

PROBLEM SET 1 WITH ANSWERS

Q.1

a.) Distinguish a Keynesian from a Classical economist, and give your view of how they would respond to an economy falling into a recession

Classical economists believe that business cycles are temporary glitches in an economy that can be resolved with the elimination of government programs that keep prices and wages from falling. They focus on the invisible hand and suggest that eliminating institutions and policies that keep the invisible hand from coordinating economy activity.

Keynesian economists believe that business cycles reflect underlying problems in the economy that can be addressed with active participation of government with various policies. They suggest that recessions can be caused by people stopping buying, which would lead to lower production, which would lead to lower employment, which would lead to lower income and lower demand for goods. A downward cycle in output would begin that needs to be offset with expansionary government policy that increases expenditures. Their argument is based, in part, on the fallacy of composition: a decline in wages and consumption, rather than leading to a new equilibrium, would create macro effects that lead to ever-lower production. The opposite is also true—increases in economic output can lead to increases in individual spending that can lead to ever increasing increases in expenditures as businesses increase production to meet the increase in demand. This creates the possibility that government could affect aggregate expenditures beyond the initial stimulus.

b.) How does structural stagnation challenge the standard Keynesian and Classical viewpoints?

Structural stagnation—a period of protracted slow growth with the economy not providing the type of jobs society expects from it—challenges the standard Keynesian and Classical viewpoints because it undermines the belief that an economy would experience only business cycles. Instead, the economy could remain below its long-term growth path. In structural stagnation unemployment is not due to temporary layoffs, but rather due to structural problems in the economy. If the problem is structural stagnation, the Keynesian policy of expansionary demand policy will not return the economy to its long-term growth trend, until the temporary structural problems are resolved.

Q.2

Consider the following labor force statistics for an economy:

Total population (000s): 1000

Number of adults employed (000s): 600

Number of adults unemployed and looking for work (000s): 50

Number of adults unemployed and not looking for work (000s): 100

Number of elderly and children [none of whom work or look for work] (000s): 250

a) Calculate the unemployment rate for this economy.

There is an economic boom, and 20,000 new jobs are created, all of which are filled by adults who were previously unemployed but looking for work.

b) Calculate the new unemployment rate.

Now the stock market crashes, and the boom turns into a deep recession. Total employment falls to 520,000. All the laid off workers give up hope of finding another job, and decide to retire and move to Florida. So the number of people unemployed but looking for work remains at 30,000 as in Part (b).

c) What is the new unemployment rate? Compare your answer to the answers you found in parts (a) and (b). Thinking about this comparison, comment on the strengths and weaknesses of the unemployment rate as a measure of the strength of the labor market.

d) If 200,000 migrate to a neighboring country, what happens to the unemployment rate?

e) If this country's unemployment rate decreases, what do we know about its real GDP?

a) Unemployment rate = $U / (U + L)$ where U is the number of people unemployed and looking for work, and L is the number of employed.

So unemployment rate = $50 / (600 + 50) = 7.7 \%$

b) New unemployment rate = $30 / (620 + 30) = 4.6 \%$

c) New unemployment rate = $30 / (520 + 30) = 5.5 \%$

So the unemployment rate is higher than in part (b) but lower than part (a).

This comparison illustrates one drawback of the unemployment rate as a measure of the state of the labor market. Even though the economy is in a deep recession in part (C), the unemployment rate did not rise that much, because people gave up and stopped looking for work altogether, and therefore were no longer counted in the calculation of the unemployment

rate. (Economists refer to this phenomenon as the ‘discouraged worker effect’.) So, it is generally inappropriate to think of the unemployment rate as a complete or comprehensive measure of the strength of the labor market. Other indicators (such as employment, hours worked etc.) are also important. In practice, the unemployment rate does tend to move quite strongly with changes in output. And unemployment is still considered to be very useful, both as a measure of whether the economy is operating above or below its normal level of activity, and as a measure of social welfare

- d) Depends on who migrated. If those not in the labor forces were the only ones who migrated, then the unemployment rate will not change. However, if either current employed or currently unemployed but who are looking for work migrated, then the rate will change.
- e) Not much. When somebody who is unemployed (but looking for work) gives up job search, that person drops out of the labor force. So, even if the number of people who are really unemployed and employed stay the same, we could have a lower unemployment rate. In this case, real GDP is the same since the same number of people are working. If the drop in unemployment was caused by an increase in L or decrease in U (unemployed finding work, so moving from U group to L group), then real GDP should increase since more people are working.

Q.3

Classify the unemployment which is experienced by individuals as frictional, structural or cyclical unemployment.

- i) Zeynep who has a lot of work experience and knowledge quits his job to find better job with higher wage: **frictional unemployment**
- ii) Ulaş losses his job in factory because the factory was moved to another country: **structural unemployment**
- iii) Ekin cannot find a job because of the decrease in the demand for her occupation as an outcome of the recession period: **cyclical unemployment**
- iv) Melih who cannot catch up with the new technology and cannot keep pace with the new production techniques is dismissed from his job: **structural unemployment**

Q.4

Homelands has an economy that produces only three final goods: meat, coal, and wheel. Information on population, nominal prices and total output for each good in the years 2010 and 2024 is given below.

	2010		2024	
	per unit Price (\$)	Output (in millions)	per unit Price (\$)	Output (in millions)
Meat	3.00	2	5.00	5
Coal	4.50	5	7.00	8
Wheel	2.50	8	3.00	10

Note: The population of Homelands for years 2010 and 2024 are 15,000 and 20,000; respectively.

a) Calculate nominal GDP for 2010.

$$\text{Nominal GDP in 2010} = 3.00 \times 2 + 4.50 \times 5 + 2.50 \times 8 = 48.5 \text{ Million}$$

b) Calculate nominal GDP for 2024.

$$\text{Nominal GDP in 2024} = 5.00 \times 5 + 7.00 \times 8 + 3.00 \times 10 = 111 \text{ Million}$$

c) Calculate real GDP for 2010 and 2024 if the BASE YEAR is 2010.

$$\text{Real GDP in 2010 (2010=100)} = 3.00 \times 2 + 4.50 \times 5 + 2.50 \times 8 = 48.5 \text{ Million}$$

$$\text{Real GDP in 2024 (2010=100)} = 3.00 \times 5 + 4.50 \times 8 + 2.50 \times 10 = 76 \text{ Million}$$

d) Calculate the growth rate of real GDP (using 2010 \$).

$$\text{Growth rate} = \left(\frac{X_{t+1} - X_t}{X_t} \right) \times 100 = \left(\frac{76 - 48.5}{48.5} \right) \times 100 = 56.7\%$$

e) Has the standard of living increased or decreased since 2010?

$$\text{Real per Capita GDP in 2010} = 48.5 \text{ Million} / 15,000 = \$ 3,233.33$$

$$\text{Real per Capita GDP in 2024} = 76 \text{ Million} / 20,000 = \$ 3,800$$

Standard of living has increased.

f) Calculate real GDP for 2010 and 2024 if the BASE YEAR is 2024.

$$\text{Real GDP in 2010 (2024=100)} = 5.00 \times 2 + 7.00 \times 5 + 3.00 \times 8 = 69 \text{ Million}$$

$$\text{Real GDP in 2024 (2024=100)} = 5.00 \times 5 + 7.00 \times 8 + 3.00 \times 10 = 111 \text{ Million}$$

g) Calculate the growth rate of real GDP (using 2024 \$).

$$\text{Growth rate} = \left(\frac{X_{t+1} - X_t}{X_t} \right) * 100 = \left(\frac{111 - 69}{69} \right) * 100 = 60.86\%$$

h) What is the GDP deflator for 2010 and for 2024? (Use 2010 as the base year.)

$$\text{GDP Deflator in 2010 (2010=100)} = (48.5 / 48.5) * 100 = 100$$

$$\text{GDP Deflator in 2024 (2010=100)} = (111 / 76) * 100 = 146.05$$

i) What is the GDP deflator for 2010 and for 2024? (Use 2024 as the base year.)

$$\text{GDP Deflator in 2010 (2024=100)} = (48.5 / 69) * 100 = 70.29$$

$$\text{GDP Deflator in 2024 (2024=100)} = (111 / 111) * 100 = 100$$

j) Beside GDP deflator what other price indices are used in measuring inflation?

GDP Deflator: Gives the average price of output (the final goods produced in the economy)

CPI (Consumer Price Index): Average price of consumption goods people consume

PPI (Producer Price Index): Prices of domestically produced goods in manufacturing, mining, agriculture, fishing, forestry, and electric utility industries.

Suppose that there are only 3 firms in an economy. Jasmine Cotton produces 100 TL worth of cotton which it sells to Daisy Cloth. Jasmine Cotton pays its workers 60 TL as wages and 10 TL as tax to the government. The rest are profits to Jasmine Cotton.

Daisy Cloth purchases this 100 TL worth of cotton and uses all of it to produce 250 TL worth of cloth. Daisy Cloth sells all this cloth to Liliun Dresses. Daisy Cloth pays 70 TL as wages and 10 TL as tax. The rest are company's profits.

Liliun Dresses uses 250 TL worth cloth to produce 400 TL worth of dresses and it sells them to final users. Liliun Dresses pays 80 TL as wages and 20 TL as tax, the rest are the profits of the firm. Given this information:

- i) Find this country's GDP by using final goods(output) approach.

Liliun Dresses produces the final good, worth of 400 TL, so it is 400 TL.

- ii) Find this country's GDP by using income approach.

$$\text{Jasmine Cotton's profits} = 100 - 60 - 10 = 30$$

$$\text{Daisy Cloth's profits} = 250 - 100 - 70 - 10 = 70$$

$$\text{Liliun Dresses's profits} = 400 - 250 - 80 - 20 = 50$$

$$\text{Labour income} = 60 + 70 + 80 = 210$$

$$\text{Gov't income} = 10 + 10 + 20 = 40$$

$$\text{GDP} = 30 + 70 + 50 + 210 + 40 = 400 \text{ TL}$$

- iii) Find this country's GDP by using value-added approach.

$$\text{Value - added by Jasmine} = 100$$

$$\text{Value - added by Daisy} = 250 - 100 = 150$$

$$\text{Value - added by Liliun} = 400 - 250 = 150$$

$$\text{GDP} = 100 + 150 + 150 = 400 \text{ TL}$$

Q.6

From the following table, calculate:

- | | |
|--------------------------------------|-------------------------------|
| a) gross private domestic investment | e) net national product |
| b) net exports | f) national income |
| c) gross domestic product | g) personal income |
| d) gross national product | h) disposable personal income |

Transfer payments	15
Subsidies	5
Social insurance payments	35
Depreciation	50
Receipts of factor income from the rest of the world	4
Government consumption and investment	75
Imports	50
Payments of factor income to the rest of the world	5
Indirect taxes	20
Exports	60
Net private domestic investment	100
Personal taxes	60
Corporate profits	45
Personal consumption expenditures	250
Dividends	4

Answer:

+	Personal consumption expenditure (C)	250
+	Gross private domestic investment (I)	150
	Net private domestic investment	100
	Depreciation	50
+	Government consumption and investment (G)	75
+	Exports (E)	60
-	Imports (IM)	50
	Net exports = E - IM	10
=	GDP	485
+	Receipts of factor income from the rest of the world	4
-	Payments of factor income to the rest of the world	5
=	GNP	484
-	depreciation	50
=	Net national product	434
=	National income	434
-	Indirect Taxes	20
+	Subsidies	5
-	Corporate profits	45
+	dividends	4
-	Social insurance payments	35
+	Transfer payments	15

=	Personal Income	358
-	Personal taxes	60
=	Disposable personal income	298

Q.6

Consider a worker whose monthly wage was \$2500 in the month of February 2025. The Consumer Price Index for the economy in which this worker is employed is reported to have a value of 148 in February 2025 (CPI was 100 in January 2013). The same worker was paid a wage of \$1800 in the month of January 2013.

- a) Calculate this worker's real income for February 2025, using the CPI as a measure of the general price level.

CPI value of 148 for February 2025 shows that the average price of consumer goods in February 2025 is equal to 1.48 times the average price in January 2013. The real income can be calculated as

Real income = Nominal income / price index (in hundredths) = \$2500 / 1.48 = \$1689.19

- b) What exactly does the real income that you have calculated show?

The real income calculated above shows that a monthly income of \$2500 in February 2025 can buy the same amount of goods and services that a monthly income of \$1689.19 could buy in January 2013

- c) Did this worker get better off or worse off in terms of his real income?

Since the real income of the worker was \$1800 in January 2013, the worker got worse off. Since 1689.19 is less than 1800, his real income rate in February 2025 has decreased compared to his real income in January 2013.

- d) Show that, if the nominal income rate increases by 14% and, during the same time period, the price level increases by 20% (in other words, if the inflation rate is 20%), then the real income rate decreases by approximately 6%.

Percentage change in real income = percentage change in nominal income – percentage change in price level

Percentage change in real income = 14% - 20% = - 6% so real income decreases by 6%

MULTIPLE CHOICE QUESTION

- 1) Suppose the U.S. unemployment rate rose from under 5 percent to over 8 percent. A Keynesian economist would most likely blame this increase in unemployment on:
 - A) an increase in the minimum wage.
 - B) an increase in the bargaining power of labor unions.
 - C) a decline in the level of aggregate demand.**
 - D) a decline in aggregate supply.
- 2) The laissez-faire policy prescription to eliminate unemployment was to:
 - A) eliminate labor unions and government policies that hold real wages high.**
 - B) strengthen unions and government regulations protecting unions and workers.
 - C) increase real wages so that people are encouraged to work.
 - D) have government guarantee jobs for everyone.
- 3) Potential output:
 - A) is purely a physical phenomenon.
 - B) is related to the long-term growth trend.**
 - C) requires government expenditures.
 - D) requires the purchase of new equipment.
- 4) Suppose a country's output is \$440 billion and its population is 110 million. Now suppose that both its output and its population increase by 24 percent. As a result of these changes, its new level of per capita output will be:
 - A) \$400.
 - B) \$440.
 - C) \$4,000.**
 - D) \$4,400.
- 5) Which of the following countries, or groups of countries, has grown at the fastest rate in the last ten years?
 - A) Western Europe
 - B) China**
 - C) The United States
 - D) Eastern Europe
- 6) Fluctuations around the long-term growth rate are called:
 - A) recessions.
 - B) depressions.
 - C) expansions.
 - D) business cycles.**

- 7) Use the following table to calculate the unemployment rate. Select the correct answer from the options below.

	In millions
Civilian population	270
People incapable of working	70
People not looking for work	60
Employed workers	133

- A) 3 percent
- B) 5 percent**
- C) 7 percent
- D) 9 percent

- 8) Use the following table to calculate the unemployment rate.

	In millions
Civilian population	220
People incapable of working	55
People not looking for work	62
Employed workers	98

- A) 5.5 percent
- B) 9.0 percent
- C) 28.2 percent
- D) 4.9 percent**

- 9) Frictional unemployment:

- A) refers to unemployment caused by friction between labor and management.
- B) comes from people entering the labor force and changing jobs.**
- C) refers mainly to unemployment resulting from fluctuations in output.
- D) is undesirable and should be eliminated at all costs.

- 10) Workers at a car-manufacturing plant are replaced by automated machinery. What type of unemployment best describes the workers' situation?

- A) Cyclical unemployment
- B) Full unemployment
- C) Structural unemployment**
- D) Frictional unemployment

- 11) The target rate of unemployment is defined as the:

- A) highest sustainable rate of unemployment achievable under existing conditions.
- B) lowest sustainable rate of unemployment achievable under existing conditions.**
- C) highest unemployment rate at which there is no cyclical or structural unemployment.
- D) lowest rate of unemployment that will eliminate the business cycle.

- 12) Which of the following is associated with an *increase* in potential output?
- A) An increase in the target rate of unemployment
 - B) A decrease in the target rate of unemployment**
 - C) An increase in the target inflation rate
 - D) A decrease in the target rate of capacity utilization
- 13) GDP is the:
- A) market value of an economy's production of final goods and services in a one year period.**
 - B) sum of coins, bills, and demand deposits circulating in an economy in a one year period.
 - C) total expenditures of the federal government over the period of one year.
 - D) market value of an economy's production of all goods and services in a one year period.
- 14) The United States produces and sells millions of types of products. To add them up to a single aggregate, each good is weighted by its:
- A) cost of production.
 - B) market price.**
 - C) utility to consumers.
 - D) contribution to corporate profits.
- 15) If you decide not to spend \$1,000 you earned at your summer job but instead intend to buy shares in a mutual fund, in terms of aggregate economic accounting you would be:
- A) consuming.
 - B) saving.**
 - C) investing.
 - D) transferring.
- 16) In what category is the purchase of a computer by a person for household use in national income accounting?
- A) It is counted as consumption.**
 - B) It is counted as consumption if the computer was manufactured in the United States; otherwise it is ignored.
 - C) It is included as part of investment.
 - D) The purchase is not included at all, but the value of services the computer gives is included in consumption each year.
- 17) A change in business inventories is:
- A) not counted in GDP because it does not represent final sales.
 - B) counted in GDP as investment.**
 - C) counted in GDP as consumption.
 - D) counted in GDP as net exports.

- 18) Net exports are defined as:
- A) GDP minus exports.
 - B) exports less imports.**
 - C) imports less exports.
 - D) exports plus imports.
- 19) Which of the following equations is the correct equation for GDP?
- A) $GDP = C + I + G$
 - B) $GDP = C + I + G + X + M$
 - C) $GDP = C + I + G - X - M$
 - D) $GDP = C + I + G + X - M$**
- 20) In 2022, the value of the stocks listed on the New York Stock Exchange decreased. As a direct result:
- A) both U.S. GDP and U.S. GNP declined by the same amount.
 - B) U.S. GDP declined by the amount of the stock market decline but U.S. GNP was unaffected.
 - C) U.S. GNP declined by the amount of the stock market decline but U.S. GDP was unaffected.
 - D) neither U.S. GDP nor U.S. GNP were affected.**
- 21) How does stock differ from flow?
- A) A flow concept has meaning over a specified period of time, while a stock concept is a value at a point in time.**
 - B) A flow concept is a value at a point in time, while a stock concept has meaning over a specified period of time.
 - C) They do not differ; both flow and stock concepts have meaning only over a specified period of time.
 - D) They do not differ; both flow and stock concepts are values at a point in time.
- 22) GDP is a:
- A) stock concept and refers to the market value of all output sold.
 - B) stock concept and refers to the market value of final output.
 - C) flow concept and refers to the market value of all output sold.
 - D) flow concept and refers to the market value of final output.**
- 23) Double counting in the national income accounts will occur if GDP is computed by summing up:
- A) final output sales.
 - B) value added.
 - C) all sales.**
 - D) the income earned by a country's residents.

24) Depreciation:

- A) **estimates the decrease in value of capital goods due to wear and tear over the year.**
- B) is the reduction in business inventories per year.
- C) represents a firm's expenditure to add to its capital stock.
- D) is the decline in the value of a firm's stock.

25) The difference between nominal GDP and real GDP is that:

- A) **real GDP adjusts the value of goods for changes in the price level and nominal GDP does not.**
- B) nominal GDP adjusts the value of goods for changes in the price level and real GDP does not.
- C) real GDP accounts for foreign production in a country and nominal GDP does not.
- D) nominal GDP accounts for foreign production in a country and real GDP does not.

26) An increase in nominal GDP implies an increase in:

- A) the price level.
- B) output.
- C) both the price level and output.
- D) **either the price level or output or both.**

27) If real GDP has increased by 3 percent and nominal GDP has increased by 5 percent, then:

- A) depreciation is 2 percent.
- B) net factor income is 2 percent.
- C) **inflation is 2 percent.**
- D) net exports are 2 percent.

28) Assuming food and beverages make up about 15 percent of total expenditures and food and beverage prices rise by 10 percent while the other components of the price index remain constant, approximately by how much will the price index rise?

- A) 1 percent
- B) **1.5 percent**
- C) 15 percent
- D) 25 percent

29) If the CPI was 37 in 1979 and in 2022 it was 215.3. By what percent did prices increase in the United States between 1979 and 2022? (Not the annual rate of change, but total.)

- A) 5
- B) 48
- C) **482**
- D) 545

30) Which of the following is most likely to be asset price inflation?

- A) **A rise in the current price of assets caused by expectation of higher asset prices in the future**
- B) A rise in the current price of assets caused by an increase in the riskiness of financial assets
- C) A rise in the price of assets caused by an increase in the underlying productivity of those assets
- D) A rise in the current price of assets caused by a shift in people's time preference

31) In recent years, many environmentalists have proposed changes to GDP accounting that would take into account the impact of economic activity on the environment. Which of the following economic activities that affect the environment is currently included in GDP?

- A) The effect of the depletion of oil reserves on energy expenditures
- B) The effect of deforestation on global climate change and the income of future generations
- C) The impact of corporate pollution on health care spending
- D) **Expenditures on pollution control technology**

32) Robert Summers and Alan Heston published data for 130 countries that used purchasing power parity, rather than market exchange rates, to compare GDP across countries. As a result, measured per capita incomes of developing countries rose relative to per capita incomes in developed countries. This is most likely because:

- A) prices of standard goods in developing countries are generally higher than those in developed countries.
- B) **prices of standard goods in developing countries are generally lower than those in developed countries.**
- C) nonmarket activity is more extensive in developing countries than in developed countries.
- D) nonmarket activity is less extensive in developing countries than in developed countries.

