

TOBB-ETU, Economics Department

Macroeconomics I (IKT 233)

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Practice Questions with Answers (for Midterm)

Chapters 1 & 2 - MACROECONOMICS, THE DATA

1-) variables are determined within the model (exogenous or endogenous?)
(Answer: endogenous)

2-) The government debt is a variable (flow or stock?) (Answer: stock)

3-) The statistic used by economists to measure the nominal value of economic output is
(Answer: d)

a-) Inflation

b-) The labor force

c-) Money

d-) Gross domestic product

4-) In economics, ... is a measure of the level of prices of goods and services purchased by households (Answer: b)

a-) Gross domestic product

b-) Consumer Price Index

c-) implicit price deflator for GDP

d-) the GDP deflator

5-) In the national income accounts, investment includes all of the following except (Answer: d)

a-) firm's spending on equipment

b-) increase in the value of firm's inventories

c-) household's purchase of new houses

d-) household's purchase of stocks

6-) Recessions are periods when real GDP: (Answer: c)

a-) increases slowly.

b-) increases rapidly.

c-) decreases mildly.

d-) decreases severely.

7-) If nominal GDP increased by 5 percent and the GDP deflator increased by 3 percent, then real GDP ... by ... percent. (Answer: a)

a-) increased; 2

b-) decreased; 2

c-) increased; 8

d-) decreased; 8

8-) Abby consumes only apples. In year 1, red apples cost \$1 each, green apples cost \$2 each, and Abby buys 10 red apples. In year 2, red apples cost \$2, green apples cost \$1, and Abby buys 10 green apples.

a-) Compute a consumer price index for apples in each year. Assume that Abby's basket of goods in year 1 is the fixed consumer basket. How does the index change from year 1 to year 2?

Answer: $(2 \cdot 10) / (1 \cdot 10) = 2$, according to CPI, prices have doubled

b-) Compute Abby's nominal spending on apples in each year. How does it change from year 1 to year 2?

Answer: $1 \cdot 10 = 10$ it does not change

c-) Using year 1 as the base year for prices, compute Abby's real spending on apples in each year. How does it change from year 1 to year 2?

Answer: $(2 \cdot 10) = 20$, Abby's spending rises from 10 to 20

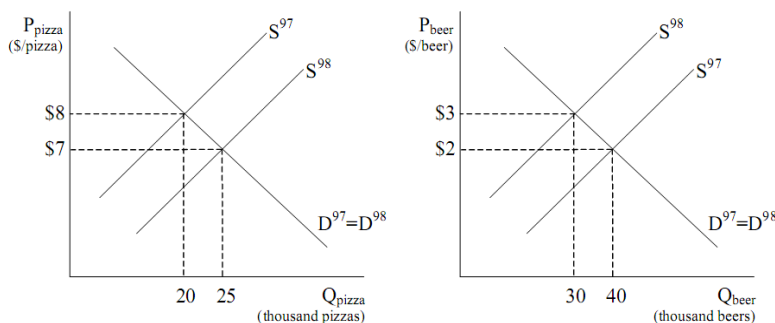
d-) The price deflator is nominal spending divided by real spending. Compute the deflator for each year. How does the deflator change from year 1 to year 2?

Answer: (Imp. Price Def. = Nominal Spending / Real Spending = $10 / 20 = 0.5$. When real spending is calculated as in part c-), implicit price deflator suggests that prices have fallen by half.

e-) Compute the chain type price index of Abby's consumption baskets in these two years.

Answer: $\sqrt{(2 \cdot 10) / (1 \cdot 10) \cdot (1 \cdot 10) / (2 \cdot 10)} = 1$

9-) The graphs below show supply and demand per day for two goods, beer and pizza, which are the only goods consumed by Ann Arbor's population of 20,000 consumers. Market equilibria are shown for both 1997 and 1998, between which both prices and quantities changed as shown



a-) What was Ann Arbor's nominal GDP for the year of 1997 and also for 1998?

Answer: In 1997, nominal output per day was $\$8 \times 20,000 + \$2 \times 40,000 = \$240,000$. In yearly terms, it is $365 \times 240,000 = \$87.6$ million. In 1998, this became $\$7 \times 25,000 + \$3 \times 30,000 + 90,000 = \$265,000$ per day and $365 \times 265,000 = \$96.7$ million per year. Thus: GDP₉₇ = \$87.6 million, GDP₉₈ = \$96.7 million

b-) Calculate the CPI for 1998, using 1997 as a base year and the 1997 quantities consumed as the basket of goods.

Answer: (Ans: In 1997 Ann Arbor's 20,000 consumers consumed 20 thousand pizzas and 40 thousand beers per day, or 1 pizza and 2 beers per person. (You don't need to multiply these numbers by 365 to calculate price index.) The cost of this basket was $\$8 \times 1 + \$2 \times 2 = \$12$ in 1997 and $\$7 \times 1 + \$3 \times 2 = \$13$ in 1998. If the base year is 1997, we set CPI at 1997 to 100. Then the CPI at 1998 is $(13/12) \times 100 = 108.3$

10-) Which of the following statements about economic models is true? (Answer: d)

- a-) There is only one correct economic model.
- b-) All economic models are based on the same assumptions.
- c-) The purpose of economic models is to show how endogenous variables affect exogenous variables.
- d-) Economists use different models to address different questions.

11-) Suppose there are two producers in an economy: one produces tomatoes and the other produces ketchup. Given the information in Table 1, calculate the GDP of this economy by the final good, value added, and income approaches

	Tomato Company (\$)	Ketchup Company (\$)
Sales Revenue	6000	4000
Productions Costs		
Wage Payments	1500	1000
Input Costs	0	2000
Profits	4500	1000

Answer: You can find the answer of this problem in the lecture notes.

12-) Suppose that a farmer grows wheat and sells it to a baker for \$2, the baker makes bread and sells it to a store for \$4, and the store sells it to the customer for \$6. This transaction increases GDP by (Answer: c)

- a-) \$2
- b-) \$4
- c-) \$6
- d-) \$12.

THE ECONOMY IN THE LONG RUN

Chapter 3 - NATIONAL INCOME

1-) The two most important factors of production are: and (Answer: capital and labor)

2-) In the classical model with fixed output, the supply and demand for goods and services are balanced by: (Answer: d)

a-) government spending.

b-) taxes.

c-) fiscal policy.

d-) the interest rate.

3-) A competitive, profit-maximizing firm rents capital until the: (Answer: a)

a-) marginal product of capital equals the real interest rate.

b-) price of output multiplied by the marginal product of capital equals the real rental rate plus the depreciation rate.

c-) real rental price of capital equals the real wage.

d-) nominal rental price of capital equals the nominal wage.

4-) Assume that the investment function is given by $I = 1,000 - 30r$, where r is the real rate of interest. Assume further that the nominal rate of interest is 10 percent and the inflation rate is 2 percent. According to the investment function, investment will be: (Answer: c)

a-) 240.

b-) 700.

c-) 760.

d-) 970.

5-) In a closed economy, $Y - C - G$ equals: (Answer: a)

a-) national saving.

b-) private saving.

c-) public saving.

d-) financial saving.

7-) Let the following equations characterize an economy:

$$Y = C + I + G$$

$$Y = 200$$

$$C = 23 + 0.8(Y - T)$$

$$I = 50 - 9r$$

$$G = 60 \quad T = 40 + 0.1Y$$

a-) Calculate national saving, private saving, and public saving.

$$\text{Answer: } S=Y-C-G=200-(23+0.8*200-0.8*40-0.8*0.1*200)-60=5$$

$$S(\text{public})=T-G=40+0.1*200-60=0$$

$$S(\text{private})=S-S(\text{public})=5-0=5$$

b-) Determine the equilibrium interest rate.

$$\text{Answer: } Y=C+I+G \quad 200 = [23 + 0.8((200 - 0.8*40) - 0.8(0.1*200))] + (50 - 9r) + 60 \Rightarrow r = 5\%$$

c-) Suppose that output increases to 209. Redo the calculations in (a) and (b). Explain (in terms of savings and investment) the reason for the interest rate change.

$$\text{Answer: } S = Y - C - G = 209 - (23 + 0.8*209 - 0.8*40 - 0.8*0.1*209) - 60 = 7.52$$

$$S(\text{public}) = 40 + 0.1*209 - 60 = 0.9$$

$$S(\text{private}) = 7.52 - 0.9 = 6.62$$

The interest rate decreases due to the increase in savings of the economy (really an excess supply of loanable funds)

d-) What caused the change in private savings? Why did public savings change?

Answer: Private savings increased because not all of the additional income is spent on consumption. Public savings increased because of the marginal tax rate charged on the additional income

8-) If the consumption function is given by the equation $C = 500 + 0.5Y$, the production function is $Y = 50K^{0.5}L^{0.5}$, where $K = 100$ and $L = 100$, then C equals:

$$\text{Answer: } 3,000$$

9-) Consider an economy where the marginal product of labor is $MPL=309-2L$, where L is the amount of labor used. The amount of labor supplied is $LS=22+12w+2T$, where w is the real wage rate and T is a lump-sum tax levied on individuals. Suppose that $T=35$. What are the equilibrium values of employment and real wage? .

$$\text{Answer: } LS=22+12w+(2*35)=92+12w.$$

$$\text{Labor demand is given by } w=MPL=309-2L, \text{ so } L = 154.5 - w/2.$$

$$\text{Setting labor supply equal to labor demand gives } w=5, L=152.$$

10-) Suppose there is a perfect competition in the markets of the economy. Also suppose that the production function of this economy is given by $Y = K^{1/3}L^{2/3}$. The labor demand (L) for this economy in terms of existing capital and real wage is

$$\text{Answer: } MPL=dY/dL=2/3K^{1/3}L^{-1/3} = W/P \Rightarrow L=8/27*K*(W/P)^{-3}$$

Chapter 4 - MONEY AND INFLATION

1-) According to the Fisher effect, the nominal interest rate moves one-for-one with changes in the: (Answer: b)

- a-) inflation rate.
- b-) expected inflation rate.
- c-) ex ante real interest rate.
- d-) ex post real interest rate.

2-) All of the following are included in M1 EXCEPT: (Answer: c)

- a-) Currency
- b-) Demand deposits
- c-) Savings deposits
- d-) Travelers' checks

3-) The real return on holding money on your pocket is: (Answer: d)

- a-) minus the nominal interest rate.
- b-) minus the real interest rate.
- c-) the inflation rate.
- d-) minus the inflation rate.

4-) If income velocity is assumed to be constant, but no other assumptions are made, the level of ... is determined by M. (Answer: d)

- a-) prices
- b-) income
- c-) transactions
- d-) nominal GDP

5-) According to the classical dichotomy, which of the following variables is affected by monetary policy? (Answer: a)

- a-) The price level
- b-) The real wage
- c-) The real interest rate
- d-) The rate of growth of real GDP

6-) Quantity Theory of Money: Suppose that the rate of labor force growth is 1% per year, the efficiency of labor is growing at 2% per year, and the economy is on its steady state growth path. Suppose also that the trend is that the velocity of money is growing at 1% per year.

a-) What should be the growth rate of the money stock if its inflation target is price stability?

Answer: 2%/year

b-) What should be the growth rate of the money stock if its inflation target is a 2% per year?

Answer: 4%/year

7-) The revenue raised through the printing of money, related to the inflation tax, is called (Answer: b)

a-) lump sum tax

b-) seigniorage

c-) monetary base

d-) none.

8-) Hyperinflation usually starts when (Answer: c)

a-) people start spending too much money.

b-) firms demand higher and higher prices for their goods.

c-) fiscal deficits are large and governments are forced to print money to finance their spending.

d-) governments are forced to collect more and more taxes.

Chapter 6 - UNEMPLOYMENT

- 1-) The natural rate of unemployment is: (Answer: a)
- a-) the average rate of unemployment around which the economy fluctuates.
 - b-) about 10 percent of the labor force.
 - c-) a rate that never changes.
 - d-) the transition of individuals between employment and unemployment.
- 2-) All of the following are reasons for frictional unemployment except: (Answer: b)
- a-) workers have different preferences and abilities.
 - b-) unemployed workers accept the first job offer that they receive
 - c-) the flow of information is imperfect.
 - d-) geographic mobility takes time.
- 3-) Which of the followings is not a cause of wage rigidity (Answer: a)
- a-) Frictional unemployment
 - b-) Unions and Collective Bargaining.
 - c-) Efficiency Wages
 - d-) Minimum-Wage Laws
- 4-) Suppose that it takes, on average, 2 weeks to find part time job for students. Also assume that a typical part time job lasts for 12 weeks. Find
- a-) The rate of job finding in weeks
Answer: $1\text{job}/2\text{weeks}=0.5\text{job}/\text{week}$
 - b-) The rate of job separation in weeks
Answer: $1\text{job}/12\text{weeks}=0.083\text{job}/\text{week}$
- 5-) 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:
(Answer: a)
- a-) 0.08.
 - b-) 0.125.
 - c-) 0.22.
 - d-) 0.435.
- 6-) The separation rate in an economy is 5 percent and the rate of job finding is 7 percent. If this economy has 500 workers in the labor force, calculate the steady state unemployment rate and the unemployment level.
Answer: $U/L=s/(f+s)=(0.05)/(0.07+0.05)*100=41.7\%$. $0.417*500 = 208$ unemployed.

THE ECONOMY IN THE VERY LONG RUN

Chapters 7 & 8 - GROWTH

1-) (T or F) We can expect convergence between countries only if they have the same parameters for saving, population growth, depreciation rate and technology (Answer: T)

2-) (T or F) Solow model implies that a rich economy can grow faster or slower than a developing country (Answer: T)

3) (T or F) International data suggest absolute convergence. (Answer: F)

4) (T or F) In steady-state with no technological growth, per capita consumption grows at the same rate with the population growth. (Answer: F)

5) (T or F) In the steady-state with technological growth, per capita consumption grows at the same rate with technological growth rate. (Answer: T)

6) (T or F) A fall in the rate of depreciation causes an increase in per capita consumption. (Answer: T)

7-) (T or F) In the Solow-Swan model inefficient oversaving ($k^* > k_{gold}$) cannot occur (Answer: F)

8-) (T or F) Even though within country income inequalities have increased between 1970s and 2000s, since some largely populated countries like China and India had a high economic growth rate, the income distribution of individuals around the world has gotten better (Answer: T)

9-) Suppose that in an economy there is no technological process and population growth, saving rate increases. In the new steady state, which of the following would not increase? (Answer: a)

a-) output growth rate

b-) output per labor

c-) capital per labor

d-) consumption per labor

10-) The Golden Rule level of the capital stock: (Answer: c)

a-) will be reached automatically if the saving rate remains constant over a long period of time.

b-) will be reached automatically if each person saves enough to provide for his or her retirement.

c-) implies a choice of a particular saving rate.

d-) should be avoided by an enlightened government.

11-) Assume there is no population growth. If the per-worker production function is given by $y = k^{1/2}$, the saving ratio is 0.2, and the depreciation rate is 0.1, then the steady-state ratio of output per worker (y) is: (Answer: $0.2 * k^{1/2} = 0.1 * k \Rightarrow k=4$)

a-) 1.

b-) 2.

c-) 3.

d-) 4.

12-) Assume there is no population growth. Assume further that a country's per-worker production is $y = k^{1/2}$, where y is output per worker and k is capital per worker. Assume also that 10 percent of capital depreciates per year.

a-) If the saving rate (s) is 0.3, what are capital per worker, production per worker, and consumption per worker in the steady state?

Answer: $k = 9$; $y = 3$; Consumption per worker is 2.1

b-) Solve for steady-state capital per worker, production per worker, and consumption per worker with $s = 0.4$.

Answer: $k = 16$; $y = 4$; Consumption per worker is 2.4

c-) Solve for steady-state capital per worker, production per worker, and consumption per worker with $s = 0.5$.

Answer: $k = 25$; $y = 5$; Consumption per worker is 2.5

d-) Make a guess for optimal saving rate that gives golden rule level of capital using the results in a-), b-) and c-). Then calculate it.

Answer $1/2k^{-1/2} = 0.1 \quad k=25 \quad s * 25^{1/2} = 0.1 * 25 \quad s=0.5$

13-) Use the production function $Y = K^{1/2}L^{1/2}$

a-) Prove that it is constant return to scale

Answer: See lecture notes.

b-) Calculate the labor and capital income shares in this economy out of total income

Answer: See lecture notes.

14-) Since 1946 Italian population growth (including illegal immigration) has been constant at about 1% per year and Italy has had a savings share of 25% of GDP. In 2010 Italy has a GDP per capita level of about \$25,000 per year. The rate of growth of the efficiency of labor in Italy since the end of World War II has been constant at about 2% per year. Assume that Italy is currently on its steady-state balanced-growth path. If Italy remains on its current steady-state balanced-growth path, what will GDP per capita be in Italy in 2050?

Answer: $25000 * 1.02^{40} = 55000$