

# Business Conditions Analysis

## ECON 736

Midterm Exam

Professor Yamin Ahmad

### 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.

Part A has 20 questions and is worth 60%.

Part B is worth 40% and consists of short answer questions. Please answer any two of the three questions in the space provided. Answering more than two questions in part B will not gain you more than 40%. Please be **concise** in your answers. **Answer ONLY what the question asks**, as points are not awarded for verbosity! You should limit your answers to each question in section B to 1 side of a US letter sized paper.

In terms of a general hint to try and maximize points, *try to relate the context of the questions to any of the models that we have studied in lectures*. Where appropriate, use graphs and equations to help elucidate your answer! You may use your lecture notes and the textbook. Please sign the agreement below before turning in the exam.

**Agreement: All of the work on this exam has been done independently, without consulting any other students in this class or faculty in other classes. As presented in class, the essays may be done with a referral to formulae, but all of the written material in the essay is original, “synthetic” independent work, with no copying of published or unpublished material. I attest that this exam has not been copied or distributed in any part or form.**

Name (Please Print): \_\_\_\_\_

Student Id#: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Midterm Exam

Name \_\_\_\_\_

Id # \_\_\_\_\_

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

- 1) When nominal GDP falls for a given period, we know with certainty that: 1) \_\_\_\_\_  
A) real output has increased and the price level has decreased.  
B) real output and the price level (GDP deflator) have both decreased.  
C) either real output or the price level (GDP deflator) have decreased.  
D) the price level (GDP deflator) has decreased.  
E) real output has decreased.
  
- 2) Use the following information to answer this question. If nominal GDP rises from \$40 trillion to \$48 trillion, while the GDP deflator rises from 2.0 to 2.4, the *percentage* change in real GDP is: 2) \_\_\_\_\_  
A) 20%.                      B) 9.1%.                      C) 10%.                      D) -10%.                      E) 0%.
  
- 3) In a given year, suppose a company spends \$200 million on intermediate goods and \$400 million on wages, with no other expenses. Also assume that its total sales are \$700 million. The value added by this company equals: 3) \_\_\_\_\_  
A) \$100 million.  
B) \$200 million.  
C) \$300 million.  
D) \$400 million.  
E) \$500 million.
  
- 4) A reduction in the unemployment rate will **generally** cause which of the following to occur? 4) \_\_\_\_\_  
A) an increase in the number of discouraged workers  
B) an increase in the labor force participation rate  
C) a reduction in the number of employed workers  
D) all of the above  
E) none of the above

Use the data below to answer the following questions.

Suppose a country using the United States system of unemployment statistics has 200 million people, of whom 100 million are working age. Of these 100 million, 40 million have jobs. Of the remainder: 20 million are actively searching for jobs; 20 million would like jobs but are *not* searching; and 20 million do *not* want jobs at all.

- 5) The labor force participation rate is: 5) \_\_\_\_\_  
 A) .2.                      B) .3.                      C) .4.                      D) .6.                      E) .8.
- 6) The official unemployment rate is: 6) \_\_\_\_\_  
 A) .1.                      B) .2.                      C) .33.                      D) .4.                      E) .66.
- 7) The prices for which of the following goods are included in *both* the GDP deflator *and* the consumer price index? 7) \_\_\_\_\_  
 A) goods bought by foreign households (i.e., exports)  
 B) goods bought by firms  
 C) good bought by governments  
 D) goods bought by households  
 E) all of the above

Period	Price index	Inflation rate (percent)
1	100	
2	117	A
3	125	B
4	120	C
5	D	8.3
6	150	E

- 8) In the table above, what inflation rate belongs in space C? 8) \_\_\_\_\_  
 A) 17.0 percent                      B) -4.0 percent                      C) 6.8 percent                      D) 8.3 percent
- 9) Consider the Quantity Equation that was presented in class:  $MV = PY$ , where M represents the money supply, V is velocity, P is the price level and Y represents (real) GDP. Changes in real GDP in the long run are determined primarily by: 9) \_\_\_\_\_  
 A) monetary policy.  
 B) demand.  
 C) fiscal policy.  
 D) all of the above  
 E) none of the above
- 10) Which of the following factors is NOT believed to affect output in the long run? 10) \_\_\_\_\_  
 A) technology    B) the size of the labor force  
 C) monetary policy    D) the capital stock
- 11) The marginal propensity to consume represents: 11) \_\_\_\_\_  
 A) the ratio of total consumption to disposable income.  
 B) the change in consumption caused by a one-unit change in disposable income.  
 C) the change in output caused by a one-unit change in autonomous demand.  
 D) total income minus total taxes.  
 E) the level of consumption that occurs if disposable income is zero.

- 12) Suppose the consumption equation is represented by the following:  $C = 500 + .8Y_D$ . The multiplier in this economy is: 12) \_\_\_\_\_
- A) .2.                      B) .8.                      C) 1.                      D) 4.                      E) 5.

Use the information below to answer the following questions:

$$C = 1000 + .75Y_D$$

$$I = 850$$

$$G = 2500$$

$$T = 1000$$

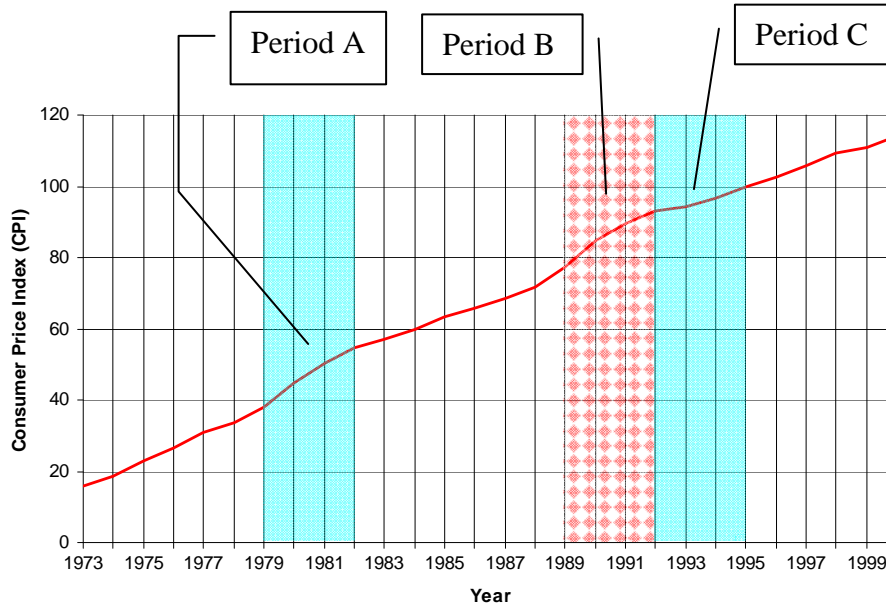
- 13) The equilibrium level of GDP for the above economy equals: 13) \_\_\_\_\_
- A) 3600.  
B) 4350.  
C) 13400.  
D) 14400.  
E) none of the above
- 14) A reduction in the marginal propensity to consume from .7 to .6 will cause: 14) \_\_\_\_\_
- A) the total expenditure (AE) line to become steeper and a given change in autonomous consumption ( $c_0$ ) to have a smaller effect on output  
B) the total expenditure (AE) line to become steeper and a given change in autonomous consumption ( $c_0$ ) to have a larger effect on output  
C) the total expenditure (AE) line to become flatter and a given change in autonomous consumption ( $c_0$ ) to have a larger effect on output  
D) the total expenditure (AE) line to become flatter and a given change in autonomous consumption ( $c_0$ ) to have a smaller effect on output
- 15) Let  $S_p$  represent private savings. When a closed economy is in equilibrium, we know with certainty that: 15) \_\_\_\_\_
- A)  $I = S_p + (T-G)$ .                      B)  $G = T$  and  $S_p = I$ .  
C)  $I = S_p$ .                                      D)  $I = S_p + (G-T)$ .
- 16) Which of the following will cause a rightward shift in the money demand curve? 16) \_\_\_\_\_
- A) a reduction in the interest rate  
B) a reduction in income  
C) an increase in the money supply  
D) all of the above  
E) none of the above
- 17) Which of the following generally occurs when a central bank pursues contractionary monetary policy? 17) \_\_\_\_\_
- A) the central bank purchases bonds and the interest rate increases  
B) the central bank sells bonds and the interest rate decreases  
C) the central bank sells bonds and the interest rate increases  
D) the central bank purchases bonds and the interest rate decreases

- 18) Which of the following will cause a shift of the IS curve? 18) \_\_\_\_\_
- A) an increase in consumer confidence
  - B) an increase in taxes
  - C) an increase in government spending
  - D) all of the above
  - E) none of the above
- 19) Which of the following will cause a shift in the LM curve? 19) \_\_\_\_\_
- A) an increase in consumer confidence
  - B) a reduction in taxes
  - C) an increase in output
  - D) an open market purchase of bonds
  - E) all of the above
- 20) Suppose the economy is operating on the LM curve but not on the IS curve. Given this information, we know that: 20) \_\_\_\_\_
- A) the money market and bond markets are in equilibrium and the goods market is not in equilibrium.
  - B) the money, bond and goods markets are all in equilibrium.
  - C) the goods market is in equilibrium and the money market is not in equilibrium.
  - D) neither the money, bond, nor goods markets are in equilibrium.
  - E) the money market and goods market are in equilibrium and the bond market is not in equilibrium.

Part B: SHORT ANSWER QUESTIONS (40%)

Please answer any two of the following three questions. Each question is worth 20%. Write brief answers to the questions being as succinct and clear as possible. Show any calculations as necessary in answering the questions. (Note: You will not get full marks for just writing the answer without showing calculations!)

21. (20%) The graph below shows the average value of the Consumer Price Index (CPI) in the United Kingdom from 1973 to 2000.



- a. [4 pts] In the graph above, what year is the base year? What is the value of the CPI in the base year?
- b. [8 pts] How is inflation defined between (two arbitrary) years X and Y (- here I am looking for the mathematical expression which defines inflation – **not a description of inflation in words**). In the graph above, for each of the shaded periods A, B and C, tell me if inflation was **high** or **low** during these periods?

$\text{Inflation}_{X,Y}$  (e.g.  $\text{Inflation}_{2002,2004}$ ) =

Period A (1979 to 1982): \_\_\_\_\_

Period B (1989 to 1992): \_\_\_\_\_

Period C (1992 to 1995): \_\_\_\_\_

Year	2000	2001	2002	2003	2004	2005
CPI	114	116	118	121	125	130
Inflation	2.92%	J	K	L	M	N

- c. [3 pts] The numbers above show the most recent values of the CPI in the United Kingdom. Calculate the 5 year inflation rate from 2000 to 2005 to two decimal points? *[Hint: You may find your answer to the first part of (b) useful!]*
- d. [4 pts; Harder!] Suppose that you are told that inflation is procyclical. Which year(s) above is (are) a likely candidate for a recession which hit the UK? *[Hint: You will need to calculate 1 year inflation rates (i.e. values J to N in the table above) for consecutive years above and use the definition of procyclicality to figure this out. In particular think about if something is procyclical, what it means!]*
- e. [1 pt] The CPI is an example of what **type** of Price Index? [Note: The answer to this question is NOT “Consumer Price Index”!]

22. (20%) Consider a small open economy in which aggregate expenditures, AE, is the sum of consumption spending by households, investment spending by firms, government expenditures and net exports. **You may assume that net exports are independent of real GDP and taxes are lump-sum.** The numbers in the table below are in billions.

a. (4%) For the table below, calculate the missing values, **A** and **B**.

Real GDP	Consumption	Investment	Government Expenditures	Net Exports	Taxes	Aggregate Expenditures
1,000	1,300	200	150	-50	100	<b>A</b>
2,000	<b>B</b>	200	150	-50	100	2,400
3,000	2,900	200	150	-50	100	3,200
4,000	3,700	200	150	-50	100	4,000
5,000	4,500	200	150	-50	100	4,800

**A** =

**B** =

b. (2%) From the table above, what kind of situation is the country in with regards to the trade balance (i.e. do we have a trade surplus or deficit)? What kind of situation is the country in with regards to the domestic balance (i.e. is the government running a deficit or surplus)?

Domestic (Government) Balance:

International (Trade) Balance:

c. (4%) Use the table above to calculate the slope of the AE curve. [Hint: Recall that the slope of the AE curve is the additional increase in aggregate expenditures arising from an increase in GDP.]

d. (4%) Recall that the Aggregate Expenditure function is written as:

$$AE = AE_0 + (\text{slope of AE}) \times Y$$

where  $AE_0$  is Autonomous Expenditures. Use the table in part (a) and your answer to part (b) above to calculate Autonomous Expenditure  $AE_0$ . [Hint: Calculate induced expenditures for any given level of GDP, and use your answer to figure out  $AE_0$ ]

e. (2%) In the table above, what is the value of real GDP in equilibrium?

f. (4%) Suppose that the government decides to spend 200 billion more. By calculating the multiplier (or any other way), calculate the value of the new equilibrium value of real GDP!

23. (20%) The table below shows the top 5 movies holding the US All time Box Office Records.

Movie	(Nominal) Cumulative Gross	Real Cumulative Gross	Release Date	Ticket Price Index
Titanic	\$600,788,188		12/19/1997	271
Star Wars	\$460,998,007		05/25/1977	100
Shrek 2	\$441,226,247		05/19/2004	320
E. T.	\$435,110,554		06/11/1982	164
Star Wars: Ep. 1	\$431,088,301		05/19/1999	283

- a. [2 pts] Based on the information above, which year is the base year?
- b. [6 pts] The formula presented in class for the GDP Deflator is:  $\text{GDP Deflator} = 100 \times (\text{Nominal GDP} / \text{Real GDP})$ . Supposed you know that the ticket price index is based on a similar formula involving the nominal and real cumulative gross. Calculate the real cumulative gross and enter the numbers in the spaces in the table above. Round the numbers to the nearest dollar.
- c. [4 pts] Which 4 movies sold the largest number of seats? Rank them in order below.
1. \_\_\_\_\_ 2. \_\_\_\_\_
3. \_\_\_\_\_ 4. \_\_\_\_\_
- d. [4 pts] By 2004, how much had ticket prices increased by (since the base year)? What was the rate of ticket price inflation between the base year and 2004?
- e. [4 pts] What is the rate of ticket price inflation between 1999 and 2004?