

# EXAMINATIONS

April 1998

## Subject B — Economics and Finance

### *Paper One*

*Time allowed: Three hours*

#### **INSTRUCTIONS TO THE CANDIDATE**

1. *Write your surname in full, the initials of your other names and your Candidate's Number on the front of the answer booklet.*
2. *Begin your answers to Parts One, Two and Three on a separate sheet.*
3. *Mark allocations are shown in brackets.*
4. *Attempt all 37 questions.*

***Graph paper is not required for this paper.***

#### **AT THE END OF THE EXAMINATION**

*Hand in BOTH your answer booklet and this question paper.*

<p><i>In addition to this paper you should have available Actuarial Tables and an electronic calculator.</i></p>
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## PART ONE

*For questions 1–26 indicate in your answer booklet which one of the answers A, B, C or D is correct.*

- 1** If Goods X and Y are substitutes, an increase in the price of X causes the:
- A demand curve for Good X to shift to the left, and the demand curve for Good Y to shift to the left
  - B demand curve for Good X to shift to the left, and the demand curve for Good Y to shift to the right
  - C quantity demanded of Good X to fall, and the demand curve for Good Y to shift to the right
  - D quantity demanded of Good X to fall, and the demand curve for Y to shift to the left [1½]
- 2** A consumer spends all his income on Good X and Good Y in such a combination that the marginal utility of Good X is twice the marginal utility of Good Y. If the price of Good X is £20 and the price of Good Y is £10 then:
- A the consumer cannot increase his total utility
  - B to maximise total utility the consumer needs to increase consumption of Good Y and decrease consumption of Good X
  - C to maximise total utility the consumer needs to rearrange consumption so that the marginal utility from consuming Good Y is twice the marginal utility from consuming Good X
  - D to maximise total utility the consumer needs to increase consumption of Good X and decrease consumption of Good Y [1½]
- 3** Which of the following is characteristic of a Giffen good?
- A Income elasticity of demand between zero and unity.
  - B Income elasticity of demand is greater than unity.
  - C A fall in price will lead to a rise in demand.
  - D A rise in price will lead to a rise in demand. [1½]

- 4 For a firm in long run equilibrium in an industry characterised by monopolistic competition:
- A average total cost equals marginal cost
  - B average revenue is greater than marginal cost
  - C price is greater than average total cost
  - D average total cost is less than marginal cost [1½]
- 5 Total costs of production for a firm producing 100 units of output are £6,000 with fixed costs of £4,000. If output is increased by 1 unit in the short run, the total costs of production are £6,050. Which one of the following statements is true?
- A The marginal cost of production is less than the average fixed cost of production.
  - B The average cost of production is rising.
  - C The average fixed cost of production is rising.
  - D The marginal cost of production is greater than the average variable cost of production. [1½]
- 6 Which one of the following characteristics applies to a firm in an industry characterised by perfect competition?
- A The firm can make only normal profits in the short run.
  - B There are barriers to entry into the market.
  - C The firm is a price taker.
  - D Marginal revenue is less than average revenue. [1½]
- 7 A budget line shows an individual's expenditure constraints. If the price of the good measured on the horizontal axis increases then the budget line will:
- A not change position
  - B be steeper than before
  - C be flatter than before
  - D shift to the right [1½]

- 8** The short run supply curve for a firm in a perfectly competitive industry is its:
- A average cost curve
  - B average variable cost curve
  - C marginal cost curve above the lowest point of the average variable cost curve
  - D marginal cost curve above the lowest point of the average total cost curve
- [1½]
- 9** The law of diminishing returns relates to the:
- A marginal product of the fixed factor of production
  - B marginal product of the variable factor of production
  - C economies of scale
  - D diseconomies of scale
- [1½]
- 10** In the short run a loss making firm that seeks to maximise profits will continue to produce if:
- A its marginal revenue exceeds its marginal cost of production
  - B its marginal revenue is greater than its average fixed cost
  - C it can charge a price greater than its average fixed cost
  - D it can charge a price greater than its average variable cost
- [1½]
- 11** The principle of diminishing marginal utility of wealth implies that a risk averse individual will be prepared to insure himself against an event:
- A even though the expected return is negative
  - B only if the expected return is zero
  - C only if the expected return is positive
  - D only if the event has a high probability of occurrence
- [1½]
- 12** Which of the following statements is TRUE?
- A Marginal product is equal to total product divided by average product.
  - B Average product is always greater than marginal product.
  - C Marginal product can never become negative.
  - D Average product can never become negative.
- [1½]

- 13** Which one of the following reveals decreasing returns to scale?
- A If more labour is added to a given amount of capital, the marginal product of labour falls.
  - B If the ratio of labour to capital increases by 200 per cent, the output of the firm increases by less than 200 per cent.
  - C If the input of both capital and labour doubles, the output of the firm increases less than proportionately.
  - D If more labour is added to a given amount of capital, the marginal product of labour rises. [1½]
- 14** When it is said that country A has a comparative advantage in the production of a good, this means that:
- A Country A must give up less of other goods than other countries to produce 1 more unit of that good
  - B The cost of raw materials to produce the good is less in country A than in other countries.
  - C Country A produces the good at a lower total cost than other countries.
  - D Wages paid are lower in Country A than in other countries. [1½]
- 15** In an open economy, the marginal propensity to save is 0.3 and the marginal propensity to import 0.2. What is the increase in total import expenditure if government expenditure increases by £100 million?
- A £20 million
  - B £30 million
  - C £40 million
  - D £100 million [1½]
- 16** The accelerator principle implies that:
- A investment is increased when interest rates fall
  - B an increase in consumer demand leads to a more than proportionate increase in the level of investment
  - C an increase in investment will lead to a more than proportionate increase in output
  - D the rate of change of investment affects the rate of change of output [1½]

- 17** If the government imposes a minimum wage that is above the market equilibrium wage. We would expect:
- A an increase in the quantity of labour demanded
  - B the labour supply curve to shift to the left
  - C an increase in the quantity of labour supplied
  - D the demand for labour curve to shift to the left [1½]
- 18** Which of the following policies undertaken by the central bank will have an expansionary effect on the broad money supply measure other things being equal?
- A The sale of Treasury Bills in the financial markets.
  - B A demand for special deposits from the commercial banks to be placed with the central bank.
  - C A rise in the central bank lending rate.
  - D A lowering of the reserve requirements on commercial banks. [1½]
- 19** Which one of the following statements about real variables in the economy is FALSE?
- A Real interest rates are positive if the expected rate of inflation exceeds the nominal rate of interest.
  - B A nominal depreciation of a country's exchange rate represents a real depreciation if the domestic inflation rate is less than the foreign inflation rate.
  - C An increase in real income will lead to a rise in the demand for real money balances.
  - D If Gross Domestic Product (GDP) rises by 10 per cent and GDP deflator rises by 5 per cent then real GDP has risen. [1½]

**20** You are given the following data on an economy in 1990 and 1998:

	<i>1990</i>	<i>1998</i>
Money supply	400	600
Real output	100	150
Price level	10	?

According to the quantity theory of money what would be the value of the price level in 1998?

- A 50
  - B 15
  - C 10
  - D none of the above
- [1½]

**21** If private savings exceeds private investment by £300 million and government expenditure on goods and services exceeds government tax revenue by £200 million then net exports will be:

- A zero
  - B £100 million
  - C -£100 million
  - D £500 million
- [1½]

**22** Other things being equal, the natural rate of unemployment would increase if the:

- A length of time for the typical job search increased
  - B level of unemployment benefits paid to workers who have lost their job decreased
  - C level of labour productivity rose
  - D rate of inflation increased
- [1½]

- 23** A crucial difference between the approaches of the Monetarist and Keynesian economists to achieving full employment when an economy is in recession is that:
- A Monetarists advocate the use of an expansionary monetary policy while Keynesians do not.
  - B Monetarist advocate the use of an expansionary fiscal policy while Keynesians do not.
  - C Keynesians advocate the use of an expansionary fiscal policy while Monetarists do not.
  - D Keynesian advocate the use of an expansionary monetary policy while Monetarists do not. [1½]
- 24** Which one of the following is NOT a “crowding out” effect resulting from a fiscal expansion?
- A A fall in investment due to the associated rise in the interest rate.
  - B A fall in consumer demand due to fear of higher future taxes.
  - C Reduced import expenditure due to increased government demand for domestically produced goods.
  - D A fall in demand for exports due to an exchange rate appreciation caused by the associated rise in the interest rate. [1½]
- 25** Country A exports Good X to Country B and imports Good Y from Country B. The price of Good X rises from £5 to £7 and the price of Good Y falls from £10 to £8. Which of the following statements is correct about Country A’s terms of trade?
- A They have improved by 75 per cent.
  - B They have improved by 37.5 per cent.
  - C They have deteriorated by 75 per cent.
  - D They have deteriorated by 37.5 per cent. [1½]
- 26** A depreciation of sterling in the foreign exchange market would cause the sterling value of United Kingdom exports to:
- A rise while import values must fall
  - B fall while import values must rise
  - C rise while import values may rise or fall
  - D fall while import values may rise or fall [1½]

## PART TWO

**27** Draw a diagram to illustrate each of the following:

- (i) The demand curve for a Giffen good. [1]
  - (ii) A demand curve with minus unity price elasticity. [1]
  - (iii) A supply curve with unity price elasticity. [1]
  - (iv) A supply curve with zero price elasticity. [1]
- [Total 4]

**28** You are given the following data concerning the production costs and the average revenue of a profit maximising firm that produces Good X. The fixed costs of production are initially £200.

<i>Output of Good X</i>	<i>Short Run Average Variable Cost of X (£s)</i>	<i>Average Revenue (£s)</i>
1	220	600
2	190	500
3	160	420
4	150	360
5	164	300
6	170	240
7	180	200
8	200	180
9	220	160
10	240	140

- (i) Calculate the profit maximising output of the firm. [1]
  - (ii) At what level of output are average total costs minimized? [1]
  - (iii) If the fixed costs of production rise from £200 to £300, what will happen to the output in the short run? [1]
  - (iv) Calculate the smallest rise in total variable costs (to the nearest pound) that would force the firm to cease production in the short run? [2]
- [Total 5]

- 29** You are given the following data concerning the total utility from consumption of two goods X and Y. Good X costs £1 and Good Y costs £2. The consumer has £20 of income all of which is spent on the two goods.

<i>Consumption of Good X</i>	<i>Total Utility from Good X</i>	<i>Consumption of Good Y</i>	<i>Total Utility from Good Y</i>
0	0	0	0
1	100	1	200
2	190	2	320
3	270	3	400
4	340	4	440
5	400	5	460
6	440	6	470
7	470	7	478
8	490	8	484
9	505	9	488
10	515	10	490

- (i) What quantities of Good X and Good Y will maximise utility subject to the budget constraint? [1]
- (ii) What would be the consumer's total utility if half of his income was spent on Good X and the remainder on Good Y. [1]
- (iii) If the consumer's income was reduced to £12 what would be the utility maximising consumption of Good X and Good Y? [1]
- (iv) If the price of Good X was to double, while income was £20, what would be the utility maximising consumption of Good X and Good Y? [1]
- [Total 4]

- 30** You are given the following data concerning the average product of labour which along with 10 units of capital are the only two factors of production used in the short run production process.

<i>Units of labour employed</i>	<i>Average Product of labour in units of output</i>
0	—
1	70
2	80
3	90
4	100
5	90
6	80
7	70
8	60
9	50

Each unit of capital costs £100 and each unit of labour costs £50.

- (i) Calculate the marginal product of the 4th unit of labour. [1]
  - (ii) Is the average product of labour in the above table always greater than the marginal product of labour? [1]
  - (iii) What is the average cost of production if 4 units of labour are employed in the short run? [1]
  - (iv) What is the total cost of production when output is 490 units? [1]
- [Total 4]

**31** A profit maximising oligopolist is currently making supernormal profits producing at price P1 and output Q1. The oligopolist believes that if it raises its prices then its competitors will not raise their price. If, however, it lowers its price then its competitors will cut their price.

Draw a diagram to show:

- (i) A demand curve for the oligopolist and label it D1. [1]
  - (ii) A marginal revenue curve for the oligopolist and label it MR1 [1]
  - (iii) A positively sloped marginal cost curve for the oligopolist and label it MC1 indicating the equilibrium price P1 and quantity Q1. [1]
  - (iv) An average cost curve and label it AC1 indicating the average cost C1. [1]
- [Total 4]

- 32**
- (i) Explain the difference between Gross Domestic Product and Gross National Product. [1]
  - (ii) Explain the difference between Gross Domestic Product at factor cost and Gross Domestic Product at market prices. [1]
  - (iii) Explain the difference between nominal Gross Domestic Product and real Gross Domestic Product over time. [2]
- [Total 4]

**33** You are given the following data on Country A:

*£ millions*

Exports earnings ( $X$ )	£400
Import expenditure ( $M$ )	£300
Private sector savings ( $S$ )	£800
Private sector investment ( $I$ )	£500
Government expenditure ( $G$ )	£900
Government tax revenue ( $T$ )	£700

The marginal propensity to import is 0.04.

The marginal propensity to consume is 0.9.

The rate of taxation is 40 per cent of all income.

- (i) Calculate the value of government budget deficit ( $T - G$ ), if government expenditure increases from £900 million to £1000 million? [2]
- (ii) Calculate the value of net exports ( $X - M$ ) if government expenditure increases from £900 million to £1000 million. [1]
- (iii) Using the data given in the table. Calculate the value of net exports ( $X - M$ ), if exports increase from £400 million to £500 million. [1]
- [Total 4]

**34** You are given the following data relating to the National Debt, projected fiscal deficit (including interest payments on the National Debt) of Country A:

National Debt at start of year	£1000m
Fiscal deficit for current year	£200m
Interest rate payable on National debt	6%
National income	£2000m

All tax revenue is derived from an income tax rate of 30% on all income.

- (i) What is the total government expenditure excluding interest payments on the national debt? [1]
- (ii) What is the projected national debt at the end of the year? [1]
- (iii) What percentage of tax revenue is used to finance interest payments on the national debt? [1]
- (iv) What would be the fiscal deficit including interest payments if the rate of interest payable on the national debt was 8% other things being equal? [1]
- [Total 4]

- 35** Explain the monetarist proposition that monetary policy can affect the inflation rate but not the unemployment rate in the long run. [4]
- 36** A German car currently costs 30,000 deutschmarks while the equivalent United Kingdom (UK) car costs £10,000. The nominal UK interest rate is 10 per cent and the German nominal interest rate is 4 per cent. The real interest rate in the two countries is equal at 2 per cent and the nominal interest rate differential is fully explained by expected inflation differentials.
- (i) What is the current Purchasing Power Parity (PPP) exchange rate measured as deutschmarks per pound? [1]
- (ii) Assuming that international investors are risk neutral, calculate the percentage by which the pound would be expected to appreciate or depreciate against the deutschmark (clearly indicate if the pound is expected to appreciate or depreciate). [1]
- (iii) If the actual inflation rate coincides with the expected inflation rate and absolute purchasing power parity holds on a continuous basis, calculate the PPP exchange rate in one year's time. [1]
- (iv) If the expected rate of inflation in the UK was to fall to the German level what would be the expected deutschmark per pound parity in one years time? [1]
- [Total 4]

## PART THREE

- 37** (i) Discuss the main items that are recorded in the current account and the capital account of the balance of payments and their economic significance. [10]
- (ii) Discuss the view that the best way for a country to tackle a current account deficit is to devalue its currency. In your discussion look at alternative macroeconomic measures that may be used to reduce the deficit and consider their relative merits. [10]
- [Total 20]