

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

22 April 2013 (pm)

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 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 from the approved list.</i></p>
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- 1** Which of the following statements explains how price, demand and supply respond to a shortage?
- A Price rises, quantity demanded falls and quantity supplied rises.
 - B Price rises, quantity demanded falls and quantity supplied falls.
 - C Price rises, quantity demanded rises and quantity supplied falls.
 - D Price rises, quantity demanded rises and quantity supplied rises.
- [1½]
- 2** If the price of a product rises from £3 to £4 and demand falls from 100 to 80 units, then using the average price elasticity of demand method the price elasticity of demand is:
- A -0.60
 - B -0.78
 - C -1
 - D -0.05
- [1½]
- 3** If Goods X and Y are substitutes, an increase in the price of Good X causes the:
- A demand curve for Good X to shift to the left, and the demand curve for Good Y to shift to the left.
 - B demand curve for Good X to shift to the left, and the demand curve for Good Y to shift to the right.
 - C quantity demanded of Good X to fall, and the demand curve for Good Y to shift to the right.
 - D quantity demanded of Good X to fall, and the demand curve for Good Y to shift to the left.
- [1½]
- 4** A student studying a one year Masters degree in Actuarial Science has course fees of £12,000 and could otherwise have had a job paying an after tax income of £20,000. The cost of her accommodation is £7,000 whether she studies or works and the food bill is £3,000 whether she studies or works. The opportunity cost of studying for the Masters degree is:
- A £12,000.
 - B £20,000.
 - C £32,000.
 - D £42,000.
- [1½]

- 5** Which of the following is a measure of total consumer surplus?
- A Marginal utility minus the price of the good.
 - B The total utility consumers get from the consumption of the good.
 - C The total utility consumers get from consumption of the good less the total expenditure on the good.
 - D Marginal utility times the price of the good.
- [1½]
- 6** Second degree price differentiation 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]
- 7** Which of the following is NOT implied by the principle of diminishing marginal utility of income:
- A Total utility increases at a decreasing rate as income increases.
 - B Marginal utility increases at a decreasing rate as income increases.
 - C Marginal utility decreases at an increasing rate as income falls.
 - D Total utility decreases at an increasing rate as income increases.
- [1½]
- 8** For a monopoly, price exceeds marginal revenue 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 product price.
 - C the firm has to reduce the price on all units sold in order to sell an additional unit.
 - D of the law of diminishing returns.
- [1½]

- 9** 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]
- 10** Which of the following is NOT a motive for advertising by an existing firm in an industry?
- A To make the demand for the product more price elastic.
 - B To shift the demand for the firm's product to the right.
 - C To increase barriers to entry.
 - D To increase sales and so help the firm exploit economies of scale.
- [1½]
- 11** Which of the following is NOT a feature of the short run average variable cost curve according to the law of diminishing returns?
- A The average variable cost curve is U-shaped.
 - B The average variable cost curve cuts the marginal cost curve at the minimum of the marginal cost curve.
 - C The average variable cost curve is an increasing proportion of average total costs as output rises.
 - D The average variable cost curve lies below the average fixed costs of production.
- [1½]
- 12** Which of the following are the three injections into the circular flow of income:
- A Investment, government expenditure and exports
 - B Consumption, government expenditure and investment
 - C Consumption, investment and exports
 - D Investment, government expenditure and imports
- [1½]

- 13** Which of the following statements is FALSE?
- A For a firm under perfect competition in the short run, marginal revenue will be equal to the average revenue.
 - B In an oligopoly industry, firms make decisions taking into account the possible reactions of their competitors.
 - C For a monopolist facing a linear demand curve, average revenue is always less than marginal revenue.
 - D A profit maximising monopoly firm with positive marginal costs of production charges a price in the region of the demand curve where demand is price elastic.

[1½]

- 14** During the winter season, a hotel has fixed costs of £4,000 per week, total variable costs of £5,000 per week and prospective total revenue of £4,500 per week. In such circumstances a profit maximising hotel will:

- A close down during the winter season since it would make a loss of £4,500 during the winter season.
- B close down during the winter season since its revenue is insufficient to cover its fixed costs.
- C stay open during the winter season as it will add £500 per week to its profits.
- D stay open during the winter season as the expected revenue of £4,500 is greater than its fixed costs.

[1½]

- 15** Which of the following is NOT an example of the market drivers of globalisation?

- A Establishment of world brands
- B Increasing travel, creating global consumers
- C Per capita income converging among industrialised nations
- D Reduction of tariff barriers

[1½]

- 16** Which of the following will result in an improvement in the domestic country's terms of trade?

- A A rise in the average price of imports relative to the average price of exports.
- B A fall in the quantity of imports relative to the quantity of exports.
- C A rise in the quantity of exports while imports remain the same.
- D A rise in the average price of exports relative to the average price of imports.

[1½]

- 17** Which of the following will result in a decrease in aggregate demand for an economy with international trade, other things being equal?
- A A rise in imports
 - B A fall in savings
 - C A fall in interest rates
 - D A fall in economic and business uncertainty

[1½]

- 18** In the Keynesian 45° line diagram showing the equilibrium level of GDP in a country, the marginal propensity to consume domestically produced goods is:

- A the intercept of the line representing the part of income spent on goods produced in the country.
- B the proportion of any rise in GDP withdrawn from the circular flow of income.
- C the slope of the aggregate expenditure line.
- D the slope of the line representing the part of income spent on goods produced in the country.

[1½]

- 19** The unemployment rate is given by:

- A the number of unemployed divided by the population expressed as a percentage.
- B the number of unemployed divided by the total labour force expressed as a percentage.
- C the number of unemployed divided by the number of employed expressed as a percentage.
- D the number of unemployed divided by all in the population of working age expressed as a percentage.

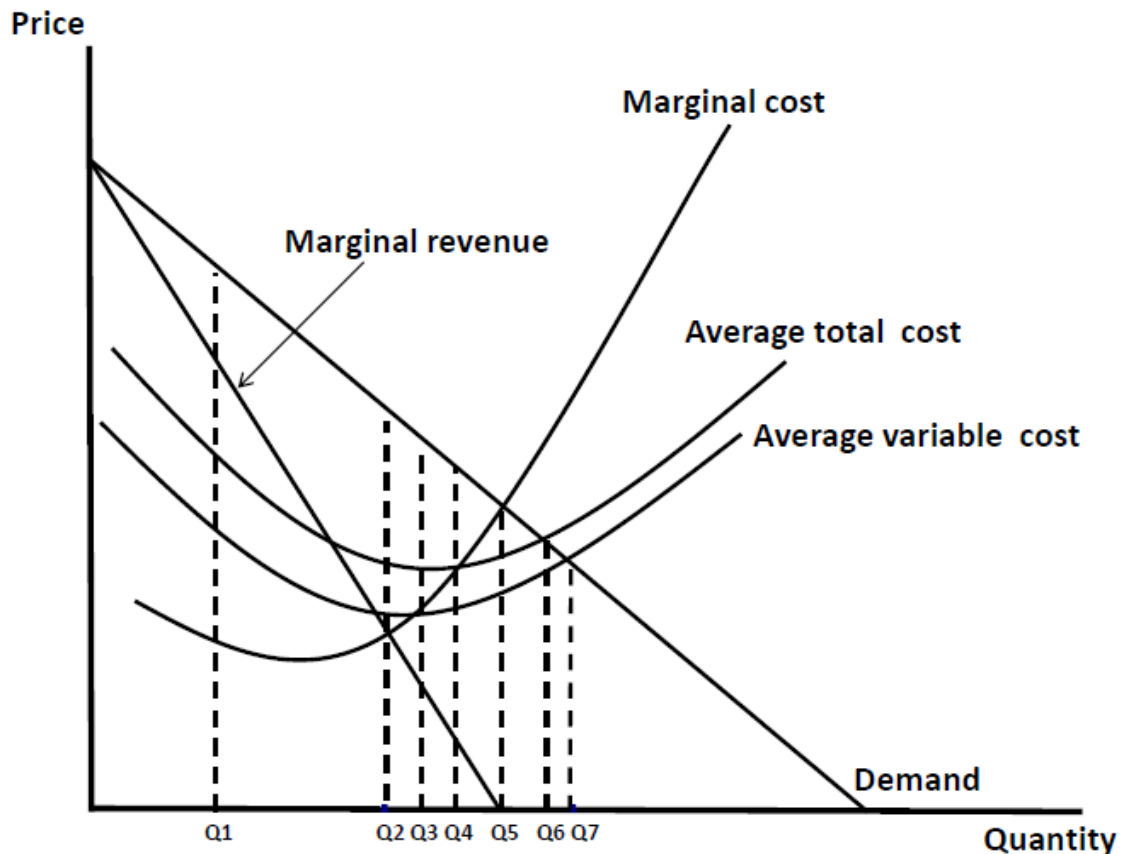
[1½]

- 20** Which of the following is NOT a supply side economic policy aimed at promoting economic growth?
- A Cuts in social security benefits designed to encourage more workers to take work
 - B Measures designed to reduce trade union powers
 - C Deregulation
 - D Tariffs designed to increase production of domestic goods
- [1½]
- 21** Which of the following will increase the demand to hold money?
- A A fall in the national income
 - B A rise in the rate of interest
 - C A rise in the expectation of a stock market crash
 - D An increase in the frequency with which people are paid, for example, a switch from monthly to weekly payments
- [1½]
- 22** According to the accelerator theory the level of investment depends on the:
- A level of national income.
 - B rate of change of national income.
 - C rate of change of the level of investment
 - D level of the interest rate
- [1½]
- 23** Which ONE of the following would be observed following a contractionary open market operation by the central bank?
- A A fall in the money supply, a fall in the short term rate of interest and a fall in the price of treasury bills
 - B A fall in the money supply, a fall in the short term rate of interest and a rise in the price of treasury bills
 - C A fall in the money supply, a rise in the short term rate of interest and a fall in the price of treasury bills
 - D A fall in the money supply, a rise in the short term rate of interest and a rise in the price of treasury bills
- [1½]

- 24** Which ONE of the following is NOT part of the calculation for the Gross National Income?
- A Net income from abroad
 - B Gross capital formation
 - C Capital depreciation
 - D Imports of goods and services
- [1½]
-
- 25** If a central bank decides to reduce the money supply to fight inflation, then if the country has a floating exchange rate this will assist in the process because the exchange rate of the domestic currency will tend to:
- A appreciate and reduce the price of exports.
 - B appreciate and reduce the price of imports.
 - C depreciate and reduce the price of exports.
 - D depreciate and reduce the price of imports.
- [1½]
-
- 26** The Phillips curve shows:
- A the influence of fiscal policy on the level of inflation and unemployment.
 - B the influence of monetary policy on the level of inflation and unemployment.
 - C an inverse relationship between inflation and unemployment.
 - D a positive relationship between inflation and unemployment.
- [1½]
-
- 27** Discuss four methods by which a firm producing laptop computers can attempt to differentiate its products from those of its competitors. [4]
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- 28**
- (i) Explain what is meant by a perfectly contestable market. [2]
 - (ii) Explain what the implications for a monopoly firm in a perfectly contestable market are with respect to its price and output decisions, compared to being in a non contestable market. [2]
 - (iii) Explain what is meant by “sunk costs” and comment on how sunk costs can be a barrier to entry. [2]
- [Total 6]

- 29** (i) Explain with the aid of a diagram, how in the Cournot model of duopoly, Firm A which has positive marginal costs will decide on its equilibrium price and output for a given output level of its rival Firm B. [3]
- (ii) Comment on how in the Cournot equilibrium for a duopoly industry, the price and output compares with that of a monopoly industry. [2]
- [Total 5]

30 The diagram below shows a firm's short-run cost and revenue curves.



- (i) State at what level of output the total revenues of the firm are maximised. [1]
- (ii) State all levels of output where super normal profits are being made. [1]
- (iii) If the above diagram were to depict a monopoly, state at what level of output it would be making normal profits. [1]
- (iv) State all levels of output at which the absolute value of the price elasticity of demand is greater than one. [1]
- (v) State all levels of output where the firm would be making an overall loss. [1]
- [Total 5]

31 State two examples of each of the following:

- (i) external costs of production [1]
 - (ii) external benefits of production [1]
 - (iii) external costs of consumption [1]
 - (iv) external benefits of consumption [1]
- [Total 4]

- 32**
- (i) Explain the problem of adverse selection and how it might be dealt with by insurance companies. [2]
 - (ii) Explain the problem of moral hazard and how it affects the price of insurance. [2]
- [Total 4]

- 33**
- (i) The data below refers to a closed economy with no government expenditure or taxes. Investment expenditure is assumed to be constant at all levels of national income at £20 billion. For each of the levels of income in the table, state the associated levels of injections, withdrawals and aggregate expenditure.

Income (Y) (£ billions)	40	80	120	160	200	240	280
Consumption (£ billions)	40	70	100	130	160	190	220

- [3]
- (ii) Determine the marginal propensity to consume domestically produced goods. [1]
 - (iii) State the equilibrium level of national income in the economy. [1]
- [Total 5]

- 34**
- (i) State the items that are included in the current account of a country's balance of payments. [2]
 - (ii) Explain the economic significance of a current account surplus and a current account deficit in the balance of payments. [2]
- [Total 4]

- 35** (i) Draw a diagram showing the aggregate supply of labour curve (AS_L), aggregate demand for labour curve (AD_L) and a total labour force curve (N). [1]
- (ii) Show on your diagram the equilibrium wage w_1 and state the natural level of unemployment. [1]
- (iii) Select on your diagram a wage level w_2 higher than w_1 and state the level of disequilibrium unemployment. [1]
- (iv) State a possible cause of disequilibrium unemployment and explain how it can be eliminated. [1]
- [Total 4]
- 36** (i) Explain how an expansionary monetary policy and the associated low short term interest rates can be useful in expanding economic activity in an open economy. [4]
- (ii) Discuss the potential problems that may undermine the effectiveness of such a policy. [6]
- [Total 10]
- 37** (i) Explain the difference between actual and potential economic growth. [2]
- (ii) Discuss the various factors that can raise a country's actual economic growth rate including measures that can be taken by governments. [8]
- [Total 10]

END OF PAPER