

Week 2 Tutorial

ECON203: Macroeconomics 2

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Semester 2, 2019

Tutorial Time: 09/08/2019

Multiple Choice Questions

Question 1. A mathematical expression relating the amount of output produced to quantities of capital and labour utilized is the

- (a) real interest rate.
- (b) productivity relation.
- (c) production function.
- (d) marginal product.

Question 2. In the production function $Y = AF(K, N)$, total factor productivity is

- (a) Y/A .
- (b) A .
- (c) K/N .
- (d) Y/N .

Question 3. Suppose the economy's production function is $Y = AK^{0.3}N^{0.7}$. If $K = 2000$, $N = 100$, and $A = 1$, then $Y = 246$. If K and N both rise by 10%, and A is unchanged, by how much does Y increase?

- (a) 5%
- (b) 10%
- (c) 15%
- (d) 20%

Question 4. If $Y = A \times N \times (75 + K/N)$, where $K = 1000$, $N = 20$, and $A = 10$, what happens if K doubles and N doubles?

- (a) Y is unchanged.
- (b) Y increases 50%.
- (c) Y doubles.
- (d) Y quadruples.

Question 5. The two main characteristics of the production function are

- (a) it slopes downward from left to right, and the slope becomes flatter as the input increases.
- (b) it slopes upward from left to right, and the slope becomes steeper as the input increases.
- (c) it slopes upward from left to right, and the slope becomes flatter as the input increases.
- (d) it slopes downward from left to right, and the slope becomes steeper as the input increases.

Question 6. If the marginal product of capital doesn't change as the amount of capital increases, a figure showing the relationship between output and capital

- (a) is a straight line with constant upward slope.
- (b) is a straight line with a slope of zero.
- (c) is a vertical line.
- (d) slopes upward with a slope that declines as the amount of capital increases.

Question 7. The marginal product of capital is the increase in

- (a) capital needed to produce one more unit of output.
- (b) output from a one-unit increase in capital.
- (c) labor needed to accompany a one-unit increase in capital.
- (d) output from a one-dollar increase in capital.

Question 8. An adverse supply shock would

- (a) shift the production function up and decrease marginal products at every level of employment.
- (b) shift the production function down and decrease marginal products at every level of employment.
- (c) shift the production function down and increase marginal products at every level of employment.
- (d) shift the production function up and increase marginal products at every level of employment.

Question 9. An invention that speeds up the Internet is an example of

- (a) an income effect.
- (b) an increase in labour.
- (c) a substitution effect.
- (d) a supply shock.

Question 10. Economists often treat the economy's capital stock as fixed because

- (a) labour is a more important factor of production than capital, so economists ignore capital.
- (b) it takes a long time for new investment and the scrapping of old capital to affect the overall quantity of capital.
- (c) there is very little capital in the economy compared to the amount of labour.
- (d) unless the interest rate changes, the capital stock doesn't change.

Problem Solving Questions

Question 11. How would each of the following affect the current level of full-employment output? Explain.

- a. A large number of immigrants enter the country.
- b. Energy supplies become depleted.
- c. New teaching techniques improve the educational performance of high school seniors.
- d. A new law mandates the shutdown of some unsafe forms of capital.

Question 12. Suppose the marginal product of labour in the economy is given by $MPN = 0.002 \times (16000 - N)$, while the supply of labour is $1000 + 1000w$.

- a. Find the market-clearing real wage rate and level of employment.
- b. What happens to the wage rate and employment if wealth rises, reducing the supply of labor to $500 + 1000w$?
- c. What happens to the wage rate and employment if after wealth has risen as in part (b), there is a productivity shock that increases the marginal product of labour to $MPN = 0.0025 \times (16000 - N)$?