

# EXAMINATION

5 October 2007 (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 available on request but 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** Good X has a cross elasticity of demand with respect to Good Y which is equal to unity. Good X is which of the following with respect to Good Y?
- A a perfect substitute
  - B an imperfect substitute
  - C a perfect complement
  - D an imperfect complement
- [1½]
- 2** If Good X is an inferior good then a decrease in income will cause:
- A a rightward shift of the demand curve for Good X
  - B a leftward shift of the demand curve for Good X
  - C a movement along the demand curve for Good X from left to right
  - D a movement along the demand curve for Good X from right to left
- [1½]
- 3** Which of the following will result from a 10 per cent rise in the price of whisky, the demand for which has an absolute price elasticity of demand equal to 2?
- A a rise in the quantity demanded of whisky by 20 per cent
  - B a rise in the quantity demanded of whisky by 10 per cent
  - C a fall in the quantity demanded of whisky by 20 per cent
  - D a fall in the quantity demanded of whisky by 10 per cent
- [1½]
- 4** Consider the budget line of a consumer that consumes only two Goods X and Y, with the quantity of Good X represented on the horizontal axis and the quantity of Good Y represented on the vertical axis. If money income is held constant, a rise in the price of Good X and a fall in the price of Good Y will:
- A shift the entire budget line to the left
  - B shift the entire budget line to the right
  - C make the budget line steeper
  - D make the budget line less steep
- [1½]
- 5** If Good X is a Giffen good then an increase in income will cause:
- A a rightward shift of the demand curve for Good X
  - B a leftward shift of the demand curve for Good X
  - C a movement along the demand curve for Good X from left to right
  - D a movement along the demand curve for Good X from right to left
- [1½]

- 6** Which one of the following corresponds to a situation of first order stochastic dominance?
- A Investment A dominates Investment B in over 50% of possible scenarios.
  - B Investment A has a lower standard deviation of returns than Investment B.
  - C Investment A dominates Investment B in 100% of possible scenarios.
  - D Investment A has a higher expected rate of return than Investment B.
- [1½]
- 7** Adverse selection means that:
- A The taking out of an insurance policy makes it more likely that the insured against event will occur than if no insurance policy is taken out.
  - B Insurance companies tend to select only good risk customers.
  - C Bad risk customers are able to obtain insurance on the same terms as good risk customers.
  - D People who know they are particularly bad risks are more inclined to take out insurance than those who know they are good risks.
- [1½]
- 8** A monopolist increases sales from 8 units to 9 units by reducing price from £10 to £9. The marginal revenue from the 9th unit sold is:
- A £81
  - B £9
  - C £1
  - D -£1
- [1½]
- 9** Which one of the following statements is CORRECT?
- A Average product can never be above marginal product.
  - B Average product can never be less than marginal product.
  - C Marginal product can never become negative.
  - D Average product can never become negative.
- [1½]

**10** A movement along a consumer's indifference curve from right to left means that:

- A a consumer's utility will rise
- B a consumer's utility will be unchanged
- C a consumer's utility will fall
- D a consumer's money income is unchanged

[1½]

**11** The government has decided to increase the money supply. Which money measures are affected?

- A M0, M1, M4 but not M3
- B M0 and M4, but not M1 and M3
- C M0, but not M1, M3 and M4
- D M0, M1, M3 and M4

[1½]

**12** Consider the following table:

<i>Units of Labour</i>	<i>Output</i>
1	100
2	190
3	270
4	340
5	400

The price of labour is £100 per unit and the amount of capital is fixed.

The table illustrates which one of the following?

- A Increasing returns to scale.
- B Constant returns to scale.
- C Decreasing returns to scale.
- D The law of diminishing marginal returns.

[1½]

**13** If a profit maximising firm is to continue operating in the short run, even though it is making a loss, then its average total revenue must cover its:

- A average fixed costs
- B average variable costs
- C average total costs
- D average normal profit level

[1½]

- 14** A profit maximising oligopolist has marginal costs of £3 at all levels of output and operates under the belief that the demand curve for its output is kinked at a price of £10. Provided its marginal costs are between £2 and £4, it sells its commodity at a price of £10. If new technology reduces its marginal cost to £1.50 at all levels of output the firm should:

A lower the price and raise output  
B maintain the existing price and output  
C lower the price but maintain existing output  
D maintain the existing price and raise output

[1½]

- 15** All other things being equal, which of the following will NOT increase the Public Sector Borrowing Requirement?

A An increase in local government expenditure.  
B An increase in grants from central government to nationalised industries.  
C An increase in transfer payments to recipients of state welfare benefits.  
D An increase in the interest rate paid on the national debt.

[1½]

- 16** In an open economy with a government sector, which one of the following conditions will ensure a full employment level of output?

You are given that  $S$  = Planned savings,  $I$  = Planned investment,  $T$  = Taxation,  $G$  = Government expenditure,  $M$  = Import expenditure and  $X$  = Export receipts

A  $S = I$   
B  $S + T + M = I + G + X$   
C  $S + T + X = M + T + G$   
D None of the above

[1½]

- 17** You are given the following data on an economy in 2001 and 2007:

	2001	2007
Money supply	200	300
Real Gross Domestic Product	100	150
Price level	10	?

The velocity of circulation is the same in both years.

According to the quantity theory of money what would be the value of the price level in 2007?

- A 20
- B 15
- C 10
- D none of the above

[1½]

- 18** You are given that consumption expenditure ( $C$ ) is related to current disposable income ( $Y_d$ ) by the formula:

$$C = 10 + 0.8 Y_d$$

If disposable income is 100 then the average propensity to consume is:

- A 0.1
- B 0.9
- C 0.8
- D 0.7

[1½]

- 19** Which of the following will decrease the size of the multiplier?

- A A decrease in the marginal propensity to save.
- B A decrease in the marginal propensity to consume.
- C A decrease in the marginal rate of taxation.
- D A decrease in the marginal propensity to import.

[1½]

- 20** Which one of the following statements about real variables in the economy is FALSE?
- A Real interest rates are negative if the expected rate of inflation exceeds the nominal rate of interest.
  - B Assuming a constant price level, a rise in nominal wages is also a rise in real wages.
  - C An increase in real income will lead to a reduced demand for real money balances.
  - D If nominal Gross Domestic Product (GDP) rises by 10 per cent and the GDP deflator rises by 5 per cent then real GDP has risen.
- [1½]
- 21** Which one of the following is the most accurate description of the National Debt?
- A The annual gap between total government tax receipts and total government expenditure.
  - B The total amount owed by a country to the rest of the world.
  - C The net accumulation of a country's budget deficits.
  - D The net accumulation of a country's current account deficits in the balance of payments.
- [1½]
- 22** Country A takes 10 man hours to produce one unit of Good X and 20 man hours to produce one unit of Good Y. Country B takes 5 man hours to produce one unit of Good X and 10 man hours to produce one unit of Good Y. Which one of the following statements is TRUE?
- A Country B has a comparative advantage in the production of Good X.
  - B Country B has a comparative advantage in the production of both Good X and Good Y.
  - C Country B has a comparative advantage in the production of Good Y.
  - D Country B has no comparative advantage in the production of either good.
- [1½]

**23** Which one of the following would be observed following an expansionary open market operation by the central bank?

- A A rise in the money supply, a fall in the short term rate of interest and a fall in the price of treasury bills.
- B A rise in the money supply, a fall in the short term rate of interest and a rise in the price of treasury bills.
- C A rise in the money supply, a rise in the short term rate of interest and a fall in the price of treasury bills.
- D A rise in the money supply, a rise in the short term rate of interest and a rise in the price of treasury bills.

[1½]

**24** You are given the following data on a country's balance of payments with the rest of the world (ROW):

	<i>£ millions</i>
Exports of goods and services	900
Imports of goods and services	600
Interest, Profits and Dividends Received from ROW	100
Interest, Profits and Dividends Paid to ROW	200
Other receipts from ROW	150
Other payments to ROW	50
Borrowing from ROW	500
Lending to ROW	300

What are the values of the current account balance and capital account balance respectively?

- A £300 million, £200 million.
- B £300 million, -£200 million.
- C £200 million, £300 million.
- D £200 million, -£300 million.

[1½]

**25** The central bank conducts an open market sale of treasury bills equivalent to £5 million. The commercial banks hold reserves equivalent to 5 per cent of their deposits, while the public holds a cash to deposit ratio of 20 per cent. What is the maximum that the broad money supply may fall as a result of the open market operation?

- A £25 million
- B £24 million
- C £20 million
- D £6.25 million

[1½]



**26** Other things being equal, which one of the following statements is ALWAYS TRUE?

- A An appreciation of a country's exchange rate will increase its import volumes and decrease its export volumes.
- B An appreciation of a country's exchange rate will increase its import expenditure and decrease its export revenues.
- C A depreciation of country's exchange rate will decrease its import volumes and decrease its export volumes.
- D A depreciation of a country's exchange rate will decrease its import expenditure and increase its export revenues.

[1½]

**27** Assume that there are only two factors of production; capital (the fixed factor) and labour (the variable factor).

- (i) Draw a diagram to illustrate the law of diminishing returns. [1]
- (ii) Add an average product curve to the diagram to illustrate correctly the relationship with the marginal product curve. [1]
- (iii) Explain whether the law of diminishing returns is applicable to the short run, the long run or both. [2]

[Total 4]

**28** Consider the following data on a firm:

<i>Number of Units Sold</i>	<i>Total Revenue (£'s)</i>
10	100
20	180
30	240
40	280
50	300
60	300
70	280

Fixed costs are £100.

Variable costs are constant at £3 per unit produced.

- (i) Construct a table showing the price and quantity sold. [1]
- (ii) Calculate the profit maximising output of the firm. [1]
- (iii) Determine the profits at the profit maximising output. [1]
- (iv) Determine the average variable cost at the profit maximising output. [1]

[Total 4]

**29** Labelling all curves, draw a diagram to depict a perfectly competitive firm making excess profits at its profit maximising output. Mark the equilibrium price as P1, equilibrium output as Q1 and average total cost as C1. [4]

**30** Outline four factors which will lead to a leftward shift of the supply curve for Good X. [2]

**31** A consumer consumes only two Goods X and Y. The consumer has an income of £500 which is spent on the two goods. Good X costs £20 per unit and Good Y costs £25 per unit. Both goods are normal goods.

(i) Using one diagram draw a budget line for the consumer labelled B1. On the diagram show the quantity of Good Y on the vertical (Y) axis and quantity of Good X on the horizontal (X) axis. Clearly mark the quantities of Good X and Good Y where the budget line meets the axes. [2]

(ii) On the same diagram draw an indifference curve for the consumer at a point where the consumer is maximising his satisfaction. Label the quantity of Good X consumed as X1 and quantity of Good Y consumed as Y1 and the indifference curve as IC1. [2]

The price of Good X now falls from £20 to £10 per unit.

(iii) On the same diagram draw a new budget line for the consumer labelled B2. Clearly mark the quantity of Good X where the budget line meets the X axis. Draw a new indifference curve for the consumer at a point where the consumer is maximising his satisfaction and label the quantity of Good X consumed as X2 and quantity of Good Y consumed as Y2 and the indifference curve as IC2. [2]

[Total 6]

- 32** You are given the following data on Country A which is a simple closed economy with no government expenditure or taxes:

<i>Income</i> (£millions)	<i>Planned Consumption</i> (£millions)	<i>Planned Investment</i> (£millions)
200	140	60
250	175	60
300	210	60
350	245	60
400	280	60

- (i) Determine the amount of planned savings at the equilibrium level of income. [1]
- (ii) If the level of income is £200 million, calculate the amount of unplanned additions to stocks. [1]
- (iii) State whether aggregate demand exceeds income when income is at £200 million. [1]
- (iv) If planned investment rises from £60 million to £90 million, determine by how much the equilibrium level of income would rise. [1]
- [Total 4]

**33** You are given the following data on an economy:

	<i>£ millions</i>
Consumption expenditure	?
Investment expenditure	80
Government expenditure on goods and services	70
Exports	50
Imports	?
Taxation	?

**Notes:**

- (a) All tax revenues are derived from a uniform rate of income tax of 25 per cent of income.
  - (b) Consumption expenditure is given by  $C = 0.8 Yd$   
where  $Yd$  is disposable income (i.e. income less taxes) and  $C$  is consumption expenditure.
  - (c) Import expenditure is given by  $M = 0.1 Y$   
where  $Y$  is national income and  $M$  is import expenditure.
  - (i) Determine the equilibrium value of national income. [1]
  - (ii) Determine the current account balance at the equilibrium value of national income. [1]
  - (iii) State whether the budget is in surplus or deficit at the equilibrium value of national income. Calculate the size of the surplus/deficit. [1]
  - (iv) Calculate the effect on the current account of the balance of payments of a rise in government expenditure of £30 million. [2]
- [Total 5]

- 34**
- (i) Explain what you understand by the term “crowding out”. [1]
  - (ii) Discuss THREE examples of “crowding out” effects. [3]
- [Total 4]

- 35** (i) Consider borrowers and lenders of funds. Explain which of these two groups is most likely to benefit and which is most likely to be disadvantaged when the rate of inflation is less than anticipated. [2]
- (ii) Give TWO reasons why an increase in the money supply of 5 per cent may not result in a rise in the general price level. [2]
- [Total 4]
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- 36** An American (USA) car currently costs \$18,000 while the equivalent United Kingdom (UK) car costs £10,000. The nominal UK interest rate is 8 per cent and the nominal US interest rate is 5 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) Determine the current Purchasing Power Parity (PPP) exchange rate measured as dollars per pound. [1]
- (ii) Assuming that international investors are risk neutral, calculate the percentage by which the pound is expected to appreciate or depreciate against the dollar. [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 measured as dollars per pound in one year's time. [1]
- (iv) If the expected rate of inflation in the UK was to fall to the USA level, determine what the expected dollar per pound parity would be in one year's time. [1]
- [Total 4]
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- 37** Evaluate whether there is a trade-off in economic policy between inflation and unemployment. [10]
- 
- 38** (i) Explain what the IS-LM curves depict in a closed economy with a government sector. [2]
- (ii) Using the IS-LM model for a closed economy explain the likely impact of the following policies for an economy operating at below full employment.
- (a) a tightening of fiscal policy achieved by reducing government expenditure [4]
- (b) an expansionary monetary policy [4]
- [Total 10]

**END OF PAPER**