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Department of Economics

ECON 102 (1-2)

24 March 2025

QUIZ 1
(Time: 60 minutes)

Q.1 (40 Points)

Suppose an economy produces 3 goods only, tangerines, ice-cream, and sushi. The total production of all goods and their prices are given in the following table.

	Quantities				Prices			
Item	2021	2022	2023	2024	2021	2022	2023	2024
Tangerines	8	9	9	10	\$4	\$5	\$5	\$6
Ice-Cream	10	14	18	20	\$2	\$2	\$3	\$5
Noodle	12	12	12	15	\$3	\$3	\$4	\$5

Take 2021 as the base year.

a) Compute the nominal GDP for each year.

$$\text{Nominal GDP 2021} = 8 \times 4 + 10 \times 2 + 12 \times 3 = \$88$$

$$\text{Nominal GDP 2022} = 9 \times 5 + 14 \times 2 + 12 \times 3 = \$109$$

$$\text{Nominal GDP 2023} = 9 \times 5 + 18 \times 3 + 12 \times 4 = \$147$$

$$\text{Nominal GDP 2024} = 10 \times 6 + 20 \times 5 + 15 \times 5 = \$235$$

b) Compute the real GDP for each year.

$$\text{Real GDP 2021} = 8 \times 4 + 10 \times 2 + 12 \times 3 = \$88$$

$$\text{Real GDP 2022} = 9 \times 4 + 14 \times 2 + 12 \times 3 = \$100$$

$$\text{Real GDP 2023} = 9 \times 4 + 18 \times 2 + 12 \times 3 = \$108$$

$$\text{Real GDP 2024} = 10 \times 4 + 20 \times 2 + 15 \times 3 = \$125$$

c) Compute GDP deflators for all years.

$$\text{GDP Deflator 2021} = \text{Nominal GDP} / \text{Real GDP} * 100 = 88 / 88 * 100 = 100$$

$$\text{GDP Deflator 2022} = 109 / 100 * 100 = 109$$

$$\text{GDP Deflator 2023} = 147 / 108 * 100 = 136,11$$

$$\text{GDP Deflator 2024} = 235 / 125 * 100 = 188$$

d) Calculate the rate of inflation based on the GDP deflator for all years.

$$\text{Inflation rate} = (\text{GDP Deflator}_{t+1} - \text{GDP Deflator}_t) / \text{GDP Deflator}_t * 100$$

$$\text{Inflation rate} = 2022 = (109 - 100) / 100 * 100 = 9\%$$

$$\text{Inflation rate 2023} = (136,11 - 109) / 109 * 100 = 24,87\%$$

$$\text{Inflation rate 2024} = (188 - 136,11) / 136,11 * 100 = 38,12\% \text{ Inflation}$$

Q.2 (40 Points)

An economy is characterised by the following relationships:

$$C = 500 + 0.6Y$$

$$I = 300$$

i) Derive the aggregate expenditure(AE) function.

$$AE = C + I$$

$$AE = 500 + 0.6Y + 300$$

$$AE = 800 + 0.6Y$$

ii) Calculate the equilibrium national income.

$$\text{In equilibrium} \rightarrow AE = Y$$

$$800 + 0.6Y = Y$$

$$800 = 0.4Y$$

$$Y = 800 / 0.4$$

$$Y = 2000$$

iii) Calculate consumption at the equilibrium level of Y.

$$C = 500 + 0.6Y$$

$$C = 500 + 0.6(2000)$$

$$C = 1700$$

- iv) If investment rises by 100, what is the level of new equilibrium national income.

$$AE_{NEW} = 800 + 0.6Y + 100$$

$$AE_{NEW} = 900 + 0.6Y$$

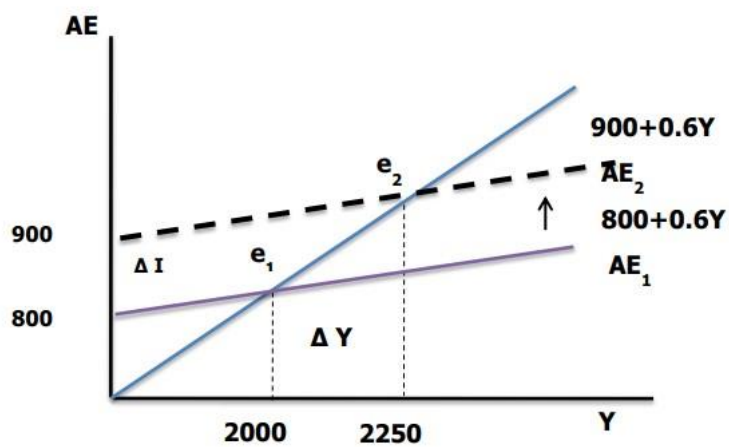
In equilibrium;

$$Y = 900 + 0.6Y$$

$$0.4Y = 900$$

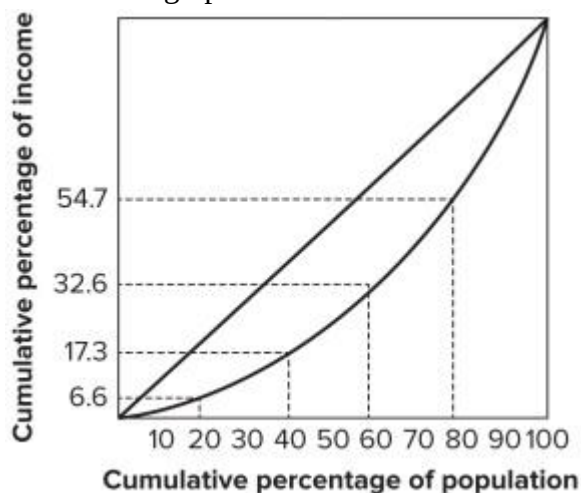
$$Y_{NEW} = 2250$$

- v) Show your results graphically.



MULTIPLE CHOICE QUESTION (20 Points)

- 1) 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.
- 2) If U.S. imports of goods and services exceed exports, U.S.:
 - A) GDP is less than the sum of consumption, investment, and government purchases.**
 - B) GDP exceeds the sum of consumption, investment, and government purchases.
 - C) net exports are positive.
 - D) GDP equals the sum of consumption, investment, and government purchases.
- 3) If the CPI in year 2 equals 110 and the CPI in year 3 equals 121, it can be concluded that consumer prices:
 - A) rose from year 2 to year 3 by 11 percent.
 - B) rose from year 2 to year 3 by 21 percent.
 - C) rose from year 2 to year 3 by 10 percent.**
 - D) are the same in year 2 as in the base year.
- 4) Refer to the graph shown.



The top 20 percent of the families earn:

- A) 32.6 percent of the income.
- B) 45.3 percent of the income.**
- C) 54.7 percent of the income.
- D) 67.4 percent of the income.

- 5) A curve that shows the wealth distribution would usually be:
- A) equal to the Lorenz curve for income.
 - B) below the Lorenz curve for income.**
 - C) above the Lorenz curve for income.
 - D) above the diagonal line.
- 6) Other things equal, tax cuts favoring the rich and reductions in funding for government programs favoring the poor would be expected to:
- A) increase income inequality, causing the Lorenz curve to bend toward the diagonal line.
 - B) decrease income inequality, causing the Lorenz curve to bend toward the diagonal line.
 - C) increase income inequality, causing the Lorenz curve to bend away from the diagonal line.**
 - D) decrease income inequality, causing the Lorenz curve to bend away from the diagonal line.
- 7) Consumption function in a closed economy without government is $100 + 0.8*Y$. An increase in investment by 100 would _____ income by_____.
- A) lower; 500
 - B) raise; 100
 - C) raise; 500**
 - D) lower ; 100
- 8) Autonomous expenditures are defined as expenditures that
- A) Do not depend on income**
 - B) occur in equilibrium
 - C) change as income changes
 - D) equal income
- 9) The government spending multiplier shows:
- A) The ratio of the change in government spending to a change in autonomous planned investment
 - B) The ratio of the change in equilibrium output to an initial change in government spending**
 - C) The amount by which government spending changes with changes in the level of output
 - D) How government spending is one of those variables that does not change in response to changes in the economy

10) If the marginal propensity to save is 0.25, then a \$10,000 decrease in disposable income will

- A) increase consumption by \$7,500.
- B) increase consumption by \$2,500.
- C) **decrease consumption by \$7,500.**
- D) decrease consumption by \$2,500.