

UNIVERSITY OF WARWICK

Summer Examinations 2015/16

Macroeconomics 1

Time Allowed: 3 Hours.

Answer ALL QUESTIONS IN SECTION A (30 marks), ALL QUESTIONS IN SECTION B (30 marks) and TWO QUESTIONS IN SECTION C (20 marks each).

SECTION A: A multiple choice section of 15 questions worth 2 marks each. SECTION B: Short answer section worth 30 marks. SECTION C: Answer 2 of 3 questions worth 20 marks each. Answer Section A questions in one booklet, Section B questions in a separate booklet and Section C questions in a separate booklet.

Approved pocket calculators are allowed.

Read carefully the instructions on the answer book provided and make sure that the particulars required are entered on each answer book. If you answer more questions than are required and do not indicate which answers should be ignored, we will mark the requisite number of answers in the order in which they appear in the answer book(s): answers beyond that number will not be considered.

Section A: Answer ALL questions (2 marks each)

1. If a country is running a trade deficit, which of the following is TRUE?

- (a) Investment is greater than domestic savings;
- (b) Domestic savings is greater than investment;
- (c) Exports are greater than imports;
- (d) There is a positive output gap.

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2. Assume a small-open economy under a flexible exchange rate regime which is initially in a long-run equilibrium. Assume further that the central bank permanently increases its target inflation rate. Which one of the following scenarios is TRUE?

(Question 2 continued overleaf)

- (a) In the long run, domestic inflation must equal foreign inflation which has not changed. Hence, even despite a higher target inflation rate, the economy returns to its equilibrium point;
 - (b) A permanent increase in the central bank's target inflation rate leads to higher output as well as inflation: therefore, the long-run aggregate supply curve shifts to the right;
 - (c) In the long run, only inflation will change: it will rise to the level of the target rate;
 - (d) A rise in the target inflation rate leads to an increase in the nominal interest rate via the Taylor rule. Investment will be permanently lower.
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3. Which of these statements best defines a *real interest rate*?

- (a) A real interest rate is a return on an asset;
 - (b) A real interest rate measures how many extra goods one will have to repay in the future in exchange for borrowing the equivalent of one unit of those goods today;
 - (c) A real interest rate measures how many extra pounds (for example) one will have to repay in the future in exchange for borrowing £1 today;
 - (d) A real interest rate measures how much one needs to repay for borrowing.
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4. Which of these statements about an open economy is INCORRECT?

- (a) The multiplier differs from that of the closed economy;
 - (b) The economy's GDP may depend on the level of activity of trading partners;
 - (c) An increase in output caused by expansionary fiscal policy will increase imports;
 - (d) A change in trade partners' monetary policy will have no effect on the domestic GDP.
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5. According to the bathtub model of unemployment, which of the following statements is TRUE if, after the introduction of a policy, the job finding rate permanently increases?

- (a) The natural rate of unemployment will fall;
 - (b) The natural rate of unemployment will rise;
 - (c) the unemployment rate will fall, but the natural rate of unemployment will be unchanged;
 - (d) The unemployment rate will rise, but the natural rate of unemployment will be unchanged.
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(Continued overleaf)

6. Imagine increases in the parameters of the Solow model that are all identical in magnitude. The same increase in which of the following parameters will result in the largest increase in steady-state output?
- (a) The investment rate;
 - (b) The productivity parameter;
 - (c) The amount of labour;
 - (d) They all will increase output by the same amount.
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7. Assume a closed economy with the following features:

$$\begin{aligned}\text{Investment} &= 200 \\ \text{Government Expenditure} &= 200 \\ \text{Consumption} &= 100 + 0.75(Y^D)\end{aligned}$$

Assume that $T = 200$. Which of the following statements about this economy is TRUE?

- (a) In equilibrium, desired consumption expenditure is 900;
 - (b) Equilibrium aggregate demand is 1500;
 - (c) In equilibrium, disposable income is 1200;
 - (d) A rise in government expenditure of 50 will raise equilibrium output by 150.
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8. Suppose the existing stock of government debt is £100 million. The interest rate is 5%. Government expenditures are £50 million. Tax revenue is £40 million. The total deficit is:
- (a) £5 million
 - (b) £10 million
 - (c) £15 million
 - (d) £110 million
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(Continued overleaf)

9. Consider two countries which are identical in structure except that in country A the demand for money increases far less than it does in country B when there is a fall in the interest rate. Which of the following statements must be TRUE?

- (a) Country A's LM curve is steeper than country B's;
 - (b) Country B's LM curve is steeper than country A's;
 - (c) Country A's IS curve is flat;
 - (d) Country A's IS curve is steeper than country B's.
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10. What is an explanation for why an economy eventually settles in steady state?

- (a) The production function exhibits diminishing returns to capital.
 - (b) The capital stock depreciates at a constant rate.
 - (c) Eventually, investment generated is equal to the amount of capital depreciated.
 - (d) All of the above.
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11. The primary budget is balanced. The interest rate is 5 percent. The growth rate of nominal GDP is 2 percent. The initial debt-GDP ratio is 10 percent. Over time, the debt to GDP ratio will grow by:

- (a) 2 percent
 - (b) 3 percent
 - (c) 5 percent
 - (d) 10 percent
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12. Starting from steady state, a permanent increase in the rate of depreciation in the Solow model causes:

- (a) The growth rate of output to fall temporarily and the level of GDP to fall permanently;
 - (b) The growth rate of output to fall temporarily but leaves the level of GDP unchanged in the long run;
 - (c) The growth rate of output to rise temporarily and the level of GDP to rise permanently;
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(Question 12 continued overleaf)

- (d) The growth rate of output to rise temporarily but leaves the level of GDP unchanged in the long run.
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13. Introducing an interest differential that decreases with output in the IS-MP model will:

- (a) Make the IS curve steeper than it otherwise would be;
 - (b) Result in a kinked AD curve;
 - (c) Make the MP curve flatter than it otherwise would be;
 - (d) Make the AD curve flatter than it otherwise would be.
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14. In the extension of the IS-MP-IA model to include the zero lower bound, the kink in the AD curve occurs at:

- (a) The inflation rate given by the IA curve.
 - (b) The inflation rate that causes the IS and MP curves to intersect at the kink of the MP curve.
 - (c) The point at which output equals its natural level ($Y = \bar{Y}$)
 - (d) The point at which inflation is equal to zero ($\pi = 0$)
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15. The real exchange rate is constant when the nominal exchange rate appreciates at a rate equal to:

- (a) the rate of inflation plus the real rate of interest.
- (b) the nominal rate of interest, assuming the Fisher Principle holds.
- (c) the difference between the rate of growth of the money supply and the rate of inflation.
- (d) the difference between the foreign and domestic inflation rates.

(Continued overleaf)

Section B: Answer ALL questions

16. Answer the following questions on supply shocks:

- (a) How could an exchange rate depreciation be thought of as a supply shock? **(5 marks)**
 - (b) When an oil shock occurs, does it matter for the Phillips curve whether the country is an oil-importer or is self-sufficient? **(5 marks)**
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17. The economies of two countries, Alpha and Beta, have the same productions functions, depreciation rates, and saving rates. The economies of each country can be described by the Solow growth model. Population growth is faster in country Beta than in country Alpha.

- (a) In which country is the level of steady-state output per worker larger? Explain. **(5 marks)**
 - (b) In which country is the steady-state growth rate of output per worker larger? Explain. **(5 marks)**
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18. Consider an economy with two interest rates, a saving interest rate (r^s) and a borrowing interest rate (r^b). Assume that the interest rate differential is a negative function of output:

- (a) What would be the short-run effect of a reduction in consumer confidence on output, the saving interest rate, and the borrowing interest rate? How would this effect differ from the case where there is no interest rate differential? **(5 marks)**
 - (b) Suppose financial innovations reduce the interest rate differential at a given level of output. How, if at all, does this development affect output and the saving interest rate? How does it affect the borrowing interest rate? **(5 marks)**
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(Continued overleaf)

Section C: Answer TWO questions

19. Consider an economy characterised by the following equations:

$$C = 100 + 0.5(Y - T)$$

$$I = 100 + 0.2Y - 3i$$

$$T = 10$$

$$G = 300$$

$$\frac{M^d}{P} = 0.75Y - 105i$$

$$\frac{M^s}{P} = 750$$

- (a) Obtain an expression for the IS curve. Find the equilibrium level of output (Y) and interest rate (i) in this economy (the interest rate i is in percentage points). Show the equilibrium level of output and interest rate in a graph. **(7 marks)**
- (b) Suppose that the government runs an expansionary fiscal policy by increasing public spending by 190. Calculate the new equilibrium value of GDP and interest rate (the interest rate i is in percentage points). Show the new equilibrium level of output and interest rate in the graph used in part (a). **(6 marks)**
- (c) Using the initial values ($G=300$), now imagine that, for all the other conditions given, the government introduces a system of subsidies to families. Such subsidies constitute 10% of GDP. Compare the new level of income and interest rate to your previous answers. **(7 marks)**

20. In 1990 East and West Germany were reunited. One of the problems that the reunited Germany had to face was the huge financial requirements of the former German Democratic Republic for needed infrastructure and transfers. These were assumed by West Germany.

- (a) What is the effect of increased public spending on the IS curve in Germany? Suppose the German central bank decided not to increase the money supply. Is such a decision consistent with a fixed exchange rate regime? (Recall that Germany fixed its exchange rate in the European Monetary System.) **(10 marks)**

(Question 20 continued overleaf)

- (b) Other countries perceived higher German interest rates as an upward movement of the financial integration line. How might this help explain the prolonged recession observed in Germany's EC neighbours in 1991? **(10 marks)**
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21. Assume that the economy is initially in equilibrium, with output at its natural level ($Y = \bar{Y}$) and a positive nominal interest rate ($r > 0$). Now there is a large fall in planned investment that causes the IS and MP curves to intersect on the flat part of the MP curve.

- (a) What would be the effect of this change on the real interest rate and output in the short run? **(2 marks)**
- (b) What will be the behaviour of output and inflation over time? What is the economy's long-run equilibrium? **(8 marks)**
- (c) Which policies could the government undertake in this situation to try to increase output? Analyze the potential effect of the different policies using the IS-MP framework. **(10 marks)**
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(End)