ECO2143 Macroeconomic Theory II
Final examination: April 25, 2007
University of Ottawa
Professor: Louis Hotte
Time allowed: 3h00min

Attention: *Not all questionnaires are the same. This is questionnaire B. On the answer sheet, you must indicate the letter of your questionnaire with the course's number as follows:* ***ECO2143B****. You must answer according to the material seen in this course.*

Read all answer choices before choosing your answer.
GOOD LUCK!

QUESTIONNAIRE B

I. MULTIPLE CHOICE QUESTIONS (4 points each)

(1) Suppose the central bank engages in contractionary monetary policy that results in lower money growth. This lower money growth will cause which of the following in the medium run?
   (a) lower real interest rates and lower nominal interest rates
   (b) lower real interest rates and higher nominal interest rates
   (c) higher real interest rates and higher nominal interest rates
   (d) higher real interest rates and lower nominal interest rates
   (e) none of the above♠

(2) Which of the following is true?
   (a) According to the Malthusian model of population and economic growth, a technological improvement leads to higher standards of living in the long run.
   (b) The Malthusian model of population and economic growth is useful to explain increases in standards of living in the developed world over the last 200 years.
   (c) A drop in the mortality rate can lead to lower fertility through the effect of increased incentives to invest in a child's education. ♠
   (d) A drop in the mortality rate can only lead to higher population growth in the long run.
   (e) Better access to contraceptives is the leading explanation for lower population growth in today's developed world.

(3) 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.♠

(4) Suppose individuals wish to obtain the most accurate comparison of living standards between the Canada and Saudi Arabia. To do so, one would convert Saudi Arabian output into dollars using:
(a) an average of the last five years' exchange rates.
(b) the prior year's real exchange rate.
(c) the current real exchange rate.
(d) purchasing power parity methods.♠
(e) the current nominal exchange rate.

(5) Between 1950 and 2000, the rate of growth of output per capita was highest in which of the following countries?
(a) USA
(b) UK
(c) Japan♠
(d) Canada

(6) Suppose there are two countries that are identical with the following exception. The saving rate in country A is greater than the saving rate in country B. Given this information, in the long run, the Solow model informs us that:
(a) the capital-labor ratios (K/N) will be the same in both countries.
(b) the growth rate of output per capita will be the same in both countries.♠
(c) the growth rate of output per capita will be greater in B than in A.
(d) the growth rate of output per capita will be greater in A than in B.

(7) Suppose, due to the effects of a military conflict that has ended, that a country experiences a large reduction in its capital stock. Assume no other effects of this event on the economy. Within the context of the Solow model, which of the following will tend to occur as the economy adjusts to this situation?
(a) zero growth for some time, followed by a gradually increasing growth rate
(b) a relative high growth rate for some time♠
(c) a relatively low growth rate for some time
(d) positive growth, followed by negative growth, and then zero growth
(e) none of the above

(8) Assume the production function is represented by the following: $Y = f(K, NA)$. Use the information below to answer the following question:
i) the rate of depreciation is 12% per year,
ii) the population growth rate is 2% per year, and
iii) the growth rate of technology is 3% per year.
Which of the following equals the annual growth rate of "effective labor" in the steady state in this economy?
(a) 2%
(b) 3%
(c) 5%♠
(d) 12%
(e) 17%

(9) Assume that the interest parity condition holds. Also assume that the U.S. interest rate is 6% while the U.K. interest rate is 8%. Given this information, financial markets expect the pound to:
(a) appreciate by 6%.
(b) depreciate by 2%.♠
(c) depreciate by 14%.
(d) appreciate by 4%.
(e) appreciate by 2%.

(10) The length of time over which a bond promises to make payments to the holder is called which of the following?
(a) maturity ♠
(b) yield duration
(c) the term structure of interest rates
(d) face value
(e) none of the above

(11) A downward-sloping yield curve suggests that financial market participants expect short-term interest rates will:
(a) fall in the future. ♠
(b) be equal to zero in the future.
(c) rise in the future.
(d) not change in the future.
(e) be unstable in the future.

(12) As the LM curve becomes steeper, an unexpected increase in consumer confidence:
(a) is more likely to cause stock prices to fall. ♠
(b) will cause a relatively small increase in output and relatively small increase in the interest rate.
(c) will cause a relatively large increase in output and relatively large increase in the interest rate.

(d) is more likely to cause stock prices to rise.

(13) Suppose the Central Bank *unexpectedly* decreases the money supply. Which of the following will occur as a result of this unexpected reduction in the money supply?
(a) an increase in stock prices
(b) a reduction in stock prices ♠
(c) no change in stock prices
(d) an ambiguous effect on stock prices

(14) Consumption is most likely to respond one-for-one with changes in current income when:
(a) the change in current income is caused by the business cycle (short-term fluctuation).
(b) the change in current income results from a one-time bonus.
(c) people believe the change in their current income is temporary.
(d) people are able to borrow as much as they wish, as long as they pay it back.
(e) none of the above ♠

(15) Which of the following is a reason that consumption depends on current income, and not just on total wealth?
(a) Banks will not always lend money to those who want to consume more than their income.
(b) Low income people may prefer to postpone some consumption until later years, when their incomes are higher.
(c) The anticipation of future financial distress makes some people reluctant to borrow.
(d) all of the above ♠
(e) none of the above

(16) The data for Canada show that investment and profits:
(a) are positively related during recessions, and negatively related during expansions.
(b) are positively related during expansions, and negatively related during recessions.
(c) have a strong negative relationship.
(d) have a strong positive relationship. ♠
(e) move independently.

(17) Which of the following statements is true?
(a) On a percentage basis, investment is more volatile than consumption.
(b) In terms of dollars, investment and consumption are about equally volatile.
(c) A change in sales should have more impact on current investment if it is expected to be permanent rather than temporary.
(d) all of the above♠
(e) none of the above

(18) If the nominal interest rate in year t is 10%, and the expected inflation rate for year t is 2%, then the expected real interest rate in year t is approximately:
(a) 2%

(b) 3%
(c) 5%
(d) 8%♠
(e) 12%

(19) With a nominal interest rate of 15% per year, the present discounted value of $500 to be received in two years is:
(a) $445.00.
(b) $445.00.
(c) $485.00.
(d) $378.07.♠
(e) $470.00.

(20) Suppose the central bank engages in contractionary monetary policy that results in lower money growth. This lower money growth will cause which of the following in the short run?
(a) lower real interest rates and lower nominal interest rates
(b) lower real interest rates and higher nominal interest rates
(c) higher real interest rates and higher nominal interest rates♠
(d) higher real interest rates and lower nominal interest rates
(e) no change in either nominal or real interest rates

II. PROBLEMS

1. Happiness and Economic growth (10 points) Briefly explain the relationship between output per capita and happiness. Specifically, to what extent are these two variables related?

ANSWER: (Ref.: Pages 272 and 273 of Blanchard and Johnson 2007 or course slides 22 and 23 of chapter 14) Recent research indicates that

a) In poor countries, there seems to be a solid positive relation between absolute levels of GDP per capita and happiness.
b) In rich countries, the relation appears to break down.
c) But within rich countries, rich people seem to be happier than poor.
d) This suggests than beyond a certain per capita income level - around $15 000 - relative income may be a more important determinant of happiness.

2. Long-Run Economic Growth (20 points)
Read the following excerpt from an article titled "India's Economy: India on Fire" published by *The Economist* on February 1st 2007 and answer the questions below.

> Another obstacle to growth in manufacturing is India's labour laws, which are among the most restrictive in the world. Firms employing more than 100 people cannot fire workers without government permission, which discourages expansion. Today's central government cannot scrap these laws because it relies on the support of the

> communist parties. In theory, the state governments can apply the laws more flexibly, especially in the special economic zones, but this is unlikely to lead to more flexible labour markets overnight.

In this course, we have considered half a dozen major factors suspected of explaining long-run economic growth and wealth differences between countries. The above article relates *precisely* to one of them.

a) Identify which one.
   This is a problem of *efficiency*, which was defined as "the ability with which technology and inputs are effectively used to produced outputs."
b) Explain how the situation reported may affect economic growth through the allocation of labour in India. (A graphic may be useful.)
   If it is difficult for large firms to fire workers, then employers will be quite reluctant to hire new worker in the first place. This is true even if they expect a new worker's marginal productivity to be higher than the salary that he or she must be paid. As can be seen in the accompanying graphic (`graphic-final-exam2007.pdf`), the resulting distribution of workers will be such that the marginal productivity of workers is higher in large firms than in small firms (points A_1 and A_2). This is another example of labour misallocation between sectors in the economy, the sectors being defined as large and small firms.
c) Explain why such a problem may persist in the country.
   This type of problem can prove difficult to correct from a political point of view. This is because workers already hired by large firms will benefit from such a law. This is true not only because they have job security, but also because they are likely to receive a higher wage than they would receive without such a law, due to their higher marginal productivity. The equilibrium without the law in question is at points B_1 and B_2, which corresponds to a lower marginal productivity for large firm workers but higher marginal productivity for small firm workers. Hence, workers outside large firms are likely to benefit from repealing such a law by receiving larger salaries. Per capita output in the economy will increase also. But large firm workers are likely to block such a change.

3. The Interest Rate and the Exchange Rate (20 points)

Assume there is no inflation, here or abroad, current or expected. Suppose further that initially, domestic and foreign interest rates are expected to be constant and equal to each other.

Now, suppose that the Central Bank unexpectedly announces that in order to contain output, it has decided to increase interest rates. The CB announces that one-year interest rates will be 2% higher for each of the next five years, after which they will return to normal. Financial markets fully believe this announcement.

Work out the effect on today's exchange rate.

ANSWER: (Ref: Pages 393 and 394 of Blanchard and Johnson 2007 or class notes.) It is exactly the opposite situation that was done in the reference. Working backward from the last period, the exchange rate must *depreciate* every year by approximately 2% in order to compensate for the higher domestic interest rate. In order to arrive at the same exchange rate4 as the initial one at year 5, there must be a *sudden appreciation* of 10% today. (We get the mirror image of fig 19-12 in Blanchard and Johnson 2007.)