UNIVERSITY OF CAMBRIDGE

ECT1
ECONOMICS TRIPOS PART I

Friday 8 June 2018 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.

Candidates are asked to note that there may be a reduction in marks for scripts with illegible handwriting.

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.

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. Explain why periods of war are associated with high long run real interest rates.

2. Define the two main measures of the price level in an economy, namely the GDP deflator and the Consumer Price Index. What are the main differences between the two measures? Which of the two is a better measure of the cost of living in an economy?

3. The natural rate of unemployment in the UK dropped from around 11% in the early 1980s to 5% by 2005.
   (a) Assuming that the separation rate during this period has been the same, at a level of 1%, calculate the change in the finding rate that generates this drop in the unemployment rate.
   (b) Provide *one* possible explanation for why the finding rate in the UK during this period changed.

4. Describe *two* policy measures that may be expected to increase aggregate output in an economy, while the nominal interest rate is constrained at the zero lower bound.

5. Explain how each of the following affects the size of the equilibrium fiscal multiplier:
   (a) The investment decisions of firms depend on the level of output.
   (b) There is increased uncertainty about macroeconomic policy management.

6. Explain what is meant by the 'Balassa-Samuelson effect'.

SECTION B

7. The Central Bank of Nilland reports that current money supply in the economy is 120 billion Nil Dollars. The Central Bank requires a 20% reserve-deposit ratio from all commercial banks and estimates that the currency deposit ratio is approximately 0.5%. Suppose that the Central Bank considers implementing a policy that will double the money supply, by increasing the monetary base.
   (a) If they implemented the policy, by how many Nil Dollars would the Central Bank increase the monetary base? Explain your answer carefully.
   (b) What is the long run impact of this proposed change in the money supply on prices and the inflation rate of Nilland?
   (c) Why does the Central Bank not have an exact figure for the currency deposit ratio? How important is it for the Central Bank to have a good estimate of the currency deposit ratio?

8. Consider an economy described by the Solow growth model: The production function is
$$Y = F(K, L) = \bar{A} K^{\alpha} L^{1-\alpha},$$
where $\bar{A}$ is the productivity parameter, Y is total output, K is capital stock and L is the population, which is equal to the labour force. The saving rate is s and the depreciation rate is δ. Neither technology nor population grows over time. Suppose that the economy is initially at its steady state.
For each of the two situations below, explain with the help of the Solow diagram, how the economy behaves over time. Comment on the evolution of both capital and output per capita (k and y respectively), as well as the levels of capital and output in the economy.
   (a) Severe weather conditions cause major damage to the country's transport infrastructure.
   (b) An influenza epidemic results in many deaths and poor health of the general population.

9. Aggregate expenditure in a closed economy with no government is characterised by the following relationships:
$$\begin{aligned} C &= \theta + \phi Y + \varepsilon \\ I &= \alpha - \beta r \end{aligned}$$
where C is consumption, I is investment, Y is aggregate income, α, β, θ and ϕ are positive parameters with $\phi < 1$, and ε is a mean-zero permanent random shock to aggregate consumption.
The real interest rate r is chosen by the central bank according to the rule:
$$r = \overline{r} + \mu\left(\pi - \pi^{T}\right)$$

where π is the inflation rate, $\mu > 0$ is a parameter, π^T is a target inflation rate, and $\overline{r}$ is the central bank's assessment of the natural real interest rate. Aggregate supply is described by:

$$\pi = \pi_{-1} + v\left(Y - \overline{Y}\right)$$

where π_{-1} is lagged inflation, $\overline{Y}$ is a measure of potential output, and $v > 0$ is a parameter.

(a) Suppose that $\overline{r}$ is defined as the interest rate that would equilibrate savings with investment in the absence of both price rigidities and shocks.
   i. Express $\overline{r}$ as a function of the model's parameters and $\overline{Y}$.
   ii. Solve for the output gap $\left(Y - \overline{Y}\right)$ and inflation rate π in terms of the consumption shock ε in both the *short* run (assuming that $\pi_{-1} = \pi^T$) and the *long* run.

(b) Now suppose that, after observing the consumption shock, the central bank has the freedom to change its policy rule. How, if at all, would you recommend that the policy rule should be changed? Discuss the implications of your answer for the overall macroeconomic significance of aggregate demand shocks.

10. How desirable is it for countries that are pegging their exchange rates to restrict the cross-border flow of capital, goods and services?

END OF PAPER