Homework 8 – KEY

Due on 25/3/2025, by 23:00

Average: 77.01 + 0pts GI bonus

The tasks in this assignment were designed for the average student to solve independently after mastering the material. The answers provided here are written in an instructional manner to help you understand the problem-solving process for each task. If you continue to struggle with a task after reviewing this key, the difficulty may stem not from the task itself, but from having missed or overlooked some parts of the required material.

1. ✓ Which of the following could stimulate technological change in an economy?
   - A. Tax incentives to innovative local companies. *[It will boost innovation]*
   - B. Announcing a future ban of internal combustion engine vehicles. *[It would force local automakers to invent new types of engines]*
   - C. Funding engineering programs by local universities. *[It would boost research on new technologies]*
   - 98% **D. All of the above.**

2. ✓ Which of the following is accurate according to the Malthusian theory?
   - A. Population growth will eventually increase living standards to the point of triggering a population decline.
   - B. Population growth will eventually increase living standards to the point of triggering further population increase.
   - C. Population growth will eventually reduce living standards to the point of triggering further population increase.
   - 96% **D. Population growth will eventually reduce living standards to the point of triggering a population decline.**
     [According to the Malthusian cycle, the increase in population will reduce GDP pc and famine, war etc. will decrease population]

3. ✓ Which of the following is likely to worsen labor productivity?
   - A. An increase in capital stock. *[More capital allows workers to produce more with the same effort]*
   - B. Technological improvement. *[Better technology allows workers to produce more with the same effort]*
   - C. Improvement in education. *[Smarter workers produce more with the same effort]*
   - 97% **D. Increase in working hours per week.** *[Workers will produce more <u>output</u>, because they exert more effort. However, if available capital does not increase accordingly, <u>output per working hour</u> will probably fall]*

4. ✓ Which of the following increases a country's chances for catch-up growth?
   - A. Strict environmental regulations. *[Unfortunately, it will discourage foreign investors]*
   - B. An upper limit to the amount of foreign investment allowed in the country. *[Catch-up growth is fueled by foreign investment]*
   - 90% **C. Underemployment of workers.** *[It would encourage foreign companies to open factories in these countries, thus taking advantage of cheap labor]*
   - D. All of the above.

5. ✓ Which of the following is most likely to decrease d?

    87%A. **A new technology that makes steel corrosion resistant.** *[Decreases the rate at which capital decays]*

    B. A new technology that boosts the octane level in petrol. *[Perhaps improves Y]*

    C. The invention of a new type of battery. *[Perhaps improves Y]*

    13%D. A natural disaster. *[Destroys capital]*

6. ✳ A country's actual GDP is 65 and its steady-state GDP is 100. Which of the following should you expect for next year according to the Solow model?

    64%A. Actual GDP will grow more than last year.

    B. Actual GDP will grow as much as last year.

    24%C. **Actual GDP will grow less than last year.** *[GDP grows progressively less as it approaches its steady-state]*

    12%D. We do not have enough information to conclude any of the above.

7. ✳ Which of the following is most likely a case where current GDP exceeds the steady-state GDP?

    14%A. A country right after a devastating natural disaster. *[Physical capital has been destroyed, causing actual GDP to decrease. The economy has fallen back but actual GDP will start catching up towards its steady-state]*

    8%B. **A country right at the beginning of a long economic depression.** *[Depression means that this economy will start shrinking. Thus, it is possible to currently be above its steady-state]*

    76%C. A country during a rapid economic expansion. *[GDP growth entails an economy below its steady-state]*

    D. A country with a stable and robust economy. *[Actual GDP will grow towards its steady-state]*

8. ✓ In the Solow model, which curve(s) will shift if productivity of labor improves?

    75%A. sY.

    B. dK.

    19%C. sY and dK.

    D. None of the above.

    [Labor productivity affects the production function (Y); thus, it will shift sY]

9. ✓ Two economies are described by identical Y, sY and dK curves, which yield a steady-state of 100. Economy A has $Y = 92$ and economy B has $Y = 83$. Which of the following is true?

    A. Next year, A will grow faster than B.

    95%B. **Next year, A will grow slower than B.**

    C. Next year, A and B will grow at the same positive rate.

    D. Next year, A and B will not grow at all.

    [Economy A is closer to the steady-state, so it will grow slower]

10. ✓ Which of the following statements resembles diminishing marginal product?

    A. Output decreases up to some level of labor but then it increases.

    B. Output increases up to some level of labor but then it decreases.

    C. Output increases up to some level of labor and then it increases more.

    97%D. **Output increases up to some level of labor and then increases less.** *[Practically the definition of diminishing marginal product]*