

ECON 3010 Intermediate Macroeconomics
Exam #1

Multiple Choice Questions. (25 points; 2.5 pts each)

1. Exogenous variables are:
 - A) fixed at the moment they enter the model.
 - B) determined within the model.
 - C) the outputs of the model.
 - D) explained by the model.

2. Assume that a rancher sells McDonald's a quarter-pound of meat for \$1 and that McDonald's sells you a hamburger made from that meat for \$2. In this case, the value included in GDP should be:
 - A) \$0.50.
 - B) \$1.
 - C) \$2.
 - D) \$3.

3. If the number of employed increases while the number of unemployed does not change, the unemployment rate:
 - A) will increase.
 - B) will decrease.
 - C) will not change.
 - D) may either increase or decrease.

4. According to the definition used by the U.S. Bureau of Labor Statistics, people are considered to be unemployed if they:
 - A) are out of a job, but not looking for work.
 - B) retired from the labor force before age 65.
 - C) do not have a job, but have looked for work in the past 4 weeks.
 - D) are absent from work because of bad weather or illness.

5. Which of the following is a stock variable?
 - A) wealth
 - B) consumption
 - C) investment
 - D) income

6. If income is 4,800, consumption is 3,500, government spending is 1,000, and taxes minus transfers are 800, public saving is:
- A) -200.
 - B) 200.
 - C) 500.
 - D) 1,800.
7. All of the following actions increase government purchases of goods and services *except* the:
- A) federal government's sending a Social Security check to Betty Jones.
 - B) federal governments sending a paycheck to the president of the United States.
 - C) federal government's buying a Patriot missile.
 - D) city of Boston's buying a library book.
8. If the consumption function is given by $C = 150 + 0.85Y$ and Y increases by 1 unit, then C increases by:
- A) 0.15 units.
 - B) 0.5 units.
 - C) 0.85 units.
 - D) 1 unit.
9. If output is described by the production function $Y = AK^{0.2}L^{0.8}$, then the production function has:
- A) constant returns to scale.
 - B) diminishing returns to scale.
 - C) increasing returns to scale.
 - D) a degree of returns to scale that cannot be determined from the information given.
10. In the long run, the level of national income in an economy is determined by its:
- A) factors of production and production function.
 - B) real and nominal interest rate.
 - C) government budget surplus or deficit.
 - D) rate of economic and accounting profit.

Problem Solving / Essay Questions. (75 points)

#11. (30 pts) Consider a macroeconomy that produces smartphones, automobiles and haircuts. Use the information below to answer the following questions.

Product	Quantity (in millions)		Price (in \$)	
	2017	2018	2017	2018
Smartphones	50	60	\$400	\$350
Autos	4	5	\$25,000	\$30,000
Haircuts	200	160	\$20	\$25

- (a) (10 pts) Calculate nominal and real GDP for 2017 and 2018 using 2017 as the base year. What are the growth rates of nominal and real GDP over this period? Which growth rate is a better indicator of economic growth and why?

Product	Quantity (in millions)		Price (in \$)	
	2017	2018	2017	2018
Smartphones	50	60	\$400	\$350
Autos	4	5	\$25,000	\$30,000
Haircuts	200	160	\$20	\$25

(b) (10 pts) Assuming that the 2017 quantities in the table also represent the typical consumer's basket of goods, calculate the GDP deflator and CPI for 2017 and 2018 using 2017 as the base year.

(c) (10 pts) What is CPI inflation rate between 2017 and 2018? Explain how the substitution bias may cause the CPI to overstate inflation and give an example using one of the three goods or services.

#12. (30 pts) Consider the following (closed) Neoclassical model of the economy, where r is in percentage terms. Show all your work.

Supply	Demand
$Y = F(K, L) = \sqrt{KL}$	$C = 20 + 0.8(Y - T)$
$MPL = 0.5\sqrt{K/L}; MPK = ?$	$I = 50 - 5r$
$K = 900; L = 100$	$G = 40, T = 50$

- (a) (10 pts) What is the level of GDP in the economy? How much of national income goes to workers and how much goes to the owners of capital? Show your work. How much are households saving? How much is the government saving?

Supply	Demand
$Y = F(K, L) = \sqrt{KL}$	$C = 20 + 0.8(Y - T)$
$MPL = 0.5\sqrt{K/L}; MPK = ?$	$I = 50 - 5r$
$K = 900; L = 100$	$G = 40, T = 50$

- (b) (10 pts) Find the interest rate that produces equilibrium in either the goods market or the loanable funds market. Draw two demand-supply diagrams (side-by-side) to show the equilibrium in the economy, making sure to carefully label and title both diagrams.

- (c) (10 pts) Assume a massive natural disaster destroys part of the nation's productive capital such that $K = 841$. Find the new equilibrium real interest rate and show the change on the diagrams in part (b).

#13. (15 pts) Complete the following statements to make them true.

(a) (2.5 pts) The current U.S. _____ is 3.9%.

(b) (2.5 pts) In his campaign statements, President Trump has promised 4% annual growth in
_____.

(c) (2.5 pts) The main reason the labor force participation rate has been declining since 2000 is
_____.

(d) (2.5 pts) The main reason the labor force participation rate was increasing between 1970 and 2000 is
_____.

(e) (2.5 pts) Under the national income accounts, the purchase of a new house is categorized as
_____.

(f) (2.5 pts) The Federal Reserve (“Fed”) is targeting a 2% annual rate for the
_____.