

INSTITUTE AND FACULTY OF ACTUARIES



EXAMINATION

26 April 2017 (am)

Subject CT7 – Business 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. *You have 15 minutes of planning and reading time before the start of this examination. You may make separate notes or write on the exam paper but not in your answer booklet. Calculators are not to be used during the reading time. You will then have three hours to complete the paper.*
4. *Mark allocations are shown in brackets.*
5. *Attempt all 37 questions. Answers to questions 1–26 should be indicated on the Multiple Choice Answer Sheet included in your booklet. From question 27 onwards begin your answer to each question on a new page.*
6. *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 from the approved list.

- 1** The problem of scarcity in economics:
- A exists only in economies which rely on the market mechanism.
 - B could be eliminated if prices are forced to fall.
 - C means that there are shortages of some goods.
 - D exists because there are insufficient resources to satisfy human wants.
- [1½]
- 2** If the government chooses to use resources to build a hospital instead of a school, this illustrates the concept of:
- A a market system.
 - B macroeconomics.
 - C competition.
 - D opportunity cost.
- [1½]
- 3** When the owner of a patented product allows another firm to produce it for a fee, the arrangement is referred to as a:
- A franchise.
 - B joint venture.
 - C licensing agreement.
 - D merger.
- [1½]
- 4** In relation to insurance, moral hazard describes the fact that:
- A people who know that they are a particularly high risk are more inclined to take out insurance.
 - B a policyholder may act in a way which makes the insured event more likely to occur.
 - C people who know that they are a particularly high risk are less inclined to take out insurance.
 - D an insurance company will face false insurance claims.
- [1½]
- 5** A firm's decision to reduce its expenditure on advertising is most likely to have the following impact on its demand curve:
- A The curve will shift to the left and become less elastic.
 - B The curve will shift to the right and become less elastic.
 - C The curve will shift to the left and become more elastic.
 - D The curve will shift to the right and become more elastic.
- [1½]

- 6** Which of the following is an example of economies of scope?
- A A firm doubles its inputs of capital and labour and its output more than doubles.
 - B A firm doubles the number of products it produces and also doubles its research budget.
 - C A firm produces a new product and in so doing lowers the average cost of producing its existing products.
 - D A firm produces a new product and in so doing lowers the price it charges on its existing products.
- [1½]
- 7** Increasing long run average costs are associated with:
- A constant returns to scale.
 - B decreasing returns to scale.
 - C increasing returns to scale.
 - D the law of diminishing returns.
- [1½]
- 8** In which situation will a firm cease production in the short run?
- A Total revenue is less than total costs.
 - B Total revenue is less than total fixed costs.
 - C Average revenue is less than average fixed cost.
 - D Average revenue is less than average variable cost.
- [1½]
- 9** Which one of the following characteristics does NOT apply to a firm in an industry characterised by perfect competition?
- A The firm can make only normal profits in the long run.
 - B There are no barriers to entry into the market.
 - C The firm can make only normal profits in the short run.
 - D Marginal revenue is equal to average revenue.
- [1½]

- 10** A monopoly firm faces a linear demand schedule and has positive but constant marginal costs which are currently below its marginal revenue. If the firm wishes to maximise profits then it should:
- A lower its price and increase output.
 - B raise its price and increase output.
 - C lower its price and decrease output.
 - D raise its price and decrease output.
- [1½]
- 11** A perfectly contestable market is a market where the:
- A costs of entry and exit are zero and potential entrants can enter the market quickly.
 - B existing companies charge identical prices.
 - C the barriers to entry are substantial but the existing firms compete so hard that industry profits are kept to the normal level over both the short and long run.
 - D existing firms compete on price and quality so as to maximise industry supernormal profits in the long run.
- [1½]
- 12** Which of the following is NOT usually given as a reason why firms form strategic alliances?
- A entry into new markets
 - B risk sharing
 - C capital pooling
 - D to reduce overall managerial remuneration
- [1½]
- 13** The terms of trade index is initially set at 100. If the average price of exports has risen by 50% since the base year and the average price of imports has risen by 20% since the base year, what is the current figure for the terms of trade index to the nearest whole number?
- A 83
 - B 125
 - C 250
 - D 80
- [1½]

- 14** Which of the following types of unemployment would exist even in a well functioning free market economy?
- A classical
 - B frictional
 - C technological
 - D structural
- [1½]
- 15** The aggregate demand curve slopes downwards because at higher price levels the real money supply:
- A decreases and national income is lower.
 - B decreases and national income is higher.
 - C increases and national income is lower.
 - D increases and national income is higher.
- [1½]
- 16** Which of the following is least likely to lead to an increase in long run economic growth?
- A An increase in the money supply.
 - B An increase in capital investment expenditure.
 - C An increase in education expenditure.
 - D An increase in research and development expenditure.
- [1½]
- 17** Unanticipated inflation:
- A increases the opportunity cost of holding money and redistributes wealth from fixed rate borrowers to lenders.
 - B increases the opportunity cost of holding money and redistributes wealth from fixed rate lenders to borrowers.
 - C reduces the opportunity cost of holding money and redistributes wealth from fixed rate borrowers to lenders.
 - D reduces the opportunity cost of holding money and redistributes wealth from fixed rate lenders to borrowers.
- [1½]

18 If the total output of goods and services increases and the price index falls then the nominal Gross Domestic Product (GDP):

- A may rise or fall and real GDP will fall.
- B will stay the same and real GDP will rise.
- C will rise and real GDP will rise.
- D may rise or fall and real GDP will rise.

[1½]

19 If a country has a current account deficit then:

- A Gross Domestic Product is greater than Gross National Income.
- B Gross Domestic Product is less than Gross National Income.
- C Gross Domestic Product is the same as Gross National Income.
- D we cannot say whether Gross Domestic Product differs from Gross National Income.

[1½]

20 Devaluation of a country's currency will lead to the greatest improvement in the current account of a country's balance of payments when the demand for:

- A imports is price elastic and the demand for exports is price inelastic.
- B imports is price inelastic and the demand for exports is price elastic.
- C both imports and exports is price inelastic.
- D both imports and exports is price elastic.

[1½]

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

- 22** A government's attempts to increase the monetary base (narrow money supply) through open market operations are likely to cause short term interest rates to:
- A fall and reduce money demand.
 - B fall and raise money demand.
 - C rise and reduce money demand.
 - D rise and raise money demand.
- [1½]
- 23** Consider an economy where the demand for real money balances is interest inelastic and the demand for investment is interest elastic. A change in the money supply will result in a relatively:
- A small change in the rate of interest and the level of investment.
 - B large change in the rate of interest and the level of investment.
 - C small change in the rate of interest and a relatively large change in the level of investment.
 - D large change in the rate of interest and a relatively small change in the level of investment.
- [1½]
- 24** The nominal rate of interest is 2% and the rate of inflation is negative at -3%. Which one of the following is TRUE?
- A The real rate of interest is greater than the nominal rate of interest.
 - B The real rate of interest is negative.
 - C The rate of inflation is greater than the real rate of interest.
 - D The real rate of interest is -1%.
- [1½]
- 25** The introduction of a restrictive monetary policy in an open economy operating with a flexible exchange rate would most likely lead to:
- 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]

- 26** A central bank's use of the "Taylor Rule" attempts to take which of the following two macroeconomic objectives into account?
- A inflation and the exchange rate
 - B economic growth and unemployment
 - C inflation and economic growth
 - D unemployment and the exchange rate

[1½]

- 27** State how the market demand curve for a normal good shifts (left shift, right shift, no shift) in response to the following cases, assuming that in each case all other factors affecting the demand remain the same:

- (a) The price of a substitute good falls.
- (b) The price of a complementary good falls.
- (c) The good becomes more expensive.
- (d) Consumers' real incomes rise.

[4]

- 28** Company ABC faces a downward-sloping (straight-line) demand curve as shown in the table below. Its fixed costs of production are zero and the marginal costs of production are £5 per unit produced.

<i>Price per unit (£)</i>	<i>Quantity Demanded (units)</i>	<i>Total Profit (£)</i>	<i>Marginal Revenue (£)</i>
20	0	-	-
18	1	.....	.....
16	2	.....	.....
14	3	.....	.....
12	4	.....	.....
10	5	.....	.....
8	6	.....	.....
6	7	.....	.....

- (i) Prepare a table showing the total profit and marginal revenue at each price level. [2]
- (ii) Calculate the price elasticity of demand using the average formula when the price falls from £10 to £8. [2]
- (iii) State over what price range the absolute value of the price elasticity of demand is equal to, or greater than, 1. [1]

[Total 5]

- 29** The table below shows the annual profits for Company A and Company B which produce Good X. The profits vary according to whether each charges £15 or £10.

		<i>B's price</i>	
		<i>£15</i>	<i>£10</i>
<i>A's price</i>	<i>£15</i>	£12 million each	£6 million for Company A £18 million for Company B
	<i>£10</i>	£18 million for Company A £6 million for Company B	£8 million each

- (i) State the price Company A should charge if it were to renege on an agreement previously reached with Company B to maximise their joint profits. [1]
- (ii) State the price Company A should charge if it makes its pricing decision completely independently of Company B. [1]
- (iii) Explain why this situation is known as a *dominant strategy game*. [2]
- (iv) State the Nash equilibrium in terms of the price and profits of both firms, if the game is played only once. [1]

[Total 5]

- 30** (i) Explain, using a diagram, the effects of a per unit sales tax on Good X on:

- (a) the producers of Good X.
- (b) the consumers of Good X.
- (c) government tax revenues.

[3]

- (ii) Describe any net welfare effects for society as a whole, using the concepts of consumer and producer surplus. [2]

[Total 5]

- 31** (i) Describe FOUR reasons why rising unemployment is regarded by economists as undesirable both for the economy and the government. [4]

- (ii) Explain issues that concern economists and economic policy makers about unemployment, other than the headline unemployment rate. [4]

[Total 8]

- 32** (i) Explain the principal – agent problem with reference to the managers of a firm and the shareholders of a firm. [3]
- (ii) (a) Explain, with the aid of a diagram, how a price-leading oligopoly firm that seeks a constant market share will set its price assuming it faces a linear market demand curve.
- Label your diagram as follows:
- D – the market demand curve
 - AR – the average revenue of the leader firm
 - MR – the marginal revenue of the leader firm
 - MC – the marginal cost of the leader firm.
- Label the price set by the leader firm P_L , the output of the leader firm Q_L and the total market demand Q_D .
- (b) Identify the amount produced by the follower firms. [3]
- [Total 6]
- 33** Describe FOUR advantages that floating exchange rates have over a fixed exchange rate. [4]
- 34** Explain, using an aggregate supply and aggregate demand diagram, the likely impact of an increase in aggregate demand due to a monetary expansion in both the short and longer run. In your answer consider any relevant aggregate supply side effects. [5]
- 35** You are given the following data on a simple closed economy:
- $C = \text{£}10 \text{ million} + 0.75 Y$
 $I = \text{£}20 \text{ million}$
 $G = \text{£}40 \text{ million}$
- where C is consumer expenditure, Y is national income, G is government expenditure on goods and services and I is investment expenditure. There are no taxes so all government expenditure is financed by borrowing.
- (a) Calculate the equilibrium level of national income.
- (b) Calculate savings at the equilibrium level of national income.
- (c) Calculate the value of injections at the equilibrium level of national income.
- (d) Calculate the new level of national income if government expenditure increases by £10 million. [4]

36 A government has not raised sufficient taxation to finance its current spending.

Discuss the relative merits of the following two alternatives to finance its expenditure, including the likely effects on interest rates and the inflation rate.

Method 1: Finance its expenditure by selling government bonds to the private sector.

Method 2: Finance its expenditure by selling government bonds to its central bank in return for newly created money. [5]

37 (i) Describe in words the differences between a market structure characterised by monopolistic competition and one characterised by monopoly. In your answer refer to both the short and the long run. (No diagrams are required in your answer.) [5]

(ii) State the THREE types of competition policy that aim to promote competition in industry. [3]

(iii) Describe the difference between a merger and a takeover making reference to the likely implications for the management teams of the two firms involved. [2]

[Total 10]

END OF PAPER