in investment demand?

- A) (A)
- B) (B)
- C) (C)
- D) (D)

16. In a steady state:

- A) no hiring or firings are occurring.
- B) the number of people finding jobs equals the number of people losing jobs.
- C) the number of people finding jobs exceeds the number of people losing jobs.
- D) the number of people losing jobs exceeds the number of people finding jobs.

17. If the steady-state rate of unemployment equals 0.125 and the fraction of unemployed workers who find jobs each month (the rate of job findings) is 0.56, then the fraction of employed workers who lose their jobs each month (the rate of job separations) must be:

- A) 0.08.
- B) 0.125.
- C) 0.22.
- D) 0.435.

18. Which of the following is an example of frictional unemployment?

- A) Dave searches for a new job after voluntarily moving to San Diego.
- B) Elaine is willing to work for less than the minimum wage, but employers cannot hire her.
- C) Bill is qualified and would like to be an airline pilot, but airlines do not find it profitable to hire him at the wage established by the airline pilot's union.
- D) Joan is willing to work at the going wage, but there are no jobs available.

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20. If the rate of separation is 0.02 and the rate of job finding is 0.08 but the current unemployment rate is 0.10, then the current unemployment rate is _____ the equilibrium rate, and in the next period it will move _____ the equilibrium rate.

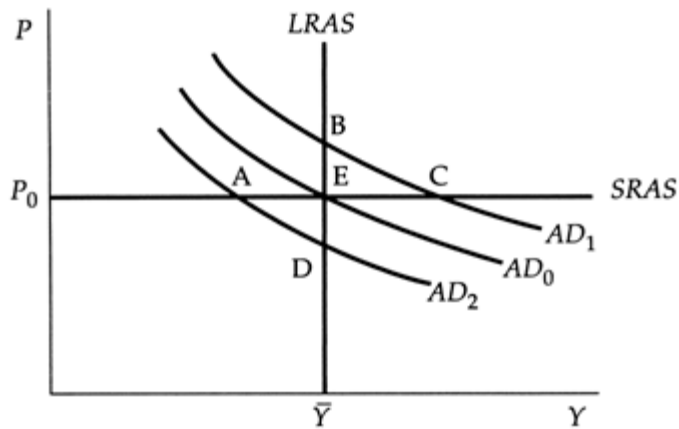
- A) above; toward
- B) above; away from
- C) below; toward
- D) below; away from

21. A 5 percent reduction in the money supply will, according to most economists, reduce prices 5 percent:

- A) in both the short and long runs.
- B) in neither the short nor long run.
- C) in the short run but lead to unemployment in the long run.
- D) in the long run but lead to unemployment in the short run.

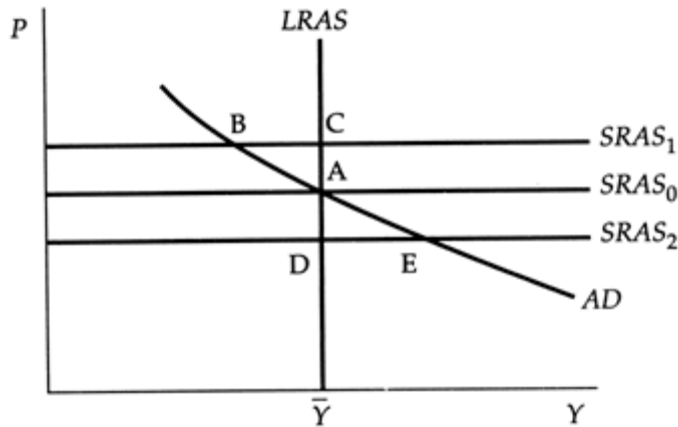
22. If an aggregate demand curve is drawn with real GDP (Y) along the horizontal axis and the price level (P) along the vertical axis, using the quantity theory of money as a theory of aggregate demand, this curve slopes _____ to the right and gets _____ as it moves farther to the right.

- A) downward; steeper
- B) downward; flatter
- C) upward; steeper
- D) upward; flatter



23. (Exhibit Above: Shift in Aggregate Demand) Assume that the economy is initially at point A with aggregate demand given by AD_2 . A shift in the aggregate demand curve to AD_0 could be the result of either a(n) _____ in the money supply or a(n) _____ in velocity.

- | | |
|-----------------------|-----------------------|
| A) increase; increase | C) decrease; increase |
| B) increase; decrease | D) decrease; decrease |



24. (Exhibit Above: Supply Shock) Assume that the economy is at point B. With no further shocks or policy moves, the economy in the long run will be at point:

- | | |
|-------|-------|
| A) A. | C) C. |
| B) B. | D) D. |

25. If the Fed accommodates an adverse supply shock, output falls _____ and prices rise _____.

- | | |
|---------------|---------------|
| A) less; more | C) more; less |
| B) less; less | D) more; more |

Short Answer Question. (25 points)

Consider the following Neoclassical model of the economy, where the domestic interest rate r and the world interest rate r_* are in percentage terms. Show all your work.

Supply, Money, and Prices	Demand
$Y = F(K, L) = 10\sqrt{KL}$	$C = 75 + \left(\frac{1}{2}\right)(Y - T)$
$K = 100; L = 25$	$I = 150 - 4r$
$r_* = 5\%$	$G = 50, T = 50$
$P = 100; P_* = 110; M = 1000$	$NX = 50 - 2\epsilon$

- (a) (10 pts) Calculate the trade balance and net capital outflow for the small open economy. Show the trade balance on a saving-investment diagram with r measured on the vertical axis. What are the equilibrium real exchange rate (ϵ_*) and equilibrium nominal exchange rate (e_*)? Provide an interpretation of both ϵ_* and e_* .

SOLUTION. Set $Y = C + I(r_*) + G + NX(\epsilon)$ and solve for ϵ_* .

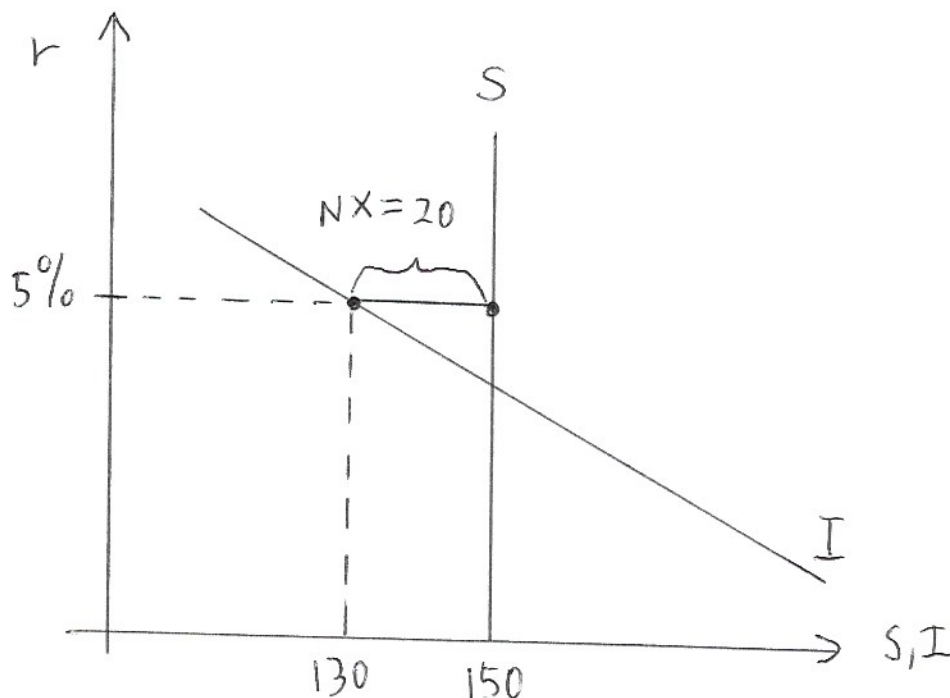
$$500 = 300 + 130 + 50 + 50 - 2\epsilon$$

$$\epsilon_* = 15; e_* = \epsilon_* \frac{P_*}{P} = 15 \frac{110}{100} = 16.5$$

$$NX(\epsilon) = 50 - 2(15) = 20$$

$$S - I = (Y - C - G) - I = (500 - 300 - 50) - 130 = 150 - 130 = 20$$

The equilibrium real exchange rate implies that each unit of the good in the domestic country trades for 15 units of the same good in the foreign country. The equilibrium nominal exchange rate implies that one unit of the domestic currency can be exchanged for 16.5 units of the foreign currency.



- (b) (5 pts) Consider the following all-too-realistic scenario: a global pandemic reduces the labor force from $L = 25$ to $L = 16$. What does this do to the equilibrium real exchange rate (ϵ_*) and the trade balance in the small, open economy? Show your results in a diagram with ϵ on the vertical axis and (NX and/or $S - I$) on the horizontal axis.

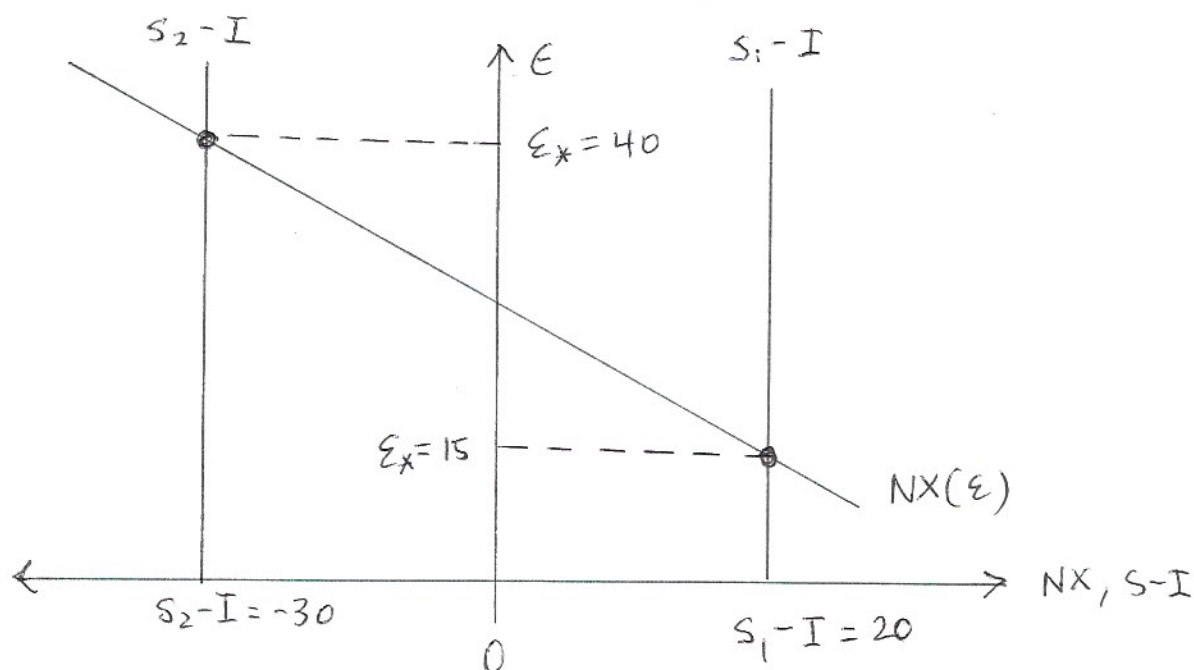
SOLUTION. Set $Y = C + I(r_*) + G + NX(\epsilon)$ again and solve for ϵ_* .

$$400 = 250 + 130 + 50 + 50 - 2\epsilon$$

$$\epsilon_* = 40$$

$$NX(\epsilon) = 50 - 2(40) = -30$$

$$S - I = (Y - C - G) - I = (400 - 250 - 50) - 130 = 100 - 130 = -30$$



- (c) (5 pts) Assuming the velocity of money is constant, what money supply should the central bank target to achieve a 0% inflation rate (i.e., stable price level) given the pandemic? In words, how would the central bank achieve the new monetary target?

SOLUTION. Using the quantity equation in percentage changes, we have:

$$\% \Delta M + \% \Delta V = \% \Delta P + \% \Delta Y \Rightarrow \% \Delta M + 0\% = 0\% - 20\% \Rightarrow \% \Delta M = -20\%$$

To keep the price level stable, the central bank would need to reduce the money supply by 20% because real GDP declined by 20% after the pandemic. They would likely do this via open-market operations by selling government securities and reducing bank reserves.

- (d) (5 pts) Congress is hoping to get the economy back to its pre-pandemic level of GDP. For the model above, what level of government spending G will achieve that? Is there any other policy that would achieve this goal? Explain.

SOLUTION. For the Neoclassical model, real GDP is determined by the supply side of the economy – labor, capital and technology. Increased government spending will only serve to increase the real exchange rate and crowd out net exports. The only policies that would be effective would be ones that increased the labor force to previous levels, increased the capital stock, and/or increased technology.