UNIVERSITY OF CAMBRIDGE

ECT1
ECONOMICS TRIPOS PART I

Tuesday 10 June 2014 9:00-12:00

Paper 2

MACROECONOMICS

Answer **ALL SIX** questions from Section A and **TWO** questions from Section B.

Section A and B will each carry 50% of the total marks for this paper.

Each question within each section will carry equal weight.

Write your **candidate number** (not your name) on the cover of each booklet. Write legibly.

STATIONERY REQUIREMENTS
20 Page booklet x 1
Rough work pads
Tags

SPECIAL REQUIREMENTS TO BE SUPPLIED FOR THIS EXAMINATION
Calculator - students are permitted to bring an approved calculator

You may not start to read the questions printed on the subsequent pages of this question paper until instructed that you may do so by the Invigilator

SECTION A

1 The seasonally adjusted current price GDP of the United Kingdom in 2012 was 1,567,170 million pounds, while the seasonally adjusted chain volume GDP was 1,504,091 million pounds (*source: Office of National Statistics*).
   (a) Calculate the GDP deflator.
   (b) Compare the GDP deflator to other price indices such as the CPI or the RPI.

2 The government of an economy decides to cut down on defence spending. What is the effect of such a policy on the real interest rate, investment, net capital outflows and real exchange rate in the long run when
   (a) The economy is closed.
   (b) The economy is small and open.

3 Discuss briefly the possible long run effects of quantitative easing.

4 Consider a closed economy with fixed prices. Assume that the marginal propensity to consume is $\frac{1}{2}$, the income tax rate is $\frac{1}{2}$ and the interest rate sensitivity of investment demand is $\frac{1}{2}$. The central bank reduces the interest rate by one percentage point. By how much would GDP increase in the short run? Explain the intuition.

5 Explain what the Marshall-Lerner condition is. What would happen in response to a fiscal expansion in a small open economy with a floating exchange rate if the Marshall-Lerner condition is not satisfied? Explain your answer.

6 Can expected inflation have an expansionary short run effect on GDP in a small open economy with a fixed exchange rate? Explain your answer.

SECTION B

7 Consider the following model of the natural rate of unemployment. Assume that the labour force is constant, L. At any given point in time, there are three groups of workers, namely

- *employed under probation*, P,
- *employed with tenure* (permanent employment until retirement), T,
- *unemployed*, U.

Now, suppose that

- workers that are employed under probation become unemployed at a rate $0 < s < 1$, or employed with tenure at a rate $0 < r < 1$,
- workers that are employed with tenure may become unemployed at a rate $0 < \sigma < 1$, but they never revert to employment under probation, and
- unemployed workers can only become employed under probation at a rate $0 < f < 1$.

(a) Under what circumstances may a worker who is employed with tenure become unemployed? Do you expect the rate σ to be larger or smaller than s? Explain.

(b) Derive a general expression for the steady state (natural) rate of unemployment, as a function of the rates σ, r, s and f. Can the natural rate of unemployment be zero? Why or why not?

(c) Assume that $\sigma = 0.005$, $s = 0.01$, $r = 0.07$, and $f = 0.2$. Calculate the natural rate of unemployment.

(d) What policies could result in a long term increase of the rate r? What happens to the natural rate of unemployment when r increases? Explain.

8 Consider the classical small open economy model described by the following set of conditions in long run equilibrium:

$$\begin{aligned} Y &= 5500,\ G = 1500,\ T = 1200 \\ C &= 250 + \frac{3}{4}(Y - T) \\ I &= 1000 - 50r^* \\ NX &= 250 - 250\varepsilon \\ r^* &= 2 \\ Y &= C + I + G + NX \end{aligned}$$

where Y is income, C is consumption, G is government spending, T is taxes, I is investment, r^* is the world interest rate, NX is net exports and ε is the real exchange rate.

(a) Calculate the national saving, investment, trade balance and equilibrium exchange rate for this economy. Are local goods over or undervalued relative to the rest of the world?

(b) Suppose that this year the government decides to improve public infrastructure and therefore increases government spending G to 1750. What will be the new equilibrium trade balance and real exchange rate? Explain your answer.

(c) In the same year as home government spending increases, several foreign countries decide to institute investment tax credits. What happens to the world interest rate? What would then happen to the trade balance and real exchange rate of the small open economy relative to its initial state?

Make use of diagrams in your explanation.

9 What is *convergence* in the context of economic growth? Compare the predictions of the Solow and AK growth models regarding convergence.

10 Most countries collect revenues to finance public services through income tax. The average tax rate (t_j) is higher in Sweden than in the USA, i.e., $t_{Sweden} > t_{USA}$. Use the IS-LM model to answer the following questions under the assumption that the demand for real money balances is independent of income.

(a) For a given level of government spending (G), would a negative shock to consumption demand have a smaller or a larger effect on GDP in Sweden than in the USA? Explain your answer and illustrate graphically.

(b) Suppose that all government spending must be financed within the fiscal year by income tax revenue. The government's budget constraint is $G_j = t_j Y_j$ with $j = Sweden$ or USA. Would a negative shock to consumption demand have a smaller or a larger effect on GDP in Sweden than in the USA? Compare your answer to part (a) and explain any differences.

(c) Would your answer to part (b) be different if you relax the assumption that the demand for real money balances is independent of income? If so, how?

11 Evaluate whether the 'Impossible Trinity' is a good guide for economic policy in the 21st century.

12 Suppose that a country is hit by an earthquake which destroys physical capital. Use the AD-AS model to answer the following questions. In each case explain your answer making use of diagrams as appropriate.

(a) What is likely to happen to the price level?

(b) What is likely to happen to the demand for money?

(c) How would your answer to (a) change if the earthquake destroys the infrastructure of the banking system as well as capital more generally, making it more difficult to convert bonds into money?

END OF PAPER