EXAMINATION

12 September 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 38 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.

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

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

1 Which one of the following accurately describes the opportunity cost of producing Good X?

A The cost of producing Good X in money terms.

B The foregone output from the next best alternative use to which factors of production used to produce Good X could be put.

C The stream of services provided by Good X over its entire lifetime.

D The production of Good X foregone in the previous year to enable Good X to be produced this year.

[1½]

2 The demand curve for Good X describes the amount of Good X that:

A buyers can but are not willing to purchase at different prices
B buyers are both willing and able to purchase at one particular price
C will be supplied at different prices
D buyers are both willing and able to purchase at different prices

[1½]

3 The law of diminishing marginal utility applied to consumption of Good X implies that the:

A more one consumes of Good X, the less utility one derives from the first unit of consumption of Good X

B total utility derived from the consumption of Good X increases by smaller amounts for each extra unit of Good X consumed

C marginal utility derived from the consumption of an extra unit of Good X falls if the price of Good X falls

D marginal utility derived from the consumption of an extra unit of Good X falls if the price of Good X rises

[1½]

4 The price of Good X will not change following an increase in the demand for Good X if the price elasticity of:

A supply is zero
B supply is infinite
C demand is zero
D demand is -1

[1½]

5 Which one of the following will NOT shift the demand curve for a normal good to the left?

A A fall in consumers' incomes.
B A rise in the price of a complementary good.
C A fall in the price of a substitute good.
D A rise in the price of the normal good.

[1½]

6 Which ONE of the following statements is NOT applicable to a Giffen good?

A The demand curve has a positive slope.

B The income effect on demand of a price change will affect demand in the opposite direction to the substitution effect.

C The substitution effect of a fall in price of the good will lead to a fall in demand.

D Demand falls if income increases, other things being equal.

[1½]

7 A profit maximising monopolist that price discriminates is able to:

A achieve a greater average revenue than if it charged a single price
B achieve lower total production costs per unit of output
C increase its profits and simultaneously lower its profit maximising output
D increase its profits by reducing its production costs more than its total revenue

[1½]

8 Consumer A purchases Good X and Good Y. If consumer A’s income and the prices of Good X and Good Y double Consumer A’s Budget Line will:

A remain unchanged
B shift to the right but not change slope
C shift to the right and become steeper
D shit to the right and become less steep

[1½]

9 Which one of the following reveals constant returns to scale?

A If more labour is added to a given amount of capital, the marginal product of labour remains unchanged.

B If the ratio of labour to capital doubles, the output of the firm also doubles.

C If both the input of capital and labour doubles, output remains constant.

D If the input of capital and labour doubles, the ratio of output to inputs is unchanged.

[1½]

10 Which one of the following is NOT a feature of an industry characterised by monopolistic competition.

A Some degree of monopoly power ensures that in the long run firms can make supernormal profits.

B There is freedom of entry and exit into the industry.

C Firms in the industry produce differentiated products.

D Firms in the industry charge prices above their marginal costs of production.

[1½]

11 The "kinked" demand curve theory of oligopoly implies that the oligopolist:

A will seek to make only satisfactory rather than maximum profits
B has a discontinuity in its marginal revenue curve
C has a discontinuity in its marginal cost curve
D has a discontinuity in its average revenue curve

[1½]

12 The principle of diminishing marginal utility of wealth makes:

A most people risk averse
B most people risk neutral
C most people risk loving
D none of the above

[1½]

13 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 total cost curve
D marginal cost curve above the lowest point of the average variable cost curve

[1½]

14 Which one of the following would count as investment in the United Kingdom national income accounts?

A The purchase of a £1,000 United Kingdom government bond.

B A museum purchases an 18th century work of art.

C A firm increases the quantity of cars it holds as stock.

D A firm places £1 million of its surplus funds with a United Kingdom bank in a high interest account.

[1½]

15 The marginal propensity to consume out of disposable income is 0.8 and the tax rate is 50 per cent of all income. The government decides to increase public spending by £100 million. According to the simple Keynesian model what is likely to be the total change in national income resulting from this increase in government expenditure?

A £166 million
B £200 million
C £500 million
D £1,000 million

[1½]

16 If the total output of goods and services increases and the price index remains constant nominal Gross Domestic Product (GDP) will:

A rise and real GDP will fall
B stay the same and real GDP will rise
C rise and real GDP will rise
D fall and real GDP will rise

[1½]

17 In a simple closed economy with no government sector, the consumption function relating consumption (C) to national income (Y) is given by the expression:

C = £40 million + 0.8Y

Planned investment is constant at £20 million.

Which ONE of the following is true?

A The multiplier has a value of 4.

B An increase in the income level will raise the marginal propensity to consume.

C The economy is in equilibrium if output is £200 million.

D None of the above.

[1½]

18 Which one of the following is most likely to lead to a rise in aggregate demand?

A A decrease in government expenditure.
B A decrease in the income tax rate.
C An increase autonomous savings.
D A increase in the rate of interest.

[1½]

19 The proportion of deposits held by the public as cash is 0.5 and the proportion of deposits held by the banks for reserves is 0.5. The broad money supply is £300 million, what is the value of the narrow money supply?

A £150 million
B £200 million
C £450 million
D none of the above [1½]

20 According to the quantity theory of money, a 10 per cent increase in the nominal money supply will lead to an increase in the real output level of the economy by:

A 0 per cent
B 10 per cent
C 10 per cent times the velocity of circulation
D 10 per cent divided by the velocity of circulation [1½]

21 The short run aggregate supply schedule tells us that an increase in the average price level will encourage firms to:

A reduce output and increase employment
B reduce output and employment
C increase output and reduce employment
D increase output and employment [1½]

22 The Phillips curve indicates that the authorities face a trade off between the two objectives of:

A inflation and economic growth
B inflation and unemployment
C inflation and balance of payments equilibrium
D inflation and a stable exchange rate

[1½]

23 The introduction of a restrictive monetary policy in an open economy operating with a flexible exchange rate would most likely lead to a:

A higher domestic interest rates and an exchange rate appreciation
B higher domestic interest rates and an exchange rate depreciation
C lower domestic interest rates and an exchange rate appreciation
D lower domestic interest rates and an exchange rate depreciation [1½]

24 A country has a public sector budget deficit of £300 million, private sector investment of £200 million and private sector savings of £150 million. The current account position of the country is:

A £50 million in surplus
B £50 million in deficit
C £250 million in deficit
D £350 million in deficit [1½]

25 Which of the following is most likely to result from a revaluation of a country's exchange rate?

A exports will become less competitive
B imports will become more expensive
C inflation will rise
D export volumes will rise [1½]

26 In Country A it takes 10 man hours to produce a unit of wine and 20 man hours to produce a unit of cloth. In Country B it takes 5 man hours to produce a unit of wine and 10 man hours to produce a unit of cloth. Therefore:

A Country B has a comparative advantage in the production of both wine and cloth

B Country A has a comparative advantage in the production of wine and Country B has a comparative advantage in the production of cloth

C Country A has a comparative advantage in the production of cloth and Country B has a comparative advantage in the production of wine

D neither country has a comparative advantage in the production of either wine or cloth [1½]

27 The loss to an individual from the occurrence of an adverse event is £200 and the probability that the event will occur is 0.2. Insurance is available against the loss.

(i) The utility of any level of wealth for a particular individual is given by the function:

$$U = 200 + w + \frac{500}{w}$$

where U = utility
and w = wealth

The individual’s initial level of wealth is £250.

Calculate, to the nearest penny, the maximum premium the individual is prepared to pay to cover this risk.
[3]

(ii) The utility of any level of capital for a particular insurer is given by the function:

$$U = 5{,}000 + 0.7c$$

where U = utility
and c = capital

The insurer's initial level of capital is £1,500.

Calculate the minimum premium the insurer is prepared to charge for taking on this risk. [2]
[Total 5]

28 A manufacturer of good X can sell all of good X produced at the market price of £50 each. When the firm is operating efficiently, the total cost of production per day is as follows;

Output per day	*Total Cost (£)*
0	50
1	60
2	78
3	105
4	140
5	185
6	264

(i) Construct a table which gives marginal cost and average total cost at each level of output. [2]

(ii) State the level of output at which profit will be maximised. [1]

(iii) Calculate the profit at the profit maximising output. [1]
[Total 4]

29 Draw a diagram showing a profit maximising monopolist making a loss at its loss minimising output but still finding it worthwhile to produce in the short run. Include the following curves, marginal revenue (MR), average revenue (AR), average total cost (AC), average variable cost (AVC) and marginal cost (MC). Show the price (P), output (Q), and the level of average total cost (C) and average variable cost (D), at the loss minimising output. [4]

 PLEASE TURN OVER

30 You are given the following linear equations relating to the quantity demanded (Qd) and the quantity supplied (Qs) of Good X.

$$Qd = 500 - 5P$$

$$Qs = 5P$$

where P is the price in pounds (£).

(i) Calculate the equilibrium price. [1]

(ii) Calculate the quantity sold at the equilibrium price. [1]

(iii) If a sales tax is introduced at the rate of £10 per unit calculate the new equilibrium price. [2]

[Total 4]

31 Explain with the aid of a numerical example how game theory can provide useful insights into oligopolistic interdependence. In your example, consider two firms (Firm A and Firm B) that can use either a high output or low output strategy with the relevant payoffs being profits. [4]

32 The following table contains output and expenditure data for an economy.

	£ billions
Consumption (at market prices)	260
Investment (at market prices)	70
Government spending (at market prices)	85
Net Exports (at market prices)	–5
Net Property income from abroad	5
Net taxes on products	60
Capital depreciation	20

(a) Calculate the value of Gross Domestic Product at market prices.

(b) Calculate the Gross Domestic Product at basic prices.

(c) Calculate the value of Gross National Income at basic prices.

(d) Calculate the value of Net National Income at basic prices.

[4]

33 The following data refers to a simple closed economy.

Money Supply	= 200
Price Index	= 10
Real Output (i.e. Real Income)	= 100 units

Use the quantity theory of money to answer the following questions with the above figures as your starting point in each of your responses.

(a) Calculate the numerical value of the velocity of circulation.

(b) Calculate the new value of the price index if the money supply were increased to 300.

(c) Calculate the new value of the price index if real output were to fall from 100 units to 50 units.

(d) Calculate the value of the money supply which would maintain stable prices if real output increased by 4 per cent.

[4]

34 (i) State how a Central bank conducts a contractionary open market operation in the money market, making clear the implications of the operation for the price of Treasury bills and the short term rate of interest. [2]

(ii) List two other mechanisms for controlling monetary aggregates. [2]

[Total 4]

35 Given an initial US dollar pound sterling exchange rate of $1.80/£1, use the concept of relative Purchasing Power Parity to explain and calculate what is expected to happen to the value of the pound sterling against the US dollar in the following two situations:

(i) UK inflation rate for the coming year is forecast to be 4% while the US inflation rate is forecast to be 2%. [2]

(ii) UK nominal interest rate is 11% and the US nominal interest rate is 7% assuming that international investors are risk neutral. [2]

[Total 4]

36 You are given the following data for an open economy. The marginal propensity to consume out of national income is 0.7 and the proportion of additional income that is spent on imported goods is 0.2. National income is £100 million and the current account is in balance.

(i) Assume that the government increases its expenditure by £50 million:

(a) Calculate the new equilibrium level of national income.

(b) Calculate the current account deficit or surplus assuming no change in exports.

[2]

(ii) If government expenditure is unchanged, so that national income is initially at £100 million and exports increase by £50 million:

(a) Calculate the new equilibrium level of national income.

(b) State what will happen to the current account balance.

[2]
[Total 4]

37 Explain the solutions that have been advocated by Keynesian economists to solve demand deficient unemployment. Discuss criticisms that have been made concerning the Keynesian solutions. [10]

38 Compare the market structures characterised by monopolistic competition and monopoly. In your answer refer to both the short and the long run. [10]

END OF PAPER