Economics

Paper 2

Macroeconomics

Imperial Secondary Examinations Authority
January 1920 examinations

Answer questions in the space provided. *If maths are required, show your working.* If you require more space, attach with Treasury tag a piece of paper to this examination, clearly number where you left off, and provide cross-reference to the page where further work is located.

Do not write on the back of examination materials.

You will receive no marks if you interfere with the scoring box at the bottom of this page.

Institution: _____

Examinations code: _____

Do not make marks in this table.

Question	1	2	3	4	5	6	7	Total
Marks	6	8	8	4	4	8	12	50
Score								

1. (a) (1 mark) If the nominal interest rate is 3 per cent per annum and inflation is 4 per cent per annum, what is the real interest rate?

(b) (2 marks) How would a reduction in the money supply, in the short run, cause an increase in the real interest rate?

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(c) (1 mark) If price levels are fully flexible and monetary velocity changes only slowly, evaluate the impact of a reduction in the money supply.

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(d) (2 marks) The permanent income hypothesis has implications on the velocity of money. What are they? Have these predictions proven true in recent years?

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2. (8 marks) Evaluate the view that technological development is the primary determinant of economic growth.

3. (8 marks) Explain why a high rate of inflation may negatively affect both a country's export competitiveness and the level of capital investment by firms.

4. Consider our nation. Assume that the production function of the entire empire can be captured with the following equation.

$$Y = K^{\alpha} L^{1-\alpha}$$
$$\alpha = 1/3$$

(a) (2 marks) Determine marginal product of labour. In the long run, what proportion of output is captured by labour in this economy? Explain.

(b) If the labour stock doubled instantly—

i. (1 mark) Find an expression for the new level of output.

ii. (1 mark) Show the effect on wages.

5. (a) (2 marks) Show graphically the effect of a recession caused by an oil supply shock on an aggregate supply and aggregate demand graph.

(b) (2 marks) If government policy cannot effectively change the aggregate supply curve, how could price levels be returned to their pre-shock state? What effect does this have on output? Explain in words and provide graph.

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6. Consider the following representative agent living in two periods—

$$\max_{c_0,c_1,l_0,l_1} \log c_0 - \gamma \frac{l_0^2}{2} + \beta\left(\log c_1 - \gamma \frac{l_1^2}{2}\right)$$
$$\text{s.t.} \quad c_0 + \frac{c_1}{1+r_1} = w_0 l_0 + a_0 (1 + r_0)$$

(a) (6 marks) Solve the household problem where $a_0 = 0$. Provide your solution for c_0, c_1, l_0, and l_1 in terms of prices and parameters.

(b) (2 marks) Interpret how γ effects your results.

7. This section relates to empirical macroeconomics.

   (a) (2 marks) Real wages are mildly procyclical. Explain why this observation may be subject to attenuation bias.

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   (b) (3 marks) 'Government intervention can help resolve empirical economic questions.' Provide one example where it has and one where it has not. On balance, is this true?

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   (c) The following is a data processing technique.

$$\mu_t(\beta) = \frac{1-\beta}{1+\beta} \sum_{k=-\infty}^{\infty} \beta^{|k|} \mu_{t-k}$$
$$\beta \in (0,1)$$

   i. (2 marks) What is the impact of β on the processed data?

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   ii. (1 mark) How much would the value μ_5 effect the processed value when calculating μ_{15}?

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   iii. (4 marks) Explain what this processing technique does to the raw data.

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