

EXAMINATION

11 April 2005 (am)

Subject CT7 — Economics Core Technical

Time allowed: Three hours

INSTRUCTIONS TO THE CANDIDATE

1. *Enter all the candidate and examination details as requested on the front of your answer booklet.*
2. *You must not start writing your answers in the booklet until instructed to do so by the supervisor.*
3. *Mark allocations are shown in brackets.*
4. *Attempt all 37 questions. From question 27 onwards begin each answer on a separate sheet.*
5. *Candidates should show calculations where this is appropriate.*

Graph paper is not required for this paper.

AT THE END OF THE EXAMINATION

Hand in BOTH your answer booklet, with any additional sheets firmly attached, and this question paper.

<p><i>In addition to this paper you should have available the 2002 edition of the Formulae and Tables and your own electronic calculator.</i></p>

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, a reduction in the price of Good X will have the following effect on the demand for Good Y:
- A a movement along the demand curve such that quantity demanded declines
 - B a movement along the demand curve such that quantity demanded increases
 - C a shift to the right of the demand curve
 - D a shift to the left of the demand curve
- [1½]
- 2** When there is a surplus of a good or service:
- A consumers wish to purchase more of the product at the market price than is offered for sale
 - B the quantity actually traded at the market price is determined by the supply curve
 - C the quantity actually traded at the market price is determined by the demand curve
 - D the market price is below the equilibrium price
- [1½]
- 3** The substitution effect of a price decrease causes an individual to purchase more units of a normal good because:
- A the good becomes less expensive relative to all other products
 - B the change in price causes a decline in purchasing power
 - C the good becomes more expensive relative to all other products
 - D the change in price causes an increase in purchasing power
- [1½]
- 4** The problem of adverse selection means that, as insurance premiums rise:
- A the best risks are more likely to buy insurance
 - B the best risks are less likely to buy insurance
 - C those already insured will alter their behaviour
 - D those not already insured will become more risk averse
- [1½]

- 5** Revenues from the sale of a good will increase if:
- A income increases and the good is inferior
 - B its price rises and demand is elastic
 - C its price rises and demand is inelastic
 - D income falls and the good is normal
- [1½]
- 6** When marginal product is decreasing, which of the following is true of marginal cost?
- A It increases initially, then eventually decreases.
 - B It is increasing.
 - C It is decreasing.
 - D It decreases initially, then eventually increases.
- [1½]
- 7** Which of the following is NOT a feature of monopolistic competition?
- A There is freedom of entry and exit to the industry.
 - B There are many firms supplying the market.
 - C Firms can change their actions without influencing the behaviour of other firms.
 - D Each firm faces a horizontal demand curve.
- [1½]
- 8** A profit maximising monopolist is currently operating at a level of output where marginal revenue is £20 and marginal cost is £12. In order to increase profits the monopolist should:
- A increase output and reduce price
 - B reduce price and output
 - C increase price and output
 - D reduce output and increase price
- [1½]

- 9** The prisoner's dilemma, applied to a situation involving two oligopolists, illustrates that:
- A each firm will not take account of its rival's reactions when making its decision
 - B the price set by one firm will not influence the price of the other firm
 - C in avoiding the worst possible outcome the firms will fail to reach the best possible outcome
 - D in avoiding the worst possible outcome the firms will succeed in reaching the best possible outcome
- [1½]
- 10** A perfectly competitive firm is not maximising profit if:
- A marginal cost equals price and price is above minimum average total cost
 - B marginal cost equals average revenue
 - C marginal cost equals marginal revenue
 - D total revenue is maximised
- [1½]
- 11** According to the kinked demand curve theory of oligopoly, at the quantity corresponding to the kink the firm's:
- A average cost curve is discontinuous
 - B marginal cost curve is discontinuous
 - C marginal revenue curve is discontinuous
 - D average revenue curve is discontinuous
- [1½]
- 12** Which of the following reveals constant returns to scale?
- A When more labour is added to a given amount of capital, the marginal product of labour remains unchanged.
 - B When the ratio of labour to capital doubles, the output of the firm also doubles.
 - C When the input of both capital and labour doubles, output remains constant.
 - D When the input of capital and labour doubles, output doubles.
- [1½]

- 13** A firm with fixed costs of £100 per week and a constant average variable cost of £3 per unit of output has the following information about its weekly sales:

<i>Sales</i>	<i>Total Revenue £'s</i>
10	100
20	180
30	240
40	280
50	300
60	300
70	280

Which level of output gives the highest profit?

- A 30 units
- B 40 units
- C 50 units
- D 70 units

[1½]

- 14** Assume a profit-maximising firm hires labour in a competitive labour market. If the marginal revenue product of labour is greater than the wage, the firm should:

- A increase the wage rate
- B decrease the wage rate
- C increase the quantity of labour it hires
- D decrease the quantity of labour it hires

[1½]

- 15** With 50 units of labour a firm can produce 1,800 units of output. With 60 units of labour the firm can produce 2,100 units of output. The marginal product of labour is:

- A 0.33
- B 3
- C 30
- D 300

[1½]

- 16** Consider the certainty equivalent of a fair gamble. If the absolute value of the certainty equivalent decreases with increasing wealth, the investor is said to exhibit:

- A increasing absolute risk aversion
- B declining absolute risk aversion
- C constant absolute risk aversion
- D none of the above

[1½]

- 17** Assume the demand equation for a good is $Q_d = 20 - P$ and the supply equation is $Q_s = 6 + 1.5P$. If the price is set equal to 2.4 above the equilibrium level then there will be an excess:
- A supply of 6 units
 - B demand of 6 units
 - C supply of 12 units
 - D demand of 12 units
- [1½]
- 18** If a household's disposable income increases from £10,000 to £15,000 and its consumption expenditure increases from £8,000 to £11,000 then the marginal propensity to consume is:
- A 0.6
 - B 1.4
 - C 0.8
 - D 1.7
- [1½]
- 19** The multiplier is higher:
- A the lower is the marginal propensity to consume and the lower is the marginal propensity to import
 - B the lower is the marginal propensity to consume and the higher is the marginal propensity to import
 - C the higher is the marginal propensity to consume and the lower is the marginal propensity to import
 - D the higher is the marginal propensity to consume and the higher is the marginal propensity to import
- [1½]
- 20** Which one of the following is NOT a function of money?
- A A medium of exchange.
 - B A store of value.
 - C A unit of account.
 - D A measure of liquidity.
- [1½]

- 21** Whenever a commercial bank's desired reserve ratio exceeds its actual reserve ratio the bank will:
- A call in loans and reduce reserves
 - B call in loans and increase reserves
 - C make additional loans and reduce reserves
 - D make additional loans and increase reserves
- [1½]
- 22** Suppose that in 2003 the nominal gross domestic product of Country A was £450 billion and the price index was 150. If the price index was 100 in 1996 what is the real gross domestic product of Country A in 2003 measured in terms of 1996 prices?
- A £3 billion
 - B £4.5 billion
 - C £300 billion
 - D £450 billion
- [1½]
- 23** Structural unemployment is unemployment that:
- A increases in a recession and falls in a boom
 - B arises when the unemployed lack the skills needed by newly created jobs
 - C arises when those seeking work give up hope of finding a job
 - D occurs as the result of a transition from one job to another
- [1½]
- 24** Under floating exchange rates:
- A domestic inflation rates are unavoidably linked across national boundaries
 - B domestic inflation in one country can lead to inflation in another even if the exchange rate moves to preserve purchasing power parity
 - C domestic inflation is dictated outside the bounds that would have constrained prices in a fixed rate regime
 - D none of the above
- [1½]

- 25** Consider an economy in which the average price level is 1.8, real GDP is £260 billion and the nominal money supply is £117 billion. The velocity of circulation is:
- A 4.0
 - B 3.0
 - C 1.2
 - D 0.8
- [1½]
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- 26** In Country A the level of government expenditure is £275 billion, tax revenue is £310 billion, aggregate investment is £180 billion and aggregate savings is £150 billion. The level of net exports in Country A is:
- A deficit of £5 billion
 - B surplus of £5 billion
 - C deficit of £35 billion
 - D surplus of £35 billion
- [1½]
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- 27** List, and explain briefly, four axioms from which the expected utility theorem may be derived. [4]
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- 28** (i) State the condition under which absolute dominance exists in the context of investment portfolios. [1]
- (ii) Consider two investment portfolios, A and B, with cumulative probability distribution functions of returns Fa and Fb respectively. Using this notation outline and explain briefly the first order stochastic dominance theorem. [3]
- [Total 4]
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- 29** (i) Explain what is meant by the terms of trade. [1]
- (ii) Outline the measures that may be taken by a government to reduce an adverse trade balance other than reducing the exchange value of its currency. [3]
- [Total 4]

- 30** Using all the productive resources at its disposal Country A can produce 10,000 tonnes of steel per year or 12,000 tonnes of wheat. Country B can produce 7,000 tonnes of steel per year or 10,000 tonnes of wheat.
- Which country, if any, has an absolute advantage in the production of steel and wheat?
 - Which country has a comparative advantage in the production of steel?
 - Which country has a comparative advantage in the production of wheat?
 - How should production in both countries be organised to enable mutually beneficial trade to take place?
- [4]
- 31** A monopolist's average revenue function is $AR = 1,100 - 3Q$, its marginal revenue function is $MR = 1,100 - 6Q$ and its marginal cost function is $MC = 200 - 6Q + 9Q^2$ where Q is the level of output.
- State the profit maximising condition for the monopolist. [1]
 - Calculate the monopolist's profit maximising level of output and price. [3]
- [Total 4]
- 32** The data below relates to a hypothetical economy.
- | | |
|--|-------------|
| Autonomous consumption expenditure (a) | £40 million |
| Marginal propensity to consume (mpc) | 0.6 |
| Net taxes (NT) | £25 million |
| Investment expenditure (I) | £73 million |
| Government expenditure (G) | £48 million |
| Export expenditure (EX) | £25 million |
| Marginal propensity to import (mpi) | 0.2 |
- Calculate the equilibrium value of Gross Domestic Product (Y).
 - Calculate the value of consumer expenditure (C) at the equilibrium level of GDP (Y).
- [5]
- 33**
- Draw a diagram with the rate of inflation on the vertical axis and the rate of unemployment on the horizontal axis to illustrate the long run and short run Phillips curves. Label the short run Phillips curve (SRPC) and the long run Phillips curve (LRPC). Clearly show the natural rate of unemployment using the label Un . [2]
 - Explain why the slopes of SRPC and LRPC differ. [2]
- [Total 4]

34 Draw two diagrams illustrating the profit maximising price and output of a firm operating under conditions of perfect competition to show:

- (a) the firm making normal profits
- (b) the firm making a loss

The curves on the diagram should be labelled: MR for Marginal Revenue, AR for Average Revenue, MC for Marginal Cost, AC for Average Cost. Price and Quantity should be labelled P1 and Q1 respectively.

[4]

35 Consumer A demands 14 units of Good X per week when the price of Good X is £3.60 per unit and the consumer has an income of £800 per week.

- (i) When the price of Good X rises to £3.80 per unit, Consumer A's demand for Good X falls from 14 units to 12 units per week (all other things remaining the same). Calculate Consumer A's price elasticity of demand for Good X (to 2 decimal places). [2]
- (ii) When Consumer A's income falls to £750 per week his demand for Good X falls from 14 units to 9 units per week (all other things remaining the same). Calculate Consumer A's income elasticity of demand for Good X (to 2 decimal places).

[2]

[Total 4]

36 Given:

c = the ratio of cash held by the public to their deposits
 r = the bank's reserve ratio (cash to deposits)

- (i) If $c = 0.5$ and $r = 0.1$, calculate the value of the monetary base when the broad money supply is £500 million. [1]
- (ii) If $c = 0.6$ and $r = 0.15$, calculate the value of the broad money supply when the monetary base is £300 million. [1]
- (iii) If the broad money supply is £200 million, $c = 0.5$ and the monetary base is £80 million and the Government wishes to contract the monetary base to £72 million calculate by how much it should reduce the bank's reserve ratio?

[2]

[Total 4]

- 37** (i) Using a single diagram plot IS and LM curves. Explain what these curves, and their point of intersection, denote. [5]
- (ii) Use the IS/LM model to explain and analyse the effects of the following:
- (a) an increase in government expenditure
 - (b) an increase in the money supply
 - (c) “Keynesian crowding out”
- [15]
[Total 20]

END OF PAPER