

Name and Surname:

UPCES Spring 2014
CEE Economic Growth & Development

Midterm Exam

Please answer all questions below in a clear and precise way. Make sure your handwriting is legible. The exam has 5 pages; make sure you have all of them. There are 9 questions with 5 points each and an additional bonus question. This is a closed book exam and no student interactions are allowed. You have 90 minutes. *Good luck!*

1. (5 points) In how many years will the income double in Montenegro in case the average annual growth is 5 per cent? Quadruple the income?

2. (5 points) What is the difference between GDP per capita and GDP per worker? Which one is preferred measure of efficiency in the economy?

3. (5 points) During class we discussed conditions (reforms) needed for CEE transition countries to undertake in order to insure sustainable economic growth. Briefly describe at least two institutional reforms. (Hint: You can refer to discussion of EBRD report, or to the article on Azerbaijan we covered in class)
4. (5 points) Which of the following most likely exhibits diminishing marginal product?
- I. A shoe factory currently uses 4 machines to produce 20 units of output. When one more machine is added, output increases to 25.
 - II. A student studies for 10 hours and receives a 90 on his exam. For the next exam, he studies for 12 hours and receives a 92.
 - III. A restaurant employs one chef who can produce 10 meals per hour. After a second chef is hired they specialize tasks and output increases to 25 meals per hour.
- a) III only
 - b) II only
 - c) II and III only
 - d) I and III only
5. (5 points) What governs the accumulation of capital?
- I. Investment
 - II. Productivity
 - III. Depreciation
- a) I and III only
 - b) I, II and III
 - c) II and III only
 - d) I only

6. (5 points) Assume a Cobb-Douglas production function $Y = K^\alpha L^{1-\alpha}$, where $\alpha = 1/2$. Derive the production function in per capita terms.
7. (5 points) Using the production function you derived in the previous task, suppose that savings rate in the economy is 30%, and depreciation rate is 10%. The starting level of capital per worker is 4. Calculate output per worker (y); consumption per worker (c); investment per worker (i); depreciation of capital per worker (σk); and accumulated capital per worker (Δk)

8. (5 points) Using the same value of macroeconomic parameters (saving and depreciation rates) calculate the steady state values of capital per worker (k); output per worker (y); consumption per worker (c); investment per worker (i); depreciation of capital per worker (σk); and accumulated capital per worker (Δk).

9. (5 points) Using the steady state derivation from the previous task:
a) First, draw a corresponding graph (Solow Swan model of growth). (Hint: use production line curve, investment curve and depreciation of capital curve).

b) In the next step, suppose that we introduce a population growth of 10%. Using the graph from part a) illustrate what will happen with new steady states of output and capital once the population growth is introduced to the model.

Bonus (5 points) CEE states: Name 3 ex-Yugoslav countries, 5 ex-Soviet countries (excluding the '-stan's), and 3 post-communist countries that were neither part of Yugoslavia nor the USSR. From your list identify those who are part of the European Union currently and those who are not.