

**ECON 3010 Intermediate Macroeconomics
Final Exam**

Multiple Choice Questions. (60 points; 2 pts each)

#1. Which of the following is a stock variable?

- a) wealth
- b) consumption
- c) investment
- d) income

#2. The marginal product of labor is:

- a) output divided by labor input.
- b) additional output produced when one additional unit of labor is added.
- c) additional output produced when one additional unit of labor and one additional unit of capital are added.
- d) value of additional output when one dollar's worth of additional labor is added.

#3. Since 1960, the U.S. ratio of labor income to total income has:

- a) been about 2.5 to 1.
- b) been about 0.7.
- c) increased steadily.
- d) decreased steadily.

#4. The government spending component of GDP includes *all* of the following *except*:

- a) federal spending on goods.
- b) state and local spending on goods.
- c) federal spending on transfer payments.
- d) federal spending on services.

#5. To reduce the money supply, the Federal Reserve:

- a) buys government bonds.
- b) sells government bonds.
- c) creates demand deposits.
- d) destroys demand deposits.

#6. If the real interest rate declines by 1 percent and the inflation rate increases by 2 percent, the nominal interest rate must:

- a) increase by 2 percent.
- b) increase by 1 percent.
- c) remain constant.
- d) decrease by 1 percent.

#7. The *ex ante* real interest rate is based on _____ inflation, while the *ex post* real interest rate is based on _____ inflation.

- a) expected; actual
- b) core; actual
- c) actual; expected
- d) expected; core

#8. One possible benefit of moderate inflation is:

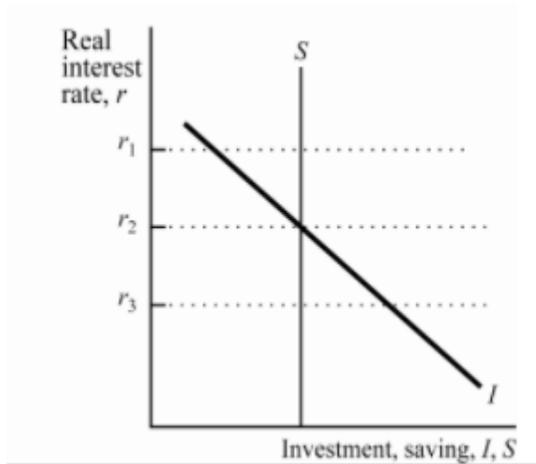
- a) a reduction in boredom attributable to the changing prices.
- b) the elimination of menu costs.
- c) better functioning labor markets.
- d) increased certainty about the future.

#9. If domestic saving exceeds domestic investment, then net exports are _____ and net capital outflows are _____.

- a) positive; positive
- b) positive; negative
- c) negative; negative
- d) negative; positive

#10. When exports exceed imports, *all* of the following are true *except*:

- a) net capital outflows are positive.
- b) net exports are positive.
- c) domestic investment exceeds domestic saving.
- d) domestic output exceeds domestic spending.



#11. In a small open economy, if the world interest rate is r_1 , then the economy has:

- a) a trade surplus.
- b) balanced trade.
- c) a trade deficit.
- d) negative capital outflows

#12. Starting from a trade balance, if the world interest rate falls, then, holding other factors constant, in a small open economy the amount of domestic investment will _____ and net exports will _____.

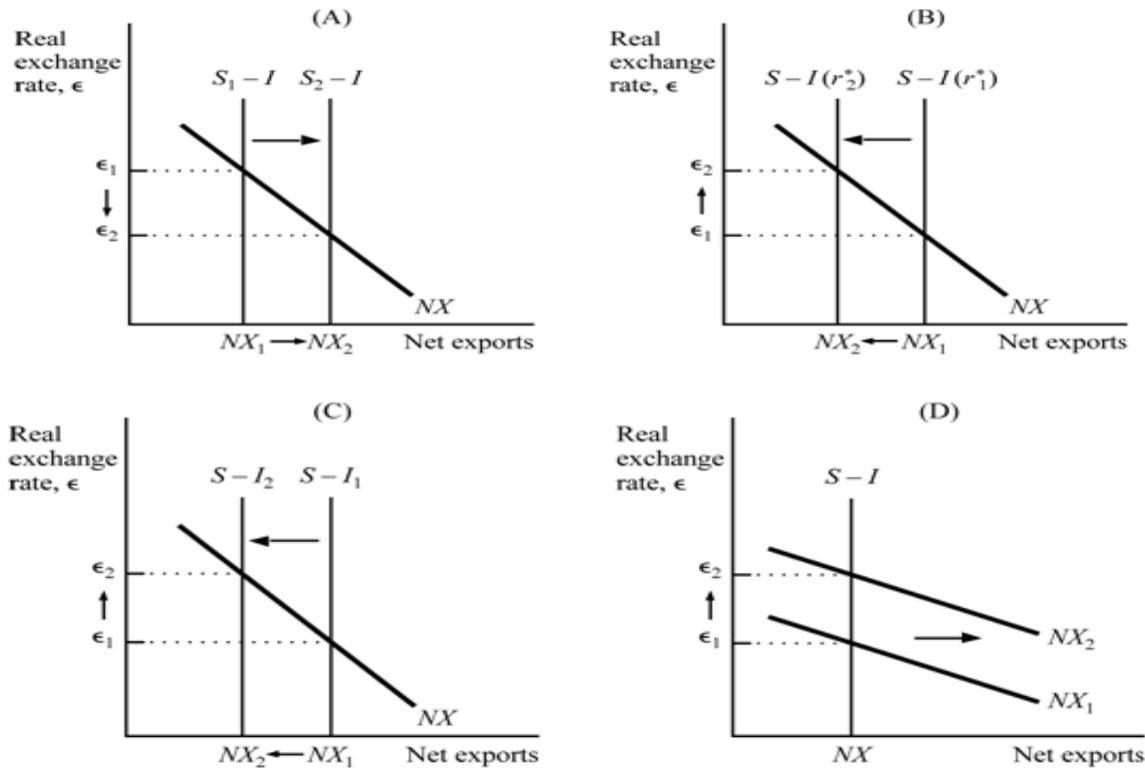
- a) increase; increase
- b) increase; decrease
- c) increase, not change
- d) decrease; increase

#13. If the real exchange rate is high, foreign goods:

- a) and domestic goods are both relatively expensive.
- b) and domestic goods are both relatively cheap.
- c) are relatively expensive and domestic goods are relatively cheap.
- d) are relatively cheap and domestic goods are relatively expensive.

#14. 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.



#15. Which of the panels illustrates the impact on the real exchange rate of contractionary fiscal policies at home?

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

#16. Discouraged workers are individuals who:

- have jobs that do not match their skills (e.g., a Ph.D. driving a taxi cab).
- have been unemployed for more than 26 weeks.
- call themselves unemployed but are not seriously looking for a job.
- want a job but have given up looking for one.

#17. Okun's law is the _____ relationship between real GDP and the _____.

- negative; unemployment rate
- negative; inflation rate
- positive; unemployment rate
- positive; inflation rate

#18. Along an aggregate demand curve, which of the following are held constant?

- a) real output and prices
- b) nominal output and velocity
- c) the money supply and real output
- d) the money supply and velocity

#19. The short run refers to a period:

- a) of several days.
- b) during which prices are sticky and unemployment may occur.
- c) during which capital and labor are fully employed.
- d) during which there are no fluctuations.

#20. In the short run, a favorable supply shock causes:

- a) both prices and output to rise.
- b) prices to rise and output to fall.
- c) prices to fall and output to rise.
- d) both prices and output to fall.

#21. The *IS* curve plots the relationship between the interest rate and _____ that arises in the market for _____.

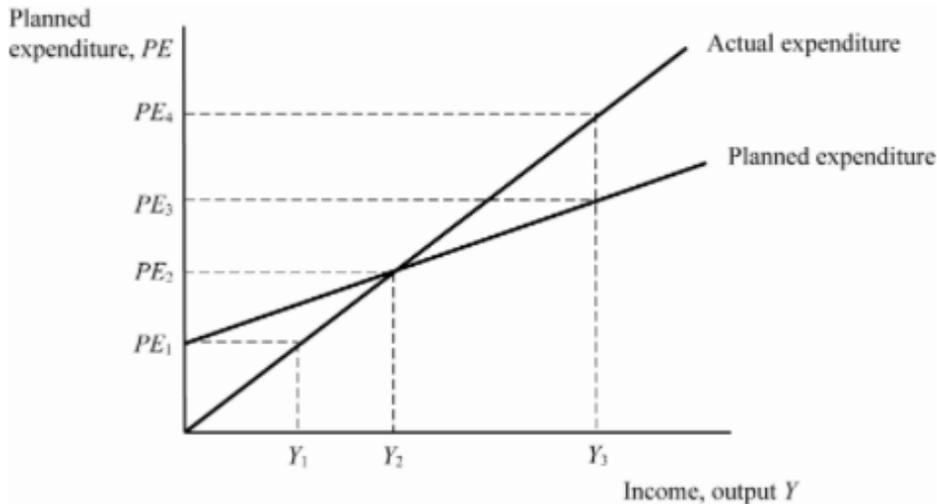
- a) national income; goods and services
- b) the price level; goods and services
- c) national income; money
- d) the price level; money

#22. In the *IS–LM* model under the usual conditions in a closed economy, an increase in government spending increases the interest rate and crowds out:

- a) prices.
- b) investment.
- c) the money supply.
- d) taxes.

#23. According to the *IS–LM* model, if Congress raises taxes but the Fed wants to hold the interest rate constant, then the Fed must _____ the money supply.

- a) increase
- b) decrease
- c) first increase and then decrease
- d) first decrease and then increase



#24. In this graph, if firms are producing at level Y_1 , then inventories will _____, inducing firms to _____ production.

- a) rise; increase
- b) rise; decrease
- c) fall; increase
- d) fall; decrease

#25. A tax cut shifts the _____ to the right, and the aggregate demand curve _____.

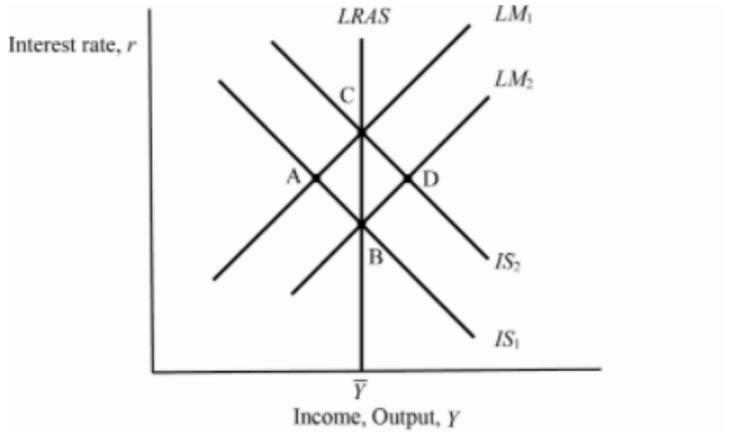
- a) IS ; shifts to the right
- b) IS ; does not shift
- c) LM ; shifts to the right
- d) LM ; does not shift

#26. The short-run Phillips curve:

- a) shifts upward if expected inflation increases.
- b) shifts upward if expected inflation decreases.
- c) shifts downward if expected inflation increases.
- d) is vertical.

#27. If the ratio of reserves to deposits (rr) increases, while the ratio of currency to deposits (cr) is constant and the monetary base (B) is constant, then:

- a) it cannot be determined whether the money supply increases or decreases.
- b) the money supply increases.
- c) the money supply decreases.
- d) the money supply does not change.



#28. Based on the graph, if the economy starts from a short-term equilibrium at D, then the long-run equilibrium will be at ____ with a ____ price level.

- a) B; higher
- b) B; lower
- c) C; higher
- d) C; lower

#29. The Phillips curve shows a _____ relationship between inflation and unemployment, and the short-run aggregate supply curve shows a _____ relationship between the price level and output.

- a) positive; positive
- b) positive; negative
- c) negative; negative
- d) negative; positive

Bank Balance Sheet			
Assets		Liabilities & Net Worth	
Reserves	\$ 10,000	Deposits	\$100,000
Loans	100,000	Debt	20,000
Securities	40,000	Equity	30,000

#30. Based on the table, what is the reserve-deposit ratio at the bank?

- a) 3 percent
- b) 5 percent
- c) 10 percent
- d) 15 percent

Problem Solving / Essay Questions. (122 points)

#21. (30 pts) Consider an economy that produces 3 goods. Unless otherwise stated, 2017 is the base year.

Product	Quantity		Price	
	2017	2018	2017	2018
A	5	7	\$30	\$40
B	6	4	\$20	\$40
C	8	12	\$15	\$20

- (a) (10 pts) Calculate nominal and real GDP for 2017 and 2018. What is the GDP deflator in 2017 and 2018? What is the corresponding annual growth rate of the economy and the annual inflation rate?
- (b) (10 pts) Assume that the typical consumer's basket of goods is given by the **average of the quantities between 2017 and 2018**. Calculate the CPI for 2017 and 2018, as well as the annual CPI inflation rate.
- (c) (10 pts) The price of good B increased sharply between 2017 and 2018. At the same time, the quantity of good B dropped. What is a possible explanation for this relationship? Which measure of inflation – the GDP deflator or the CPI – is better suited to account for this phenomenon? Explain.

#22. (30 pts) This question focuses on the labor market and unemployment using actual U.S. data. The adult population (N) of the U.S. is approximately 256 million. The labor force is approximately 160.5 million and the number of employed workers (E) is approximately 154 million.

(a) (10 pts) How many people are unemployed? What is the unemployment rate? How does it compare to the reported U.S. unemployment rate for November 2017? What is the labor force participation rate?

(b) (10 pts) The rate of job separation (s) is 0.01. Calculate the rate of job finding (f) that is consistent with a 4% natural rate of unemployment? How many people are losing their job each month?

(c) (10 pts) Assume that Congress and the President are proposing to abolish the federal minimum wage. What effect will the proposal have on f , s , and the natural rate of unemployment? Please explain.

#23. (32 pts) Consider the following short-run, open-economy model of the economy.

Goods Market	Money Market
$C = 100 + 0.9(Y - T)$	$M = 21,500$
$I = 280 - 10r; NX = -100$	$P = 10$
$G = 100; T = 200$	$L(Y, r) = Y - 50r$

(a) (8 pts) Graph the IS and LM equations and the find the equilibrium values of r and Y .

(b) (8 pts) The equilibrium interest rate in part (a) is a little unusual. Give an explanation for this value. Assume that inflation is currently 1%, how would the Fed target a 1% nominal interest rate? Explain.

(c) (8 pts) Policymakers plan to balance the budget by decreasing taxes. What is the size of the Keynesian-cross tax multiplier and the horizontal shift in the IS curve? Show this on your graph in part (a). What are the resulting IS-LM equilibrium values of r and Y after the shift? What is the size of the effective IS-LM tax multiplier?

(d) (8 pts) At equilibrium in part (a), what is the value of national saving? Investment? Net capital outflows? Is the foreign exchange market in equilibrium? Show the results in a diagram.

#24. (30 pts) AD-SRAS-LRAS model of the economy. Assume the SRAS curve is upward sloping.

(a) (15 pts) Janet Yellen recently warned that Bitcoin investors stand to lose a significant amount of money if the market for the cryptocurrency crashes. Assume that the market does indeed crash and causes a drop in the intercept of the aggregate consumption function. Use the AD-SRAS-LRAS diagram to discuss the predicted short- and long-run impacts on the price level, real GDP and unemployment. Clearly label your graph and write a concise paragraph to accompany your graph.

(b) (15 pts) How should President Trump and Congress respond? Use an AD-SRAS-LRAS diagram to support your discussion.

#25. (18 pts) Draw a line to match the best answer (right column) to the question (left column).

Current U.S. debt to GDP ratio	3%
Current U.S. deficit to GDP ratio	100%
Current U.S. unemployment rate	63%
Share of GDP going to workers: $Y = \sqrt{KL}$	4%
Steady state unemployment rate ($s = 0.01, f = 0.09$)	10%
Current U.S. labor force participation rate	50%