

**ECON 311 - Intermediate Macroeconomics  
(Professor Gordon)  
Second Midterm Examination: Fall 2015  
Answer sheet**

**Part A. MC**

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**YOUR NAME:** \_\_\_\_\_

**Student ID:** \_\_\_\_\_

Circle the **TA session** you attend:

- |              |               |            |
|--------------|---------------|------------|
| Chris – 10AM | Michael - 3PM | Hugh - 3PM |
| Chris - 3PM  | Michael - 4PM | Hugh - 4PM |

**INSTRUCTIONS:**

1. The exam lasts **1 hour**.
2. The exam is worth 60 points in total: 30 points for the multiple choice questions (Part A) and 30 points for the four analytical problems (Part B).
3. **Write your answers for part A (the multiple choice section) in the blanks to the right.** You won't get credit for circled answers in the multiple choice section.
4. **Place all of your answers for part B in the space provided.**
5. You must show your work for part B questions. There is no need to explain your answers for the multiple choice questions.
6. **You must turn in both the answers and the multiple-choice questions. DO NOT PULL THEM APART.**

Good luck!

**PART A: Multiple Choice Problems**

Answer multiple choice questions in the space provided to **the right**.  
**USE CAPITAL LETTERS.**

**Grading:** (do not fill out this part)

MC (30)	Q1 (5)	Q2 (10)	Q3 (15)	Time (2)	Total

## PART B: Analytic Problems

### QUESTION 1: Budget Deficits (5 points)

Suppose that

$$Y^N(\text{Natural real GDP})=13,500$$

$$Y(\text{Actual real GDP})=12,000$$

$$T_a=450$$

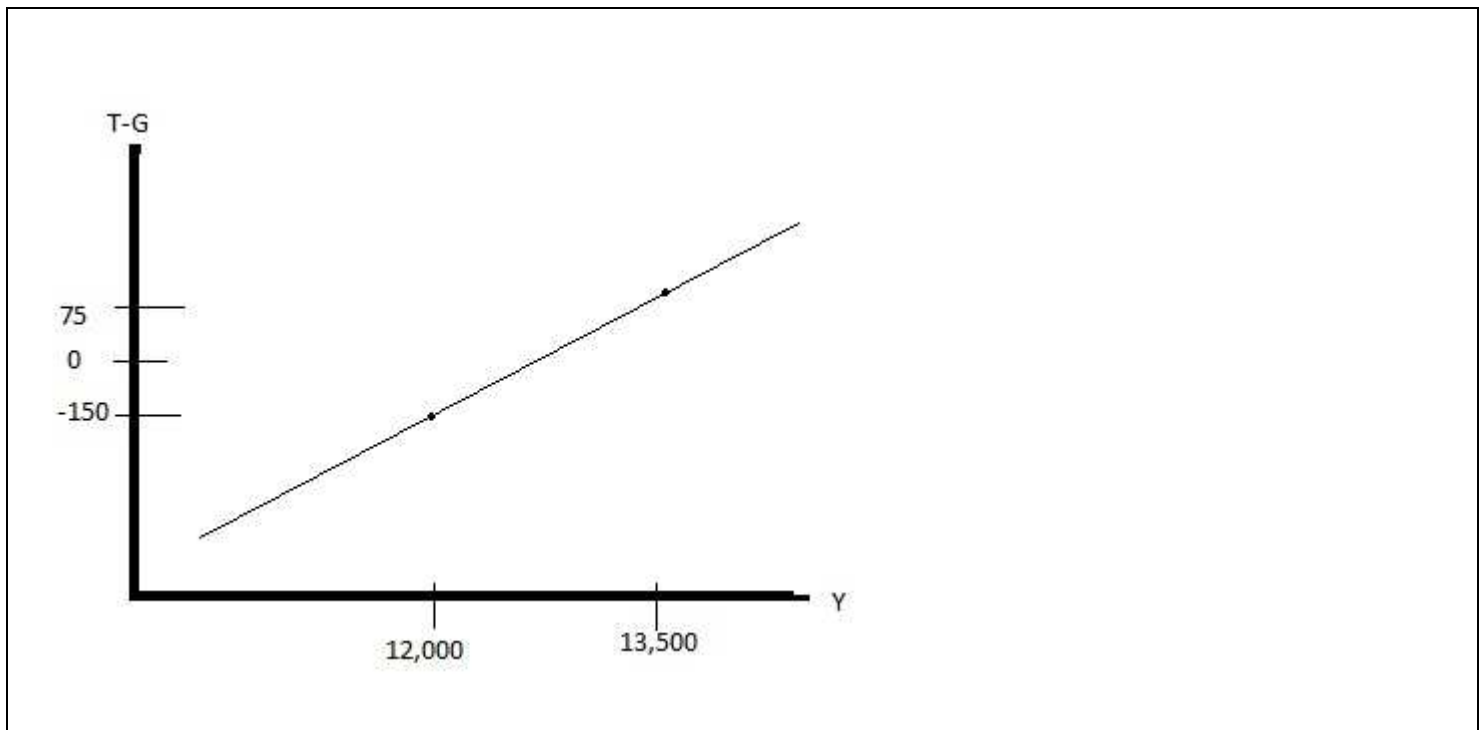
$$t=0.15$$

$$G=2400$$

(A) Compute the actual deficit, the structural deficit, and the cyclical deficit (3 points)

<b>Actual deficit</b>	$12000 \cdot 0.15 + 450 - 2400 = -150$
<b>Structural deficit</b>	$13500 \cdot 0.15 + 450 - 2400 = 2550 - 2400 = 75$
<b>Cyclical deficit</b>	$-150 - 75 = -225$

(B) Draw a budget line diagram, and label the structural and actual deficits. (2 points)



## QUESTION 2 (10 points): AS-AD

In this question we seek to connect AS-AD with IS-LM and monetary policy in a **closed economy** in which natural output is given by  $Y^N = 58$ .

(A.) Suppose the demand side of the economy (i.e. the IS-LM part of the economy) is described by the following IS and LM curves:

$$\text{IS: } Y = 60 - r$$

$$\text{LM: } Y = 3(M^s/P) + 2r$$

Consider a case where initial *nominal* money supply is  $M^s = 9$ . Using the IS and LM curves, derive the AD curve.

(Hint: Begin by solving the IS curve for  $r$ . Then substitute out  $r$  in the LM curve to derive an expression in terms of the endogenous variables of the AD curve.) (3 Points)

1. Shift  $r$  to the LHS and  $Y$  to the RHS of (IS):  $r = 60 - Y$

2. Substitute the above into the (LM) curve and solve for  $Y$ :

$$Y = 3(M^s/P) + 2r$$

$$Y = 3(M^s/P) + 2(60 - Y)$$

$$3Y = 3(M^s/P) + 120$$

$$Y = 9/P + 40$$

3. It will be helpful to note that—due to the zero lower bound and the requirement that the demand side of the economy be in equilibrium at all points on the AD curve— $Y=60$  for  $P \leq 9/20$ .

(B.) We now turn to the supply side of the economy. Suppose that nominal wages are initially such that  $W=5$  (reminder: natural output is  $Y^N = 58$ ). Short run aggregate supply is described by:

$$\text{SAS: } Y = 100 - 2W - (16/P)$$

Find the short-run and long-run aggregate supply curves. (1 Point)

<b>Short-run</b>	$Y = 100 - 2*5 - 16/P = 90 - 16/P$
<b>Long-run</b>	$Y = Y^N = 58$

(C.) Find the short- and long-run equilibrium values of  $(Y,P)$  for this economy. (3 Points)

Short-run. Solve for the equilibrium condition.

$$Y(AD) = Y(SAS)$$

$$9/P + 40 = 90 - 16/P$$

$$P^*(SR) = 1/2$$

And therefore:

$$Y^*(AD) = 9/(0.5) + 40 = 18 + 40 = \mathbf{58}.$$

$$Y^*(SAS) = 90 - 16/(0.5) = 90 - 32 = 58.$$

Long-Run. Solve  $Y(AD) = Y(LRS) \Rightarrow P^*(LR) = 1/2$ . Get  $Y^*(LR) = Y^N = 58$

(D.) If the wage,  $W$ , were to decrease to 4 in which direction would the SAS curve shift? Will real GDP *change* more (in percentage terms) than if  $W$  were to increase to 6? You do not need to recompute the equilibrium. Instead, draw a picture and/or provide an explanation as to why the percentage change is greater/less/the same. (Hint: Think about what the curvature of the AD curve implies about movements along it.) (1 Point)

When  $w$  increases the SAS curve will shift up/left. Real GDP will change more when  $w$  decreases. This is because of the curvature of the AD curve: the marginal increase in the real money supply is greater at lesser than greater price levels  $P$ . When the real money supply increases, so does aggregate demand.

Here it would also be okay to draw a graph like on p. 233 of the book (augmented with an SAS curve), which shows the affects of curvature in the AD curve.

(E.) Go back to assuming that the economy is in the same situation as in part (C). Suppose that you are in charge of the nominal money supply,  $M^s$ , for a country. However, you are not independent. One day, the President of the country approaches you and says that—due to the upcoming election—he needs you to increase real GDP by 3 (i.e. he wants  $Y$  to increase by 3).

First, state whether you would need to increase or decrease  $M^s$  to do this. Then, explain whether or not it is technically possible to do this. Finally, (and regardless of your answers to the above) outline the short-run effects of increasing  $Y$  with monetary policy on (i) real wages and (ii) firm profits. Would you recommend such a policy to the President? (2 Points)

$M^s$  would need to increase. It is not possible to increase  $Y$  to 61 because we run into the zero lower bound at  $Y=60$ . This can be seen by examining the IS curve in part A.

If  $Y$  were increased with monetary policy then we would be moving away from the natural output level. In the short run, real wages fall because nominal wages do not change while the price level increases. Firm profits rise because they are now paying workers less in real terms.

The “recommendation” part - the main idea should be: “I would not recommend because we are moving away from the natural rate of output.”

### QUESTION 3: Open IS-LM (15 points)

Let the following represent the structure of a **SMALL OPEN ECONOMY** with **PERFECT CAPITAL MOBILITY** and **FIXED EXCHANGE RATE REGIME**:

$$\begin{aligned}C &= C_a + 0.75(Y-T), \\C_a &= 90, T = 40 + 0.2Y, G = 45, \\I_p &= 75 - 5r, \\NX &= 80 - 0.1Y - 5e, \\(M/P)^D &= 0.2Y - 2r, \\M^S/P &= 80.\end{aligned}$$

A) Assume that initially foreign and domestic interest rates are equal so that  $r = r^f$  and let the foreign exchange rate  $e = 4$ . Find the IS and LM equations. (3 points)

$$\begin{aligned}k &= 1 / (1 - 0.75 + 0.2 * 0.75 + 0.1) = 2 \\A_p &= 90 - 0.75 * 40 + 45 + 70 - 5r + 80 - 5e = 260 - 5r - 5e = 240 - 5r \\IS: Y &= 2 * (260 - 5r - 5e) = 520 - 10r - 10e = 480 - 10r \\LM: 80 &= 0.2Y - 2r \rightarrow Y = 400 + 10r\end{aligned}$$

(B) Find the equilibrium income, interest rate and net exports. (3 points)

$$\begin{aligned}400 + 10r &= 480 - 10r \rightarrow 20r = 80 \rightarrow r = 4 \rightarrow Y = 440 \\NX &= 80 - 44 - 20 = 16\end{aligned}$$

(C) Suppose autonomous planned consumption,  $C_a$ , goes down from 90 to 60.

(C1) Write down the new IS curve, after the shift in autonomous planned consumption. (Hint: Express  $Y$  in terms of  $r$  and  $e$ .) (2 points)

$$\begin{aligned}A_p &= 60 - 0.75 * 40 + 45 + 70 - 5r + 80 - 5e = 260 - 5r - 5e = 210 - 5r \\New IS: Y &= 460 - 10r - 10e = 420 - 10r\end{aligned}$$

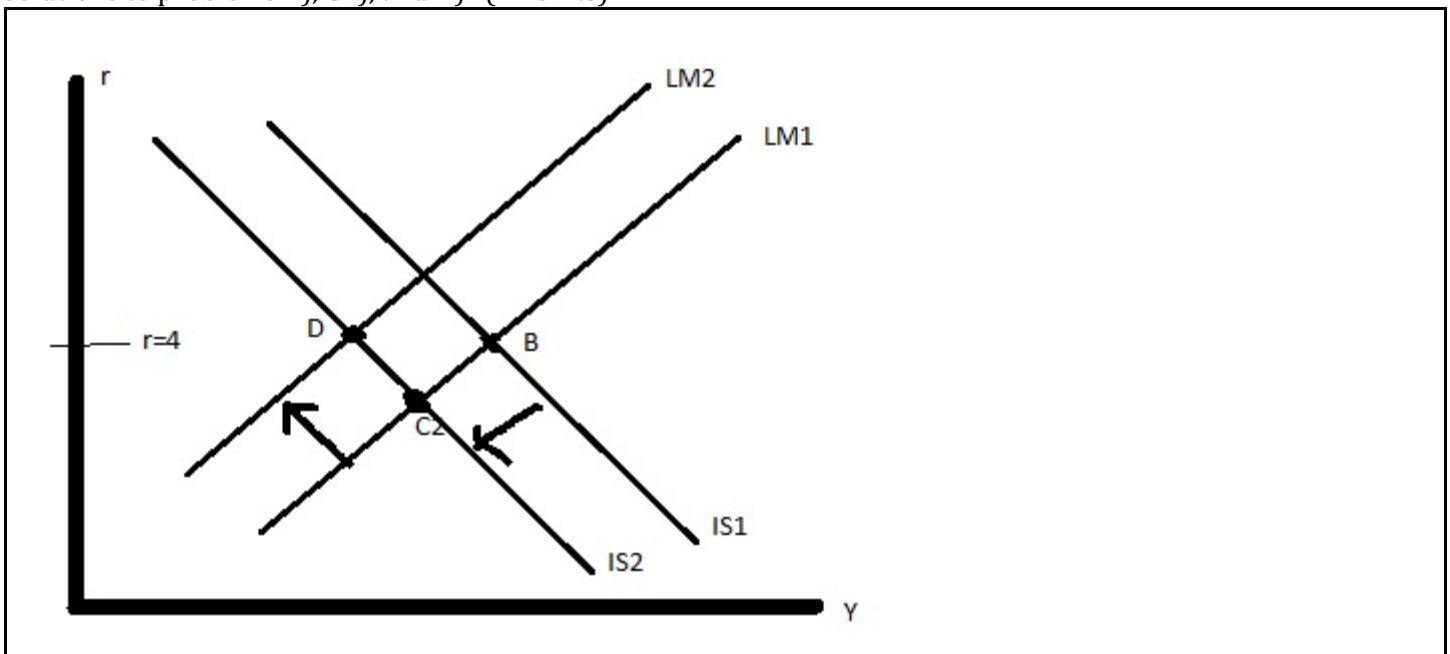
(C2) Let domestic interest rates and world interest rates briefly diverge: capital investors have not reacted yet, and neither has the government or central bank. Use the new IS curve and the LM curve to calculate the new output and domestic interest rate. (2 points)

**New IS curve:  $Y=420-10r$   
 Old LM curve:  $Y=400+10r$   
 $r=1, Y=410$**

(D) The economy is a small open economy, so eventually capital investors, and possibly the government and central bank, will react. What is the new output  $Y$  and interest rate  $r$ ? What factors adjust to get the economy here? (Hint: Recall that the economy has a fixed exchange rate, and perfect capital mobility.) (3 Points)

**$e=4, r=4$ . Using the new IS equation,  $Y=380$ .  
 Since fixed exchange rate, central bank needs to adjust  $(M^s/P)$  to preserve exchange rate.  
 $(M^s/P)=0.2*380-2*r=68$ . E,  $r$  unaffected.**

(E) From part A) to part D), which curves have shifted? Draw an IS-LM diagram, and label the points for your solutions to problems B), C2), and D). (2 Points)



## PART A: Multiple Choice Problems

**MULTIPLE CHOICE.** Choose the one alternative that best completes the statement or answers the question.

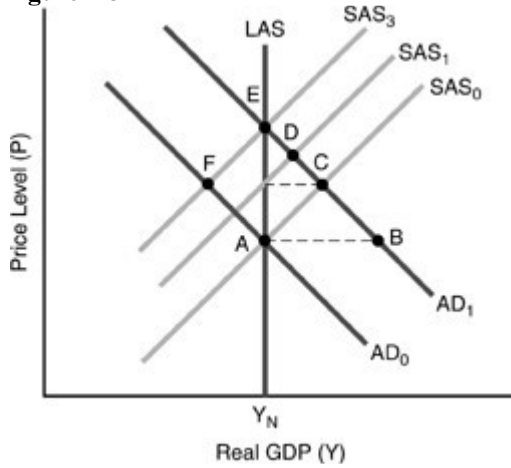
- 1) Ceteris paribus, bond price and bond yields are
  - A) positively related.
  - B) not related.
  - C) inversely related.
  - D) associated but not correlated.
  
- 2) A negative output gap indicates that
  - A) nominal GDP is below real GDP.
  - B) actual real GDP is above natural real GDP.
  - C) actual real GDP is below natural real GDP.
  - D) nominal GDP is above real GDP.
  
- 3) Comparing the output gap in the Euro Area and the U.S., which statement is the most accurate.
  - A) Both areas declined together in 2008-09 but the Euro Area recovered faster after 2009
  - B) Both areas declined together in 2008-09 but the Euro Area recovered slower after 2009
  - C) The Euro area declined later than the U.S. but then recovered at the same pace
  - D) The U.S. declined later than the Euro Area but then recovered faster after 2009
  
- 4) Institutions that make loans to borrowers and obtain funds from savers are called
  - A) financial markets.
  - B) financial conglomerates.
  - C) financial intermediaries.
  - D) financial branches.
  
- 5) A price bubble occurs when
  - A) the economy enters a recessionary period.
  - B) people can no longer afford to purchase an asset.
  - C) the price of an asset soars far above "fundamentals"
  - D) the economy experiences prolonged and slow recovery.
  
- 6) In the IS-LM Model, assuming a downward sloping IS curve and an upward sloping LM curve; an increase in consumer wealth is going to
  - A) cause a rightward shift of the IS curve.
  - B) cause a rightward shift of the LM curve.
  - C) cause a movement along the IS curve.
  - D) cause a leftward shift of the LM curve.
  
- 7) If the intersection of the IS curve with the horizontal axis comes at a level of output below the natural level of output, the Fed
  - A) can easily bring the economy back to the full-employment level of output.
  - B) must use contractionary monetary policy
  - C) loses control of the economy.
  - D) must decrease the money supply and ignore interest rates.
  
- 8) The biggest difference between the 2008-09 recession and its aftermath, as compared to the 1981-82 recession and its aftermath, was in the behavior of
  - A) output gap
  - B) total unemployment rate
  - C) long-term unemployment rate
  - D) short-term unemployment rate
  
- 9) Suppose we are modeling a "closed" economy. The only way its government can obtain more goods and services than it can claim with net tax revenues is for
  - A) exports to exceed imports.
  - B) imports to exceed exports.
  - C) saving to exceed investment.
  - D) investment to exceed saving.

- 10) In a small open economy, when exports exceed imports, all of the following are true EXCEPT
- A) net exports are positive.
  - B) net capital outflows are positive.
  - C) domestic output exceeds spending.
  - D) domestic investment exceeds domestic saving.
- 11) The natural employment surplus is
- A)  $Y - tYN$ .
  - B)  $G + T$ .
  - C)  $tYN - G$ .
  - D)  $YN + G + tYN$ .
- 12) A deliberate change in the government's deficit
- A) constitutes discretionary fiscal policy.
  - B) acts as a drag on the economy.
  - C) leads to automatic stabilization.
  - D) is implemented by the Fed.
- 13) Shadow banks differ from regular banks by having
- A) different assets
  - B) different liabilities
  - C) no equity
  - D) no mortgages
- 14) A major side-effect of a stimulative fiscal policy is that it will
- A) permanently raise the rate of inflation.
  - B) discriminate in favor of housing.
  - C) crowd out private expenditures.
  - D) increase the natural rate of unemployment.
- 15) The foreign exchange rate refers to
- A) the rate of change in a nation's international investment position.
  - B) the rate at which foreign exports are flowing into a nation's output market.
  - C) the amount of one nation's money that can be obtained in exchange for a unit of another nation's currency.
  - D) the rate of change in a nation's exports and imports.
- 16) The lecture's nickname "NINJA" refers to
- A) shadow banks
  - B) housing bubble
  - C) stock-market bubble
  - D) sub-prime mortgages
- 17) The "official reserve transactions balance" will be positive when
- A) the current account is in surplus.
  - B) U.S. official holdings of foreign exchange are falling.
  - C) exports exceed imports.
  - D) the current account and capital account taken together are in surplus.
- 18) The three policies which cannot be maintained simultaneously by a nation (sometimes referred to as the "trilemma") do NOT include
- A) independent control of the money supply.
  - B) independent control of fiscal policy.
  - C) free flow of capital.
  - D) fixed exchange rates.



- 19) If the Federal Reserve intervenes in the foreign-exchange markets by selling foreign currencies
- A) the U.S. money supply rises and foreign currencies appreciate.
  - B) the U.S. money supply falls and foreign currencies appreciate.
  - C) the U.S. money supply rises and foreign currencies depreciate.
  - D) the U.S. money supply falls and foreign currencies depreciate.
- 20) The lecture emphasized the role of the following institutions in the financial crisis of 2008: Which institution had an outcome different from the others:
- A) Bear Stearns
  - B) Fannie Mae
  - C) Lehman Brothers
  - D) AIG
- 21) The purchasing power parity theory predicts that
- A) a nation's exchange rate will differ from another nation's exchange rate by an amount depending upon the difference between the domestic and foreign rates of inflation.
  - B) a nation's exchange rate will decline at a rate equal to the difference between the domestic and the foreign rates of inflation.
  - C) a nation's exchange rate is determined by the extent of speculation in the foreign-exchange market.
  - D) a nation's exchange rate will decline when there is a balance-of-payments deficit.
- 22) Monetary policy is more powerful than fiscal policy under \_\_\_\_\_ exchange rates due to the amplifying effect from changes in interest rates to exchange rates to \_\_\_\_\_.
- A) flexible, monetary accommodation
  - B) fixed, net exports
  - C) fixed, monetary accommodation
  - D) flexible, net exports
- 23) Let the government increase lump-sum taxes. The aggregate demand curve will
- A) remain unaffected but the IS curve will shift leftward.
  - B) shift rightward and the IS curve will shift rightward.
  - C) shift leftward and the IS curve will shift leftward.
  - D) become positively sloped but the IS curve will remain negatively sloped.
- 24) An increase in the price level will
- A) change the slope of the aggregate demand curve at each income level.
  - B) decrease the real money supply and shift the aggregate demand curve.
  - C) increase the real money supply and shift the aggregate demand curve.
  - D) None of the above is correct.
- 25) If labor unions negotiate an increase in the nominal wage rate the SAS curve will shift
- A) downward to the left and output will decrease.
  - B) upward to the right and output will increase.
  - C) downward to the right and output will increase.
  - D) upward to the left and output will decrease.
- 26) The lecture singled out Texas as having a minimal housing bubble and subsequent collapse. Which elements contributed to the success of Texas?
- A) Low mortgage leverage
  - B) No cash-out refinancing
  - C) No shadow banks
  - D) A) and B)
  - E) B) and C)
- 27) Which most accurately describes the U. S. balance of payments in the second quarter of 2015?
- A) Current account surplus, capital account deficit, balance of payments surplus
  - B) Current account deficit, capital account surplus, balance of payments surplus
  - C) Current account deficit, capital account surplus, balance of payments deficit
  - D) Current account surplus, capital account deficit, balance of payments deficit

Figure 7-5



28) In Figure 7-5 above, from point A sudden increases in the price of crude oil would move us to point

- A) D.
- B) C.
- C) B.
- D) F.
- E) E.

29) In Figure 7-5 above, from initial point A, suppose AD<sub>0</sub> shifts to AD<sub>1</sub>. Under the assumptions of classical macroeconomics, we would

- A) almost immediately move to and then stay at point C.
- B) almost immediately move to and then stay at point E.
- C) stay at point A.
- D) almost immediately move to and then stay at point B.

30) As pointed out in the lecture comparison, when 2015 is compared with 2011,

- A) the Euro has depreciated and Big Macs are now cheaper in dollars than in the US
- B) the Euro has appreciated and Big Macs are now more expensive in dollars than in the US
- C) the Euro has depreciated and Big Macs are now more expensive in dollars than in the US
- D) the Euro has appreciated and Big Macs are now cheaper in dollars than in the US

- 1) C
- 2) C
- 3) B
- 4) C
- 5) C
- 6) A
- 7) C
- 8) C
- 9) C
- 10) D
- 11) C
- 12) A
- 13) B
- 14) C
- 15) C
- 16) D
- 17) D
- 18) B
- 19) D
- 20) C
- 21) B
- 22) D
- 23) C
- 24) D
- 25) D
- 26) D
- 27) C
- 28) D
- 29) B
- 30) A