

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

24 September 2014 (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. *Mark allocations are shown in brackets.*
4. *Attempt all 38 questions. From question 27 onwards begin your answer to each question on a new page.*
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.

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| <p><i>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.</i></p> |
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- 1** The main categories of economic resources are:
- A natural resources, labour and money.
 - B labour, money and factories.
 - C natural resources, capital and factories.
 - D natural resources, labour and capital.
- [1½]
- 2** The problem of scarcity in economics:
- A exists only in economies which rely on the market mechanism.
 - B could be eliminated if we force prices to fall.
 - C means that there are shortages of some goods.
 - D exists because there are insufficient resources to satisfy human wants.
- [1½]
- 3** Which of the following will NOT cause a shift in the demand curve for Good X?
- A A change in the price of Good X.
 - B A change in the price of other goods.
 - C A change in consumer incomes.
 - D A change in consumer tastes.
- [1½]
- 4** What is the combined effect of an increase in the cost of production and a rise in consumer income on the equilibrium price and quantity of an inferior good?
- A The effect on price is indeterminate but quantity will fall.
 - B The effect on price is indeterminate but quantity will rise.
 - C The effect on quantity is indeterminate but price will rise.
 - D The effect on quantity is indeterminate but price will fall.
- [1½]

- 5** Consumer X has a higher income than Consumer Y but they have identical preferences and pay the same prices for the goods which they consume. If they both maximise utility then:
- A The marginal utility from each good consumed will be higher for X than for Y and X will have a higher total utility.
 - B The marginal utility from each good consumed will be higher for X than for Y and X will have a lower total utility.
 - C The marginal utility from each good consumed will be lower for X than for Y and X will have a higher total utility.
 - D The marginal utility from each good consumed will be lower for X than for Y and X will have a lower total utility.
- [1½]

- 6** Adverse selection refers to a situation where:
- A having insurance makes an individual less careful.
 - B having insurance makes an individual more careful.
 - C the people taking out the insurance are those who have the highest risk.
 - D the people taking out the insurance are those who have the highest risk aversion.
- [1½]

- 7** Vertical product differentiation refers to differences between products which reflect:
- A different consumer's tastes but not different quality products.
 - B same quality products.
 - C different quality products reflected in different production costs.
 - D different varieties offered at the same price.
- [1½]

- 8** Diseconomies of scale means:
- A Short run average total cost falls as output rises.
 - B Long run average total cost falls as output rises.
 - C Long run average total cost rises as output rises.
 - D Short run average total cost rises as output rises.
- [1½]

- 9** Which of the following does NOT necessarily apply to a perfectly competitive firm producing in both the short run and the long run?
- A The firm will equate its marginal costs to its average revenue.
 - B The firm will equate its marginal costs to its marginal revenue.
 - C The firm's average revenue exceeds its average variable costs of production.
 - D The firm will make only normal profits.
- [1½]
- 10** When a monopolist maximises profits, price exceeds marginal revenue. The difference between price and marginal revenue occurs because:
- A the firm has to charge a price higher than the marginal cost of producing the last unit.
 - B any decision by the monopolist to sell an additional unit of output does not affect the price.
 - C the firm has to reduce the price on all previous units sold in order to sell the additional unit.
 - D the law of diminishing returns directly affects the price of an imperfectly competitive firm's product.
- [1½]
- 11** The prisoner's dilemma, applied to a situation involving the only two firms in an oligopoly industry, 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]

- 12** 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 merger.
 - D licensing agreement.
- [1½]
- 13** Third degree price discrimination refers to the situation where:
- A a firm charges customers different prices according to how much they purchase.
 - B consumers are grouped into independent markets and a separate price is charged in each market.
 - C a firm charges each customer the maximum price he/she is prepared to pay.
 - D different firms charge different prices for the same product.
- [1½]
- 14** The demand for Good X has a price elasticity of -1 . If the government decided to impose a sales tax of £3 per unit on Good X this would:
- A shift the supply curve for Good X up by less than £3 and increase the price by less than £3.
 - B shift the supply curve for Good X up by less than £3 and increase the price by more than £3.
 - C shift the supply curve for Good X up by £3 and increase the price by £3.
 - D shift the supply curve for Good X up by £3 and increase the price by less than £3.
- [1½]
- 15** Given an initial terms of trade price index of 100, if the average price of exports has risen by 50% since the base year and the average price of imports has risen by 25% since the base year, what is the current figure for the terms of trade?
- A 75
 - B 120
 - C 125
 - D 150
- [1½]

- 16** 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 existing and 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]
- 17** Which of the following could explain why a country's aggregate demand curve might shift inwards to the left?
- A A decrease in interest rates.
 - B A rise in exchange rates.
 - C A rise in government expenditure.
 - D An increase in business confidence.
- [1½]
- 18** Which of the following statements about real variables in the economy is FALSE?
- A If nominal Gross Domestic Product (GDP) rises by 5 per cent with no inflation then the real GDP will have risen by 5 per cent.
 - 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 Real interest rates are positive if the expected rate of inflation is greater than the nominal rate of interest.
- [1½]
- 19** Under a floating exchange rate system:
- A domestic inflation rates are unavoidably linked across national boundaries.
 - B domestic inflation in one country can lead to inflation in another.
 - C domestic inflation is dictated outside the bounds that would have constrained prices in a fixed rate regime.
 - D none of the above.
- [1½]

- 20** The monetary base is increased when:
- A the government spends more money.
 - B the government buys Treasury bills from the public.
 - C a citizen buys a newly issued corporate bond.
 - D a firm obtains an overdraft from a bank.
- [1½]
- 21** The adoption of an expansionary fiscal policy will result in:
- A an increase in aggregate demand and a reduction in real output and unemployment.
 - B an increase in aggregate demand, real output and unemployment.
 - C an increase in aggregate demand and real output and a reduction in unemployment.
 - D a reduction in aggregate demand and real output and an increase in unemployment.
- [1½]
- 22** Which one of the following is most likely to be the best method of reducing long term structural unemployment?
- A Expansionary fiscal policy.
 - B Increasing the money supply.
 - C A reduction in trade union powers.
 - D Better education and training.
- [1½]
- 23** Under a fixed exchange rate system, the following approaches might be considered by governments to correct a balance of payments deficit:
- I discouraging imports
 - II support for exporters
 - II increasing the level of aggregate demand
- Which of the following is most likely to achieve this objective?
- A I only.
 - B II only.
 - C I and II only.
 - D I, II and III.
- [1½]

- 24** Which of the following is likely to be the most effective method of reducing the natural rate of unemployment?
- A Increase unemployment benefit
 - B Increase government expenditure
 - C Increase the money supply
 - D Increase information flows on job availability
- [1½]
- 25** Firms can benefit through specialisation and international trade due to:
- A comparative advantage.
 - B absolute advantage.
 - C different factor endowments.
 - D all of the above.
- [1½]
- 26** The Central Bank conducts an open market sale of bonds equivalent to £20 million. The commercial banks hold reserves equivalent to 5 per cent of their deposits. What is the maximum that the broad money supply may fall as a result of the open market operation?
- A £1 million
 - B £20 million
 - C £200 million
 - D £400 million
- [1½]
- 27** (a) Define what economists mean by the term rational choice.
(b) Explain the concept of rational choice with reference to consumers.
- [3]
- 28** Explain how changes in income and consumer expectations of future laptop prices affect the demand for laptops and the price and quantity of laptops traded.
- [3]
- 29** Outline the main arguments for and against the use of advertising.
- [5]
- 30** Discuss the types of market structure that would make it difficult for firms to experience economies of scale.
- [3]

31 For each of the following, explain whether it represents a potentially contestable market.

- (a) airline routes
- (b) savings accounts
- (c) hospital catering

[6]

32 Outline the influence that actual economic growth may have on potential economic growth.

[3]

33 Outline some of the costs of unemployment to individuals, firms and the economy.

[3]

34 Firm A produces Good X, has fixed costs of £10,000 per year and has a variable cost of £5,000 per year for each worker. Firm A can sell all of Good X produced at a price of £200 per ton. The table below shows the total production of Good X per year as additional workers are employed.

| <i>Number of Workers Per Year</i> | <i>Total Production in Tons per Year</i> |
|---------------------------------------|--|
| 0 | 0 |
| 1 | 25 |
| 2 | 75 |
| 3 | 127 |
| 4 | 179 |
| 5 | 212 |
| 6 | 225 |

(i) Draw a table to illustrate at each level of employment the firm's:

- (a) marginal product of labour per year (in tons).
- (b) marginal revenue product of labour per year (in £s).

[3]

(ii) Calculate the total revenue, total cost and profit/loss per year when four workers are employed.

[3]

[Total 6]

- 35** The table below shows the marginal utility a person derives from consuming different quantities of Good X in terms of £s. Assume that Good X sells for £10.

| <i>Quantity Consumed</i> | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
|------------------------------|---|----|----|----|----|---|---|
| <i>Marginal Utility (£s)</i> | | 25 | 20 | 16 | 12 | 8 | 4 |

- (a) State the person's total utility from consuming 3 units.
- (b) State the person's total expenditure from consuming 5 units.
- (c) State the person's marginal consumer surplus from consuming a 4th unit.
- (d) State the person's total consumer surplus from consuming 2 units.
- (e) State the level of consumption at which total consumer surplus is maximised.
- (f) State the general rule for maximising total consumer surplus.

[5]

- 36** The following data is provided on a simple closed economy:

$$C = 10 + 0.75Y$$

$$I = 20$$

$$G = 40$$

where C is consumer expenditure, Y is national income, G is government expenditure on goods and services and I is investment expenditure. All amounts are in €million. Calculate the following:

- (a) The equilibrium level of national income.
- (b) Consumer savings at the equilibrium level of national income, if direct taxation is 10% of all income.
- (c) The value of withdrawals at the equilibrium level of national income.
- (d) The new level of national income if government expenditure were to increase by €10 million.

[4]

- 37** In a large city there is only one inner city public transport system Cititravel which provides bus services only, operates under a free licence from the government, and does not exercise price discrimination.
- (i) State the type of market structure in which Cititravel is operating, explaining your reason. Use a diagram to illustrate the long run equilibrium in this market. [3]
 - (ii) If the city council imposes an annual licence fee on Cititravel, use a diagram to explain what you would expect to happen to Cititravel's economic profit, price and quantity. [4]
 - (iii) Assume that the market for bus travel is deregulated reducing the barriers to entry, and enabling new firms to enter the market to provide bus services. Assume further that Cititravel, as the established leader in the market, sets the price and maintains 50% of the market, with other firms following the price it sets. Use a diagram to explain how Cititravel's price and quantity are determined. [3]
- [Total 10]
- 38**
- (a) Explain why governments may wish to avoid fluctuations in the value of a country's currency and how they can maintain its value in the short and long term.
 - (b) Following the banking crisis of 2008, some countries resorted to restricting foreign exchange trading. Explain the problems associated with this and other methods of restricting the outflow of money. [10]

END OF PAPER