

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. Calculator permitted. GOOD LUCK!

QUESTIONNAIRE A

I. MULTIPLE CHOICE QUESTIONS (3 points each)

1. In 2017, the GDPs of China and the USA were estimated to be equal to 12.24 and 19.39 trillion USD (2017), respectively. In the same year, their respective growth rates were estimated to be equal to 6.9 and 2.3 respectively. Assuming that the same growth rates persist into the future for each country, in what year will China's GDP first overtake that of the USA?
 - (a) 2028✓
 - (b) 2031
 - (c) 2034
 - (d) 2037
 - (e) 2040

2. Which of the following statement is mostly TRUE?
 - (a) Still today, economic growth in Africa is considered a tragedy.
 - (b) Life expectancy in most developing countries has gone up significantly over the 20th century.✓
 - (c) The Human development Index exhibits little correlation with per capita income levels.
 - (d) Over the last 200 years or so, inequalities between all citizens of the world have consistently been decreasing.
 - (e) Throughout human history, there has always been very large per capita income inequalities between countries of the world.

3. Suppose that there are only two goods and services produced and consumed in the world: *herbs* and *therapies*. Herbs are tradeable on world markets but not therapies. The following table provides information about output quantities and prices for two countries: *Haze* and *Shrink*. The currency unit in Haze is the dollar \$ and in Shrink it is the euro €.

	herb output	therapy output	price kg herb	price therapy hour
Country	kg per capita	hours per capita	local currency	local currency
Haze	3	15	\$300	\$100
Shrink	1	5	€200	€25

Based on the law of one price, what is the expected market exchange rate between the two countries?

- (a) 0.66\$/€
- (b) 0.4\$/€
- (c) 4.0\$/€
- (d) 1.5\$/€✓

- (e) The market exchange rate cannot be calculated without knowing what the typical basket of consumption goods is composed of.
4. In question (3), using the market exchange rate in order to compare per capita income levels between Haze and Shrink would result in
- (a) underestimating the difference because herbs are cheaper in Shrink.
 - (b) overestimating the difference because therapies are more expensive in Shrink.
 - (c) underestimating the difference because therapies are cheaper in Shrink.
 - (d) overestimating the difference because therapies are cheaper in Shrink. ✓
5. Between 1990 and 2010, the rate of growth of output per capita was highest in which of the following countries?
- (a) USA
 - (b) UK
 - (c) Japan
 - (d) Canada
 - (e) China ✓
6. Which of the following characteristics of physical capital makes it clearly different from knowledge (ideas) as an input to production?
- (a) Physical capital is productive.
 - (b) Physical capital is produced.
 - (c) Physical capital has limited use, i.e. rival use. ✓
 - (d) All of the above choices apply equally well to knowledge.
7. The *Human Development Index* (HDI) is considered a good measure of the welfare of the citizens of a country. According to the HDI measure discussed in class, which of the following is clearly FALSE?
- (a) The HDI accounts explicitly for life expectancy, education and standards of living.
 - (b) The HDI accounts explicitly for decreasing marginal utility of income.
 - (c) The HDI accounts explicitly for the pollution level. ✓
 - (d) The HDI does not explicitly account for the happiness measure.
 - (e) The HDI is not perfectly correlated with per-capita income levels.
8. Which of the following is mostly TRUE regarding convergence?
- (a) Convergence is almost never observed.
 - (b) During the 20th century, Argentina has converged with the rest of the richer economies.
 - (c) When one looks at the data since 1960, the theory of convergence applies rather well to the experience of African countries.
 - (d) When one looks at the data since 1960, the theory of convergence does not apply well to the experience of Asian countries.
 - (e) When one looks at the data since 1950, the theory of convergence applies rather well to the experience of today's richer (OECD) countries. ✓

9. According to estimates, throughout human history up to year 1500, the yearly growth rate of income per capita has been approximately equal to (give the closest value)
- (a) -1%
 - (b) 0% ✓
 - (c) 2%
 - (d) 5%
 - (e) 8%
10. A study has estimated the quantity of capital per worker in Mexico to be worth 42 991\$(US2000), while that of India is worth 6 270\$(US2000). Which property of the national production function allows us to anticipate that an additional unit of capital will have a larger impact on production in India than in Mexico?
- (a) If capital increases, output increases.
 - (b) Decreasing returns to scale.
 - (c) An efficient use of capital.
 - (d) Capital depreciation.
 - (e) None of the above ✓
11. Suppose that physical capital and labor are the only two production factors and that nothing else varies between countries. An important implication of the constant returns to scale assumption is that
- (a) income per worker depends only on the total quantity of capital, independently of the number of workers.
 - (b) the quantity of capital per worker is not helpful in understanding wealth differences between countries.
 - (c) the more capital there is, the less workers produce.
 - (d) income per worker depends only on the quantity of capital per worker. ✓
 - (e) there cannot be any long-run steady state equilibrium.
12. Which of the following is clearly FALSE?
- (a) Over the past 100 years or so, the yearly growth rate of per capita income in Japan has never exceeded that of the USA. ✓
 - (b) For the USA, the yearly growth rate of income per capita in the past 130 years or so has averaged around 1.8%.
 - (c) Between 1820 and today, the inequality levels within countries of the world has remained rather stable.
 - (d) Over the past 10 years or so, African countries make up about half of the top performers in the list of world countries with the highest per capita growth rates.
 - (e) In terms of goods that are traded in world markets, the price of goods that are not traded tends to be higher in rich countries compared to poor countries.

b)(10) With the help of a graphic with k on the x-axis, interpret your result in a) above.

c) (10) Assuming still that $k_t = 10$, calculate the per capita income growth rate during period t , i.e., $\Delta y_t / y_t$ where $\Delta y_t = y_{t+1} - y_t$. (Explain briefly your mathematical steps.)
