UNIVERSITY OF CAMBRIDGE

ECT1
ECONOMICS TRIPOS PART I

Tuesday 7 June 2016 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.

If you identify an error in this paper, please alert the **Invigilator**, who will notify the **Examiner**. A **general** announcement will be made if the error is validated.

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. Suppose that population and aggregate output in Europia are both growing at a rate of 2 per cent per year. Using the Solow growth model, is there a role for investment in explaining Europia's economic growth?

2. General uncertainty about the health of the banking sector of Banania creates fears of bank runs. What is likely to be the long run effect of this uncertainty on the general price level of Banania?

3. Is the natural rate of unemployment ever likely to be zero? Explain why or why not.

4. Using aggregate supply-aggregate demand analysis, explain the potential macroeconomic consequences of the following:

   (a) A reduction in the marginal propensity to consume.
   (b) Rapid growth in online retailing.

5. Consider a small open economy with fixed prices and a floating nominal exchange rate. Explain the consequences for output and the nominal exchange rate of an increase in the money supply, assuming that the Marshall-Lerner condition is **not** satisfied.

6. Describe a set of circumstances in which an increase in expected inflation would have an impact on equilibrium outcomes in the IS-MP model, holding current inflation constant.

SECTION B

7. Consider the classical, long-run model of production. The production function is $Y = AK^{\frac{1}{2}}L^{\frac{1}{2}}$, where Y is real GDP, A is total factor productivity, K is the capital stock and L is the number of workers. Suppose that the economy has a fixed supply of $\overline{K} = 100$ units of capital, and a fixed labour supply of $\overline{L} = 100$ workers. Productivity is initially given by $A = 4$. Assume that the price of one unit of output is normalised to 1.
   (a) Explain how the demand for labour L^d is determined in this economy. Derive L^d as a function of the real wage rate, capital stock and productivity.
   (b) What is the equilibrium real wage in this economy? Show how this is determined, both graphically and algebraically.
   (c) Suppose now that there is an influenza outbreak that leads to a large-scale epidemic. Indicate the main channel through which you would expect the outbreak to have an impact on this economy. Explain carefully and show graphically the resulting effects on the labour market, i.e. employment, unemployment and real wages.
   (d) How, if at all, would your answers in (c) change if, by law, the wage rate cannot be less than 2?

8. Explain how housing markets played an important role in the evolution of events during the 2008-2009 financial crisis and Great Recession.

9. The Bank of England currently targets an inflation rate of 2 per cent. Some economists have suggested that a 4 per cent target would be preferable. Evaluate in detail the merits of this proposal.

10. Outline **three** significant macroeconomic policy measures undertaken by the UK monetary or fiscal authorities since the 2008 crisis, and explain how they are likely to have influenced macroeconomic outcomes in the UK.

11. A closed economy with a fixed current price level is described by the following equations:

$$\begin{aligned} C &= \bar{C} + c\,(Y - T) \\ I &= a - br \\ G &= \bar{G} \\ r &= \bar{r} + m_Y \left(Y - \bar{Y}\right) \end{aligned}$$

where Y is aggregate income, C is consumption, I is investment, G is government spending, T is lump-sum taxation, and r is the real interest rate. The variables $\bar{Y}$, $\bar{C}$, $\bar{G}$ and $\bar{r}$ are exogenous, and a, b, c and m_Y are positive parameters with $c < 1$.
Suppose the economy is in equilibrium when $r = \bar{r}$ and $Y = \bar{Y}$.

(a) i. Solve for the value of T that is consistent with this equilibrium, in terms of the exogenous variables and parameters.

ii. Show that the government will be running a deficit in equilibrium if and only if:

$$\bar{G} < \bar{Y} - \frac{1}{1-c}\left(\bar{C} + a - b\bar{r}\right)$$

A new government comes to power, and decides to replace lump-sum taxation with a proportional income tax at constant rate t, so consumption is now given by:

$$C = \bar{C} + c\,(1-t)\,Y$$

(b) Find the value of t that is required to preserve equilibrium with $r = \bar{r}$ and $Y = \bar{Y}$, in terms of the exogenous variables and parameters.

Suppose t is set at the value you have found in (b).

(c) Prove that the tax reform reduces the equilibrium responsiveness of Y to exogenous changes in $\bar{C}$, and interpret this result with an appropriate diagram. To what extent does your analysis depend on the coefficients in the monetary policy rule?

12. A small open economy is described by the following equations:

$$\begin{aligned} C &= 200 + 0.75Y \\ I &= 600 - 50r \\ G &= 400 \\ NX &= 20\,(1 - e) \end{aligned}$$

where Y is aggregate income, C is consumption, I is investment, G is government spending, NX is net exports, r is the domestic real interest rate and e is the nominal exchange rate. The domestic and foreign price levels are both fixed at a value of 1. The central bank sets r according to the following monetary policy rule:

$$r = r^w + 0.01\,(Y - 4200)$$

where r^w is the world real interest rate, with $r^w = 2$. There is perfect international capital mobility, and e is freely floating.

(a) Solve for the equilibrium values of Y, e and NX. Would a change in G affect equilibrium Y?

Now suppose that the central bank changes its monetary policy rule to the following:

$$r = r^w + 0.01\,(Y - 4200) + 0.2\,(1 - e)$$

(b) i. Briefly interpret this rule.
ii. Solve for the new equilibrium values of Y, e and NX.

(c) Suppose the government increases G to 425. Find the effect on equilibrium Y, and the equilibrium fiscal multiplier, given the new monetary policy rule. With use of an appropriate diagram, explain why the effects of government spending differ from part (a).

END OF PAPER