

Attention: Not all questionnaires are the same. This is questionnaire A. On the answer sheet, you must indicate the letter of your questionnaire with the course's number as follows: **ECO2143A**. You must answer according to the material seen in this course. Read all answer choices before choosing your answer. GOOD LUCK!

QUESTIONNAIRE A

I. MULTIPLE CHOICE QUESTIONS (4 points each)

- (1) According to observations,
 - (a) productivity differences between the countries of the world are not very important. We should thus look elsewhere to target development aid.
 - (b) differences in quantities of accumulated factors of production between the countries of the world are not very important. We should thus look elsewhere to target development aid.
 - (c) for most of the countries of the world, differences in quantities of accumulated factors of production are the most important to explain differences in wealth levels. Development should thus target solely factor accumulation in the form of physical and human capital.
 - (d) for most of the countries of the world, differences in productivity are the most important to explain differences in wealth levels. Development should thus target solely increases in productivity.
 - (e) for most of the countries of the world, differences in productivity and in factor accumulation are both very important in explaining wealth differences. Development aid should neglect neither. ♠
- (2) Assume that the return to primary school education is 10% per year. For a woman who has two years of primary school education, what proportion of her total salary can be attributed to her investment in education?
 - (a) roughly $1/10$
 - (b) roughly $1/6$ ♠
 - (c) roughly $1/3$
 - (d) roughly $1/2$
 - (e) roughly $2/3$

- (3) According to the numbers seen in class concerning the USA, relative to its GDP,
 - (a) investment efforts in physical capital represent much more than double those of education.
 - (b) investment efforts in physical capital represent less than half of those of education.
 - (c) investment efforts in education represent more than half those of physical capital. ♠
 - (d) the value of investment attributed to salaries forgone by students represents less than 1% of GDP.
 - (e) investment in physical capital represents less than 3% of total GDP.
- (4) The relative productivity levels of countries can be estimated
 - (a) directly by observing worker productivity levels.
 - (b) indirectly by comparing relative output levels to relative factor input levels. ♠
 - (c) by simply comparing relative education levels.
 - (d) by simply comparing the relative health of workers.
 - (e) It is impossible to compare productivity levels between countries.
- (5) According to historical observations,
 - (a) nutrition cannot be an important factor in explaining income differences between countries because even though there exists large differences in nutrition levels, nutrition does not have a significant impact on people's capacity to produce.
 - (b) nutrition cannot be an important factor in explaining income differences between countries because nutrition levels are roughly the same across the world.
 - (c) the share of nutrition in explaining economic growth in the UK since 1780 is not important at all.
 - (d) better nutrition plays an important role in explaining income levels because not only can workers work better, but it also allows the previously worst fed people to work when they were too weak to work before. ♠
 - (e) the impact of better nutrition is mostly due to the fact that it allows the previously worst fed people to work when they were too weak to work before, but it does not have an important impact on those who already work.
- (6) A notable difference between human capital and physical capital is that
 - (a) physical capital is *produced* while human capital is not.
 - (b) physical capital yields a *return* to its owner while human capital does not.
 - (c) physical capital can yield a *return* to its owner even if he does not work while this is not possible with human capital. ♠
 - (d) physical capital is characterized by *rivalry in use* while human capital is not.
 - (e) physical capital is *productive* while human capital is not.

- (7) When we studied the effect of population growth in the Solow model, we have seen that our predictions concerning the effects of population growth on income fit the data better with $\alpha = 2/3$ than with $\alpha = 1/3$, assuming production function $y = Ak^\alpha$. Considering that the share of physical capital income on total income is $1/3$, how did we justify the use of $\alpha = 2/3$?
- (a) By accounting for productivity.
 - (b) By accounting for technology.
 - (c) By accounting for efficiency.
 - (d) By accounting for depreciation.
 - (e) By accounting for human capital. ♠
- (8) According to the data seen in class, the difference in productivity between India and the USA is mainly due to
- (a) differences in efficiency levels. ♠
 - (b) differences in human capital stocks.
 - (c) differences in technology levels.
 - (d) differences in physical capital stocks.
 - (e) differences in depreciation rates.
- (9) In this course, efficiency is defined as
- (a) a measure of the way technology and factors of production are actually used to produce outputs. ♠
 - (b) our knowledge about how to combine factors of production in order to produce outputs.
 - (c) maximization of profits.
 - (d) a measure of the way natural resources are used to produce outputs.
 - (e) a measure of the speed with which outputs are produced.
- (10) In the very long run, economic growth is primarily determined by
- (a) the demographic transition.
 - (b) investment in physical capital.
 - (c) investment in human capital.
 - (d) the level of efficiency.
 - (e) technological progress. ♠

II. PROBLEMS

1.(20 points) Explain, with the help of a graphic, how can output per worker differ because of

- (1) differences in the quantities of production factors;
- (2) differences in productivity;
- (3) differences in both the quantities of production factors and productivity.

2.(20 points) You are given the following observations for Peru and Mexico concerning per capita output, physical capital and human capital (all relative to the USA values). You assume that the output per capita is given by the following relation:

$$y = \bar{A}k^\alpha h^{1-\alpha},$$

where $\alpha = 1/3$ and \bar{A} denotes total factor productivity (TFP).

	y	k	h		
Peru	0.2	0.24	0.77		
Mexico	0.32	0.36	0.74		

- a) Calculate the ratio of TFP between Peru and Mexico.
- b) Calculate what is the most important cause of Peru's lower income: factor accumulation or productivity? Explain briefly.
- c) Suppose that productivity is determined by technology and efficiency in the following manner: $\bar{A} = T \times E$. Technology grows at the rate of 0.81% per year. If both countries have the same level of efficiency, what is the technological lag between the lower technology country and the higher technology one in terms of years? What does this mean for the importance of efficiency in explaining each country's relative income levels.