

2010 Examinations

SPECIMEN EXAMINATION

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 36 questions. From question 27 onwards begin each answer on a separate sheet.*
5. *Candidates should show calculations where this is appropriate.*

Graph paper is 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** Which one of the following is NOT a function of money?
- A A medium of exchange.
 - B A store of value.
 - C A unit of account.
 - D A measure of liquidity.
- [1½]
- 2** The Phillips curve shows that the:
- A higher the level of prices, the lower will be the rate of unemployment.
 - B higher the rate of inflation, the lower will be the rate of unemployment.
 - C lower the level of prices, the lower will be the rate of unemployment.
 - D higher rate of inflation, the higher will be the rate of unemployment.
- [1½]
- 3** Which one of the following is most likely to be the best method of reducing long term structural unemployment?
- A Expansionary fiscal policy.
 - B Expansionary monetary policy.
 - C A reduction in trade union powers.
 - D Better education and training.
- [1½]
- 4** A depreciation of sterling in the foreign exchange market would cause the sterling value of United Kingdom exports to:
- A rise while import values must fall.
 - B fall while import values must rise.
 - C rise while import value may rise or fall.
 - D fall while import value may rise or fall.
- [1½]
- 5** Which of the following would NOT be included in the current account of a country's balance of payments?
- A Property income from abroad.
 - B The purchase of shares in a UK company by foreign investors.
 - C Interest and dividends paid to the rest of the world.
 - D Exports of services.
- [1½]

- 6** “Crowding out” describes the:
- A extent to which government expansionary policy is counteracted by lower private spending resulting from higher interest rates.
 - B extent to which government contractionary policy is counteracted by lower private spending resulting from higher interest rates.
 - C increase in interest rates caused by contractionary monetary policy.
 - D increase in consumption expenditure caused by lower taxes.
- [1½]
- 7** According to the accelerator principle investment expenditure will:
- A fluctuate more than consumer expenditure.
 - B rise when the long term rate of interest falls.
 - C accelerate if business confidence picks up.
 - D accelerate if the government increases its capital expenditure.
- [1½]
- 8** Which of the following factors helps explain why the aggregate demand curve has a negative slope? As the price level falls:
- A domestic consumers have an incentive to purchase more of the cheaper goods and services.
 - B the central bank will have to increase the supply of money which will lead to an increase in the amount purchased.
 - C the government will have to reduce taxes which will lead to an increase in the amount purchased.
 - D the real income of people earning a fixed quantity of money increases causing them to expand their purchases.
- [1½]
- 9** As a result of an economic policy change interest rates and consumption rise but investment falls. The new policy was:
- A an expansionary fiscal policy.
 - B an expansionary monetary policy.
 - C a contractionary fiscal policy.
 - D a contractionary monetary policy.
- [1½]

- 10** 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]
- 11** Which one of the following is NOT a cause of cost push inflation:
- A an increase in the price of raw materials.
 - B an increase in wages above increases in labour productivity.
 - C an increase in profit margins applied by firms.
 - D an appreciation of the exchange rate.
- [1½]
- 12** 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]
- 13** 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]

- 14** Following an increase in the price of fuel there is a 20% increase in the price of air travel tickets which results in a 10% decrease in total revenue. How would you describe the demand for air travel?
- A The demand for air travel is price inelastic.
 - B The demand for air travel is price elastic.
 - C The demand for air travel is perfectly price elastic.
 - D The demand for air travel perfectly price inelastic.
- [1½]
- 15** Which of the following events would shift the demand curve for good X to the left?
- A An increase in the price of Good X.
 - B An increase in the price of a substitute good.
 - C An increase in the price of a complementary good.
 - D An increase in consumer income.
- [1½]
- 16** According to the principle of diminishing marginal utility the total satisfaction that a consumer receives from consuming Good X will:
- A rise at an increasing rate as the consumption of Good X increases.
 - B rise at a decreasing rate as the consumption of Good X increases.
 - C fall at an increasing rate as the consumption of Good X increases.
 - D fall at a decreasing rate as the consumption of Good X increases.
- [1½]
- 17** A consumer declines a gamble which offers him a 50-50 chance of winning or losing £100. His behaviour corresponds to:
- A increasing marginal utility and a risk lover.
 - B increasing marginal utility and a risk averter.
 - C diminishing marginal utility and a risk lover.
 - D diminishing marginal utility and a risk averter.
- [1½]
- 18** If the cross-price elasticity of demand between goods X and Y is positive then:
- A X and Y are complements.
 - B X and Y are substitutes.
 - C the demand for X and Y are both price elastic.
 - D the demand for X and Y are both price inelastic.
- [1½]

19 Which one of the following will shift the supply curve for good X to the right?

- A A decrease in labour productivity in industry X.
- B A fall in the price of raw materials used to produce good X.
- C An increase in real wages in industry X.
- D A government sales tax on the product in of good X.

[1½]

20 Which one of the following statements about market structure is TRUE?

- A Perfect competition is distinguished from all other market structures because of the assumption of no barriers to entry/exit from the industry.
- B Firms under monopolistic competition face horizontal demand curves for their products.
- C A monopoly will find that its average revenue is always greater than its average costs.
- D Under perfect competition, in the long run, each firm will find that its marginal cost is equal to its average cost of production.

[1½]

21 A perfectly competitive firm is producing at a level of output where short run marginal cost is rising and exceeds marginal revenue. What should the firm do to maximise its short run profits?

- A Reduce its output.
- B Raise its output.
- C Raise its price.
- D Reduce its price.

[1½]

22 Which of the following statements is FALSE?

- A In monopolistic competition, supernormal profits cannot be made in the long run.
- B First degree price discrimination would allow the monopolist to produce the socially efficient level of output.
- C Collusion may occur between firms in oligopolistic competition.
- D A firm in perfect competition faces a perfectly inelastic demand curve.

[1½]

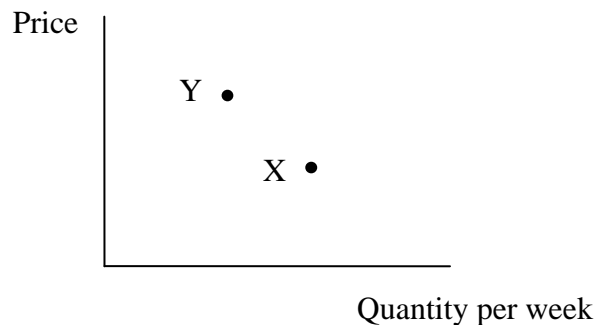
23 The prisoner's dilemma, applied to a situation involving two oligopolists, illustrates that:

- 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]

- 24** In the diagram below points X and Y represent the equilibrium price and quantity traded of a good in two successive time periods.

Which of the following is NOT a possible explanation?



- A An input in the production process became more expensive.
- B The price of a close substitute for the good increased.
- C An input in the production process became more expensive and the price of a close substitute increased.
- D An input in the production process became more expensive and the price of a close substitute decreased.

- 25** Which one of the following is NOT a barrier to entry into a monopoly market?

- A Significant economies of scale.
- B Heavy potential advertising costs.
- C Large capital requirements.
- D Constant returns to scale.

[1½]

- 26** Which one of the following conditions indicates that a firm is operating in a perfectly competitive industry rather than a monopolistic industry?

- A Output of the firm is where marginal revenue equals marginal cost.
- B The cost curves of the firm are U-shaped.
- C Marginal revenue equals average revenue.
- D The marginal cost curve cuts the average cost curve at its minimum point.

[1½]

- 27** (i) List THREE factors that determine the demand for shares in general. [2]
- (ii) Provide an example of a specific government policy to make the demand for petrol more elastic. [2]
- [Total 4]
- 28** (i) Describe the concept of moral hazard in the context of insurance. [2]
- (ii) List TWO ways in which insurance companies attempt to mitigate the additional risk arising from moral hazard. [2]
- [Total 4]
- 29** A country is experiencing low aggregate demand due, in part, to reduced availability of credit.
- Explain the methods which the central bank could use to change the money supply in order to stimulate aggregate demand. [5]
- 30** (i) State whether each of the following is an example of a horizontal, vertical, or conglomerate type of merger.
- (A) A company providing roadside recovery service merging with a company providing energy.
- (B) A building society merging with a bank.
- (C) A supermarket chain merging with a distribution company. [2]
- (ii) Explain the extent to which consumers' interests are affected by mergers. [2]
- [Total 4]

- 31** A profit maximising firm has its marginal cost and marginal revenue both equal to 5 when output is 8 units. It sells an identical product in two separate markets X and Y , with average revenue given by the following functions:

$$P_x = -Q_x + 11$$

$$P_y = -2Q_y + 25$$

Where P_x , P_y denote prices and Q_x , Q_y are units of output in markets X and Y respectively.

- (i) Determine the total revenue function for each market. [2]
 - (ii) Calculate the marginal revenue for suitable levels of output in each market; the amount of output that the firm will sell; and the price it will charge in each market, assuming the firm is able to exercise third-degree price discrimination. [4]
- [Total 6]

- 32** Describe TWO examples of negative externalities and TWO examples of positive externalities which affect the social efficiency of markets. [4]

- 33** In a two-country world, where only two countries A and B trade, the demand and supply for the currency of A are given by the following functions:

Demand for A 's currency: $Q_d = 13 - 10E$

Supply of A 's currency: $Q_s = 2.5 + 5E$

Where E = the equilibrium exchange rate for A 's currency, Q_d and Q_s are the demand and supply for A 's currency.

- (i) Draw a diagram and use this to find the equilibrium exchange rate under a floating exchange rate system. [2]
 - (ii) Explain how the equilibrium exchange rate will be restored if the current exchange rate is above or below this rate. [2]
 - (iii) Describe TWO factors that would cause shifts in the demand and supply for Country A 's currency. [2]
- [Total 6]

- 34**
- (i) A bank's liquidity ratio is 10 per cent, and the bank's deposits increase by £50 billion. Calculate the increase in total deposits. [2]
 - (ii) Explain in what circumstances the overall multiplier effect could be smaller than that shown by your result in (i) above. [2]
- [Total 4]

- 35** (i) In a closed economy the marginal propensity to consume domestically produced goods is 0.75. Calculate the increase in the equilibrium GDP if government expenditure increases by 20. [2]
- (ii) Explain why the value of the multiplier might be lower in some countries, compared to that in other countries. [2]
- [Total 4]
- 36** (i) List the main features of a product which a supplier might focus on in its strategy of product differentiation. [2]
- (ii) Explain the factors which have influenced the sale of supermarkets' own brands in the past two decades. [5]
- (iii) State the arguments for and against advertising. [5]
- (iv) Analyse, with reference to appropriate diagrams, the short-run and the long-run effects of advertising on a product's sales and profitability. [8]
- [Total 20]

END OF PAPER

2010 Examinations

SPECIMEN SOLUTIONS

**Subject CT7 — Business Economics
Core Technical**

- | | |
|-----------|---|
| 1 | D |
| 2 | B |
| 3 | D |
| 4 | C |
| 5 | B |
| 6 | A |
| 7 | A |
| 8 | D |
| 9 | A |
| 10 | D |
| 11 | D |
| 12 | B |
| 13 | D |
| 14 | B |
| 15 | C |
| 16 | B |
| 17 | D |
| 18 | B |
| 19 | B |
| 20 | D |
| 21 | A |
| 22 | D |
| 23 | C |
| 24 | B |
| 25 | D |
| 26 | C |

- 27** (i) Three of the following:
- The price of and /or return on substitutes for shares in general, for example other forms of saving, or property.
 - Incomes
 - Wealth
 - Expectations
- (ii) For petrol, availability and price of substitutes is important in determining the price elasticity of demand, so any policy which encourages use of public transport or car sharing in the short run and the development of alternatives to petrol in the long run.
- 28** (i) Moral hazard refers to a situation when the individual holding an insurance policy becomes less careful and increases his risk to the insurance company.
- (ii) Two of the following:
- A no-claims bonus.
 - The insured having to pay a proportion of the value of the loss.
 - Offering lower premiums to those less likely to claim.
 - Invalidating claims if pertinent facts have not been disclosed
- 29** A brief explanation of the following methods of changing the money supply: open market operations, central bank lending, funding, changing the minimum reserve ratio, mentioning how these work to stimulate aggregate demand. A list of the items will not gain full marks.
- 30** (i) A – Conglomerate B – Horizontal C – Vertical
- (ii) Mergers will generally have the effect of increasing the market power of those firms involved. This could lead to less choice and higher prices for the consumer. This is the reason for government's competition policy.

- 31** As marginal cost MC and marginal revenue MR are equal at 8 units of output, this is the profit maximising output for the market as a whole. The MR in each market should also be 5 as otherwise the firm could switch units of output to the market with the higher MR.

(i) Total revenue TR in each market:

$$TR_x = P_x Q_x = -Q_x^2 + 11Q_x$$

$$TR_y = P_y Q_y = -2Q_y^2 + 25Q_y$$

(ii)

Q	1	2	3	4	5	6
TR_x	10	18	24	28	30	30
MR_x		8	6	4	2	0
TR_y	23	42	57	68	75	78
MR_y		19	15	11	7	3

Note: the marginal revenue, MR, at a given level of output x , shows the change in total revenue on moving from output of x to $x + 1$.

The above schedule shows that $MR_x = MC = 5$ when $Q_x = 3$ and $P_x = 8$ and $MR_y = MC = 5$ when $Q_y = 5$ and $P_y = 15$.

- 32** The descriptions could cover:

External benefits and external costs of production and external benefits and external costs of consumption.

For example:

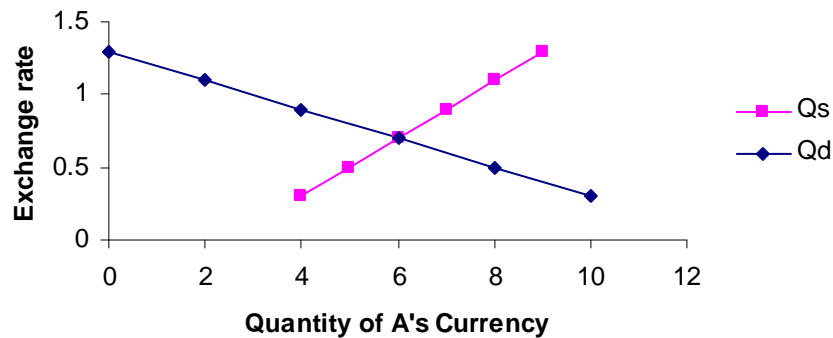
A chemical firm dumping waste in a river or polluting the air, would cause additional cost to the community over and above the cost borne by the firm. This is a negative externality relating to production.

A forestry company planting a woodland would reduce CO₂ and benefit the world over the company's benefit. This is a positive externality relating to production.

Use of cars causes others to suffer congestion, air pollution and noise, imposing costs other than that born by the user. This is a negative externality relating to consumption.

Similarly, travel by train will reduce congestion, pollution and fewer accidents on the road. This is a positive externality relating to consumption.

33 (i)

Demand and Supply for A's currency

The equilibrium exchange rate for A's currency is 0.7 at the point of intersection of Q_d and Q_s .

- (ii) If the exchange rate were above 0.7, the supply of A's currency offered to banks would be above its demand. Banks would not have enough of B's currency to exchange for all units of A's currency offered so the banks would lower the exchange rate in order to stimulate a greater demand for, and to reduce the supply of A's currency, until demand and supply were equal. Conversely, if the current exchange rate were below 0.7, the banks would have to raise the exchange rate.
- (iii) (1) A fall in interest rates in Country A would make the country less attractive to savers and other depositors. So there will be a higher supply of the currency as Country A's residents will deposit their money abroad, and lower demand for the currency as fewer people abroad would deposit their money in A.
- (2) Higher inflation in A than in B would mean A's exports would become less competitive so the demand for A's currency would fall. Also imports would become relatively cheaper for residents of A, causing the supply of A's currency to rise.

34 (i) Bank deposits multiplier is $1/\text{Liquidity ratio} = 1/0.1 = 10$

The increase in total deposits = $\text{£}50\text{b} \times 10 = \text{£}500\text{b}$

- (ii) If the banking system creates deposits resulting from extra cash coming into the banking system and the public decides to hold part of the deposits as cash outside the banking system, this would mean some of the extra cash would leak out of the banking system. This will result in the overall multiplier effect being smaller than the full bank deposits multiplier.

- 35** (i) Multiplier $K = 1/(1 - mp_{cd}) = 1/(1 - 0.75)$
 $K = 4$
Increase in GDP = $20 \times 4 = 80$
- (ii) The lower the marginal propensity to consume domestically produced goods and the higher the marginal propensity to withdraw, the lower the value of the multiplier. In some countries households may prefer to save a higher proportion of their income leading to a lower multiplier value.

- 36** (i) Features of a product:
- Technical standards
 - Quality standards
 - Design characteristics
 - Service characteristics
- (ii) Explanation of the following factors for the fall and rise in popularity of own-brand products:

Cost : Branded manufacturers' low costs due to economies of scale have been matched by supermarkets because of improvements in technology and close links between suppliers and retailers.

Quality: Supermarkets have introduced higher quality own brand products to compete with the branded manufacturers. Surveys show that consumers perceive own brand products to be better value than branded products.

State of the economy: An important factor in selecting to buy own-brand products is consumers' income. In the recession of the 1990s, sales of own brands grew as consumers became price sensitive seeking good value products. The rise in disposable income at the turn of the century led to increased conspicuous consumption, as many branded products were associated with better quality of lifestyle.

Advertising and creating consumer brand loyalty by branded manufacturers. Advertising by branded manufacturers targets particular markets, making the advertising effort more efficient.

So, economic prosperity and economies of scale in marketing works in favour of branded manufacturers. However, sales of own-brand products in some sectors is growing and own-brand products provide a strong stimulant for competition.

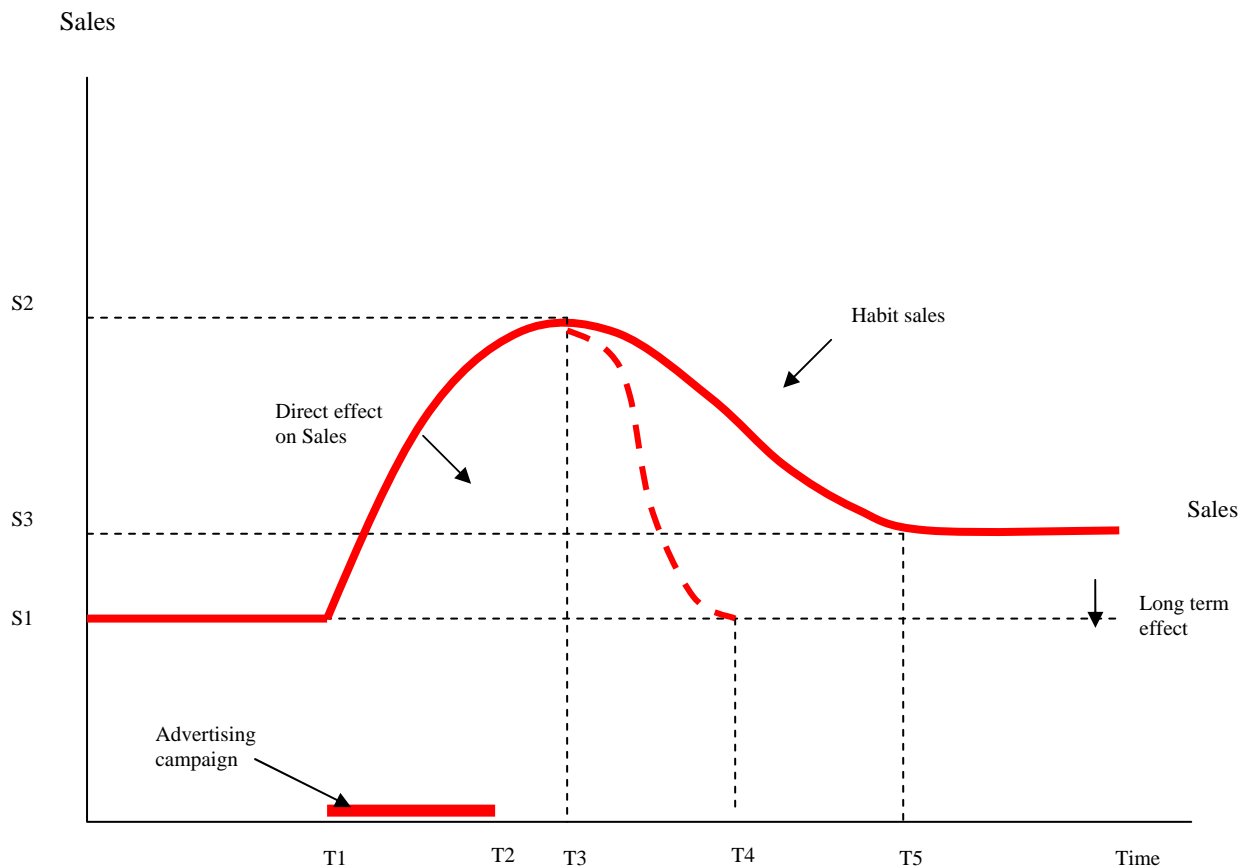
(iii) In favour of advertising:

- Provides information
- Breaks down barriers to entry
- Aids product development
- Encourages price competition
- Economies of scale by increasing sales

Against:

- May mislead consumers by persuading them to buy an inferior advertised product
- Creates wants so promotes scarcity
- Increases materialism
- Uses resources which could otherwise be used to produce more goods
- The cost of advertising will increase the price of the product
- Economies of scale due to increased sales will not be gained if other firms also advertise
- Can create barriers to entry by promoting brand loyalty
- External costs to the society as a whole, since most people find advertising annoying

(iv)



Description of the movement in sales from S1 at the start of the campaign at time T1 through to S2 and S3 on the diagram.

Comments could cover:

The key element of profitability is customer value which is shaped by advertising. Customer value is in turn determined by the product's perceived quality relative to its price. Advertising expenditure relative to competitors will enhance product image and company reputation leading to enhanced perceived relative quality of offering in relation to its price. The enhanced customer value will increase market share which leads to higher profit margin as well as growth and real market growth.

END OF SOLUTIONS

EXAMINATION

23 April 2010 (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 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>

1 The need to employ workers with certain skills may decline even if the industry as a whole is not in decline. This form of unemployment is called:

- A Structural.
- B Demand-deficient.
- C Regional.
- D Technological.

[1½]

2 An increase in the natural rate of unemployment will cause:

- A the long run and short run Phillips curves to shift to the right.
- B the long run and short run Phillips curves to shift to the left.
- C the long run Phillips curve to shift to the right and the short run Phillips curves to shift to the left.
- D the long run Phillips curve to shift to the left and the short run Phillips curves to shift to the right.

[1½]

3 All other things being equal which of the following events would cause the value of Country A's currency to appreciate against the value of Country B's currency?

- A A fall in the interest rate of Country A with an even bigger fall in Country B's interest rate.
- B A fall in the interest rate of Country A with constant interest rate in Country B.
- C A rise in the interest rate of Country A with an even bigger rise in Country B's interest rate.
- D A fall in the interest rate of Country A with a rise in the interest rate of Country B.

[1½]

4 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]

5 In Country A government expenditure is £350 billion, tax revenue is £275 billion, aggregate saving is £300 billion and aggregate investment is £250 billion. The net exports of Country A are equal to a:

- A surplus of £125 billion.
- B deficit of £125 billion.
- C surplus of £25 billion.
- D deficit of £25 billion.

[1½]

6 If a country has a current account deficit then:

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

[1½]

7 The transactions demand for money will be greater the:

- A higher the price level.
- B lower the level of real income.
- C higher the rate of interest.
- D higher the speculative (asset) demand for money.

[1½]

- 8** If an excess demand for money exists in the economy, then as the money market moves towards equilibrium we would expect the short term interest rate to:
- A rise as Treasury bill prices rise.
 - B fall as Treasury bill prices rise.
 - C fall as Treasury bill prices fall.
 - D rise as Treasury bill prices fall.
- [1½]
- 9** According to Keynesian analysis 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]
- 10** In the event of a recession in the economy, automatic fiscal stabilizers:
- A raise government expenditure and reduce tax revenue.
 - B raise government expenditure and raise tax revenue.
 - C reduce government expenditure and raise tax revenue.
 - D reduce government expenditure and reduce tax revenue.
- [1½]
- 11** If firms in a perfectly competitive industry are making excess profits in the short run then the long run effect will be to:
- A increase the output of the existing firms and the industry.
 - B reduce the output of the existing firms and the industry.
 - C reduce the output of the industry and increase the output of the existing firms.
 - D reduce the output of the existing firms and increase the output of the industry.
- [1½]

- 12** A monopolist can sell 25 units of output per day for a price of £11.50 each and 26 units of output per day for a price of £11.25 each. The marginal revenue earned from the 26th unit sold is:
- A £11.50.
 - B £11.25.
 - C £5.00.
 - D £0.25.

[1½]

- 13** For a firm in long run equilibrium in an industry characterized by monopolistic competition:
- A average total cost equals marginal cost.
 - B average revenue is greater than marginal cost.
 - C price is greater than average total cost.
 - D average total cost is less than marginal cost.

[1½]

- 14** The kinked demand curve model of oligopoly is based upon the assumption that:
- A a firm's competitors match both its price increases and price reductions.
 - B one firm in the industry sets the price for all other firms.
 - C a firm's competitors match its price reductions but not its price increases.
 - D the price charged by a firm can either rise or fall depending on what happens to its competitors' prices.

[1½]

- 15** The demand equation for Good X is $Q_d = 15 - 0.5P$ and the supply equation for Good X is $Q_s = 3 + 2P$, where P is the price. When the price is £6 there will be a:
- A surplus of Good X and the price will rise.
 - B shortage of Good X and the price will fall.
 - C surplus of Good X and the price will fall.
 - D shortage of Good X and the price will rise.

[1½]

16 Which of the following events would shift the demand curve for Good X, which is a normal good, to the right?

- A A decrease in the price of Good X.
- B An increase in the price of a substitute good.
- C An increase in the price of a complementary good.
- D A decrease in consumer income.

[1½]

17 According to the law of diminishing marginal utility, the total satisfaction that a consumer gets from consuming Good X will:

- A rise at an increasing rate as consumption of Good X increases.
- B rise at a decreasing rate as consumption of Good X increases.
- C fall at an increasing rate as consumption of Good X increases.
- D fall at a decreasing rate as consumption of Good X increases.

[1½]

18 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]

- 19** A consumer's demand curve for Good X is represented by the equation

$$Q_{dx} = 50 - 0.2P_x$$

where Q_{dx} is the quantity of Good X demanded and P_x is the price of Good X.

A producer's supply curve for Good X is represented by the equation

$$Q_{sx} = 10 + 0.6P_x$$

Where Q_{sx} is the quantity of Good X supplied and P_x is the price of Good X.

Demand and supply are in equilibrium when:

- A quantity is 20 and price is 150.
- B quantity is 30 and price is 100.
- C quantity is 35 and price is 75.
- D quantity is 40 and price is 50.

[1½]

- 20** If Goods X and Y are substitutes, a fall in the price of Good X causes the:

- A quantity demanded of Good X to increase and the demand curve for Good Y to shift toward the right.
- B quantity demanded of Good X to increase and the demand curve for Good Y to shift toward the left.
- C demand curve for Good X to shift to the right and the demand curve for Good Y to shift toward the left.
- D demand curve for Good X to shift to the right and the demand curve for Good Y to shift toward the right.

[1½]

- 21** The total revenue from the sale of a good will fall if:

- A price rises and demand for the good is price elastic.
- B price rises and demand for the good is price inelastic.
- C consumer income falls and the good is inferior.
- D consumer income falls and the good is a Giffen good.

[1½]

- 22** A consumer always spends one quarter of his income on travel. What are his price elasticity of demand for travel and his income elasticity of demand for travel respectively:
- A 1 and 0.25.
 - B 0 and 0.25.
 - C 1 and 0.
 - D 0 and 1.
- [1½]
- 23** 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 reflecting different production costs.
 - D different varieties offered at the same price.
- [1½]
- 24** Third 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]
- 25** The total output and the average physical product of the variable factor increase as long as the marginal physical product of the variable factor is:
- A positive.
 - B above its average physical product.
 - C increasing.
 - D below its average physical product.
- [1½]

- 26** 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]

- 27** (a) Describe THREE factors which could cause an upward shift in the supply curve for a product.
- (b) Provide an example in each case.

[4]

- 28** The demand for Good X is 300 units when its price is £4. Assume that as a result of a price fall, the demand for the good increases to 400 units and the sales revenue falls by £400.

- (i) (a) Calculate the price of Good X after the fall.
- (b) Calculate the price elasticity of demand with respect to the fall in its price.

[2]

- (ii) State whether elasticity will change with a downward movement along a linear demand curve.

[1]

Assume that the cross-price elasticity of demand for Good Y which is a complement to Good X is -1.5 .

- (iii) Calculate the proportionate change in the demand for Good Y as a result of the fall in price of Good X.

[1]

[Total 4]

- 29** A company producing a health drink called Boost has plans to carry out a new advertising campaign to publicise Boost's properties of bringing vitality and health to the consumer.

- (i) Describe with reference to an appropriate diagram, the effects of advertising on the demand for Boost.

[4]

- (ii) Explain how advertising can achieve these effects.

[2]

[Total 6]

- 30** (i) List FOUR factors which form a firm's "marketing mix". [2]
- (ii) Identify which of the factors are likely to be more significant in developing a marketing strategy for a firm manufacturing a high quality luxury product. [2]
- [Total 4]
- 31** (i) Describe two reasons for firms experiencing "economies of scale". [2]
- (ii) Describe two reasons for firms experiencing "diseconomies of scale". [2]
- [Total 4]
- 32** In a country two electricity generating companies, Company X and Company Y supply electricity to the whole country. The companies have been operating for a long period of time in a stable market. Assume that Company X believes its rival will produce Q_Y units of electricity.
- (i) Draw a diagram to illustrate the total market demand curve D_m and the demand curve facing Company X, D_X . Add to the diagram, the marginal revenue curve facing Company X, MR_X and the marginal cost curve MC. [3]
- (ii) Denote the output Q_X Company X will produce and the price P_X that it will charge in order to maximise its profit. [1]
- Assume now that Company X believes that Company Y will double its output to $2Q_Y$.
- (iii) Show on your diagram the new demand curve facing Company X D_{X2} and the new marginal revenue curve facing Company X MR_{X2} . [2]
- (iv) Denote the new output Q_{X2} that Company X will produce and the new price P_{X2} that it will charge in order to maximise its profit. [1]
- [Total 7]

- 33** The following information is extracted from a country's National Statistical Bureau:

€ billions

Wages and salaries	350
Mixed incomes	38
Net income from abroad	15
Gross profit/rent and interest of firms, government and other institutions	150
Taxes on products	71
Subsidies on products	3
Depreciation	65

- (i) Calculate the Gross Domestic Product at market prices. [1]
- (ii) Calculate Gross National Income at market prices. [1]
- (iii) Calculate the Net National Income at market prices. [1]
- [Total 3]

- 34** Countries A and B produce just two Goods X and Y. Assume that for a given amount of land and capital, the following number of hours of labour is required to produce one unit of each good:

	<i>Good X</i>	<i>Good Y</i>
Country A	60	10
Country B	120	12

- (i) Calculate the opportunity cost of producing each good in each country. [2]
- (ii) State which country would export each of the goods if the two countries engage in trade. [1]
- (iii) Assuming that the price equals marginal cost, state the range of possible exchange ratios (terms of trade) of Good Y for Good X. [1]
- [Total 4]

- 35** (i) (a) List three categories of withdrawals from the circular flow of income.
- (b) List three categories of injections of expenditure into the circular flow of income.
- [3]

In a closed economy with no taxes, assume that government expenditure is increased by £50m and that firms increase investment by £100m. The marginal propensity to consume domestically produced goods is $\frac{2}{3}$.

- (ii) Calculate the increase in the equilibrium level of GDP. [2]
- [Total 5]

- 36** (i) Discuss the view that governments can control inflation by controlling the money supply. [6]
- (ii) Describe the problems associated with this method of controlling inflation. [4]
- [Total 10]

- 37** (i) Describe the reasons why countries can gain from free trade. [5]
- (ii) Discuss the arguments for and against trade restrictions. [5]
- [Total 10]

END OF PAPER

Subject CT7 — Business Economics

April 2010 Examinations

EXAMINERS' REPORT

Introduction

The attached subject report has been written by the Principal Examiner with the aim of helping candidates. The questions and comments are based around Core Reading as the interpretation of the syllabus to which the examiners are working. They have however given credit for any alternative approach or interpretation which they consider to be reasonable.

R D Muckart
Chairman of the Board of Examiners

July 2010

Comments

These are given in italics at the end of each question.

1	D
2	A
3	A
4	B
5	D
6	D
7	A
8	D
9	C
10	A
11	D
12	C
13	B
14	C
15	C
16	B
17	B
18	C
19	D
20	B
21	A
22	D
23	C
24	B
25	B
26	D

The multiple choice questions were generally well answered. Question 1, 8, 11 and 25 appeared to cause the most problems.

27 Three of the following:

- (1) An increase in profitability of an alternative good is likely to result in suppliers switching to the alternative and reducing the supply of the product.

For example, postal services and the use of internet.

- (2) Lower profitability of a product jointly produced is likely to result in a fall in the supply of the first product

For example, a reduction in production of petrol would mean production of Diesel and paraffin would also fall.

- (3) Nature, “random shocks” and other unpredicted events.

For example, adverse weather, wars, industrial disputes and floods could disrupt supply.

- (4) Expectation of future price changes could lead to stock piling and reduce the amount supplied in the market.

For example, oil supply is stockpiled in the hope of a rise in its price.

- (5) An increase in input costs.

For example an increase in wages, the cost of raw material and inputs such as electricity costs.

This was a straightforward knowledge recall question based on a mainstream part of the syllabus. A number of candidates failed to gain any marks for this question. It should be noted that an upward shift in the supply curve for a product is consistent with a decrease in supply. Many candidates described factors which would increase supply and also gave inappropriate examples.

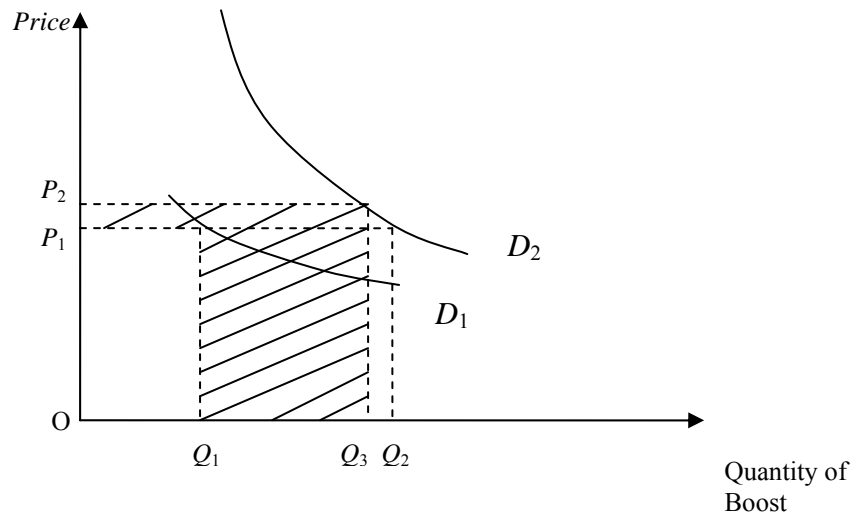
- 28** (i) (a) New demand = $Q_2 = 400$
- (b) Change in revenue = $\Delta R = R_2 - R_1 = Q_2 P_2 - 1200 = -400$
- $P_2 \times Q_2 = 800, P_2 = 800/400 = 2$
- Price elasticity of demand for $X = \% \Delta Q_X / \% \Delta P_X$
- $= (100/300) / (-2/4) = 2/3$
- Alternatively $= (100/350) / (-2/3) = 3/7$
- (ii) A downward movement along a linear demand curve would mean a fall in the price elasticity of demand.
- (iii) Cross-price elasticity of demand for Good $Y = \% \Delta Q_Y / \% \Delta P_X$
- $\% \Delta Q_Y = (-1.5) \times (-2/4) = 3/4$ an increase in demand for Y of 75%.

This question discriminated quite effectively. Weaker responses were generally able to calculate both the price and price elasticity of demand correctly but they were not altogether sure whether elasticity would change with a downward movement along the demand curve and a significant number failed to accurately calculate the proportionate change in the demand for good Y .

29 (i) The main aim of advertising is to sell more of Boost. This is achieved by

Changing the demand curve for the product in two ways:

- (a) Shifting the product's demand curve to the right.
- (b) Making the demand more price inelastic (i.e. less elastic).



The diagram shows the original demand curve D_1 when Q_1 units are sold with price at P_1 . D_2 shows the demand after the advertising campaign. It shows that a higher quantity Q_2 could be sold at the original price P_1 . If advertising also succeeds in making the demand less elastic, the firm can also raise its price to P_2 and still sell more at Q_3 . The total gain in revenue is the shaded area.

- (ii) The firm can achieve the shift in the demand curve if the advertising brings Boost to more people's attention and if it increases people's desire for the product by emphasising its health boosting effects and diverting more consumers from general soft drinks to the health drink.

If advertising creates greater brand loyalty by sending the message that Boost is a superior health drink with health promoting properties not found in other health drinks, the demand will become less elastic. This will allow the firm to raise its price above that of its rivals without a significant fall in sales. There will only be a small substitution effect of this price rise as the consumers have been led to believe that competitors' brands are inferior and that there are no close substitutes.

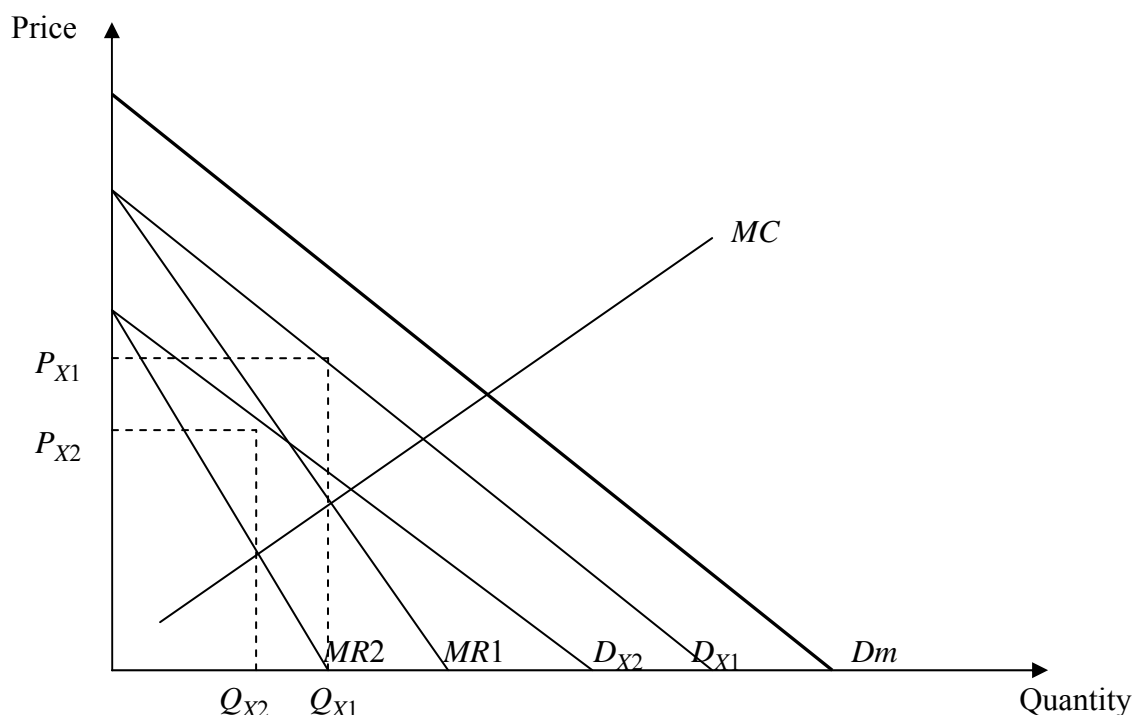
The more successful the advertising campaign, the more it will shift the demand curve to the right and the more it will reduce the price elasticity of demand.

This question was generally dealt with very effectively and this was demonstrated by some very detailed, accurate responses which frequently gained full marks.

- 30** (i) The four Ps: Product, Price, Place (distribution) and Promotion.
- (ii) A high quality luxury product is likely to have a price inelastic demand and the price would tend to be high reflecting the high quality. Also increasing points of distribution would have a small effect on increasing demand. Improving the quality of the product and promotion in order to increase brand loyalty is likely to have a more significant effect.
- 31** (i) Two of the following for the economies of scale should be briefly described:
- Specialisation and division of labour
 - Indivisibilities
 - The “container principle”
 - Greater efficiency of large machines
 - By-products
 - Multistage production
 - Organisational
 - Spreading overheads
 - Financial economies
 - Economies of scope
- (ii) Two of the following for the diseconomies of scale should be described:
- Management problems
 - Poor labour motivation
 - Poor industrial relations
 - Greater chance of disruption from hold ups, due to the complexity of mass production.

Generally very well answered with many candidates gaining full marks.

32 Non-collusive oligopoly. Cournot model



- (i) Total demand is D_M . Firm X perceives that his own demand is Q_{X1} less than the total market demand. Its perceived demand curve would be D_{X1} .
- (ii) The profit maximising output Q_{X1} is found where the marginal revenue curve intersects the marginal cost curve. The price will be P_{X1} .
- (iii) If Company X believes that Y will produce $2Q_Y$, its demand will shift to the left to D_{X2} and its new marginal revenue $MR2$, output will be Q_{X2} with profit maximising price at P_{X2} . Both output and price would be lower.
- (iv) The new prices will be P_{X2} . Industry profits will be higher in this case.

This question provided the opportunity to gain seven marks for one clearly labelled diagram plus an understanding of the Cournot model of duopoly. A large number of candidates were able to provide clear, accurately labelled diagrams to illustrate this model and gain full marks. Some failed to recognise the nature of this model and produced kinked demand diagrams instead resulting in lost marks.

- 33** (i) GDP at market prices = Wages and salaries + Operating profits + Mixed incomes + Taxes on products – Subsidies on products

$$= 350 + 150 + 38 + 71 - 3 = 606$$
- (ii) GNY at market prices = GDP at market prices + Net income from abroad

$$= 606 + 15 = 621$$
- (iii) NNY at market prices = GNY at market prices – depreciation

$$= 621 - 65 = 556$$

In part (i) many simply could not calculate GDP at market prices. The most common error related to the decision to subtract taxes and add subsidies i.e. calculating GDP at factor cost rather than at market prices as required. Another frequent error was the failure to include the “Mixed Incomes” element in the overall calculation. Parts (ii) and (iii) were generally well answered.

- 34** (i)
- | | | |
|---|--------|-------------------------------------------|
| | | Opportunity cost |
| A | Good X | 6 units of Y for 1 unit of X |
| | Good Y | 1/6 units of X for 1 unit of Y |
| B | Good X | 10 units of Good Y for 1 unit of Good X |
| | Good Y | 1/10 units of Good X for 1 unit of Good Y |
- (ii) Country A has comparative advantage in production of X so it will export Good X. Country B will export Good Y.
- (iii) Country A will sell X if price of X is higher than 6Y. While Country B will buy X if the price of X is lower than 10Y. So the exchange ratio would be between 6Y and 10Y for one unit of X.

Weaker candidates generally managed to answer parts (i) and (ii) but often failed to identify the range of exchange rate ratios of Good Y and Good X and therefore failed to gain full marks.

- 35** (i) Withdrawals: Net savings, net taxes, expenditure on imports.
Injections: Investment, Government expenditure, export expenditure.
- (ii) Change in aggregate expenditure = $100 + 50 = 150$
Multiplier = $1/(1 - mpc) = 1/(1 - 2/3) = 3$
So change in GDP = 450

Part (i) required a simple recall and knowledge of what is a frequently tested mainstream part of economics. This was reflected by the very high proportion of candidates who gained full marks. Part (ii) was a little more demanding and the better candidates were able to provide accurate calculations of both the multiplier and the subsequent change in the equilibrium level of income.

- 36** (i) The discussion should include the following: The equation of exchange and the Quantity of Theory, assumptions about V and Y, monetary policy and changes in the money supply, control of money supply in the short- and long-runs, issues with monetary measures.
- (ii) The link between the money supply and inflation is not so clear cut in the short run. There is also the issue of which money supply needs to be controlled, the broad money supply or the narrow money supply. Another problem is the demand for money may be volatile in the short run so increases/decreases in money demand affect the relationship between the money supply and inflation. Then there is the question of whether the monetary authorities can really control the broad money supply.

This question provided the opportunity for candidates to introduce some analysis into their response and also demonstrate an ability to develop a reasoned argument based upon an understanding of basic economic principles. Good answers referred to the Quantity Theory of money and established the link between inflation and control of the money supply. Marks were also gained for showing some understanding of how the Keynesian monetary transmissions mechanism might be used to consider the possible links between the money supply and inflation. Good candidates were able to identify a whole range of factors which might be considered to be problematic regarding the use of the money supply to control inflation.

- 37** (i) The discussion should include the law of comparative advantage, the benefits from specialization and dynamic gains from trade such as exploitation of economies of scale, greater competition resulting in decreasing costs, greater product variety, access to new technology, increased competition spurring innovation, trade as engine of growth, non economic advantages and limitations to gains from specialisation and trade.
- (ii) Some discussion of different types of trade restriction, economic and non-economic arguments for restricting such as infant industries, strategic trade theory, to prevent “unfair competition” such as dumping and predatory pricing. Problems with protection focus on rise in price facing the consumer and loss of many of the benefits from free trade listed in part (i) and of course the risk of a trade war if the other countries retaliate.

Many candidates scored very high marks for both parts of this question. Good answers raised important issues and proceeded to develop these further with supporting examples. Weaker candidates tended to simply list why countries might gain from free trade i.e. points were stated rather than explained, therefore marks were lost. Part (ii) did provide some opportunity to discuss issues and it was pleasing to note the significant number of candidates who were able to demonstrate an in-depth knowledge of arguments for and against trade restrictions.

END OF EXAMINERS' REPORT

EXAMINATION

5 October 2010 (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 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.

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** According to the accelerator principle investment expenditure will:
- A fluctuate more than consumer expenditure.
 - B rise when the long term rate of interest falls.
 - C accelerate if business confidence picks up.
 - D accelerate if the government increases its capital expenditure.
- [1½]
- 2** A firm that produces a main product and a by-product will maximise profits if it:
- A decides on the viability of producing the by-product after it has made the decision to produce the main product.
 - B selects the level of output of the by-product where marginal cost of the by-product equals its marginal revenue.
 - C selects the combined output where the combined marginal cost equals the combined marginal revenue.
 - D uses cost-based pricing for the main and the by-product.
- [1½]
- 3** If Goods X and Y are substitutes, an increase in the price of Good X causes the:
- A quantity demanded of Good X to fall and the demand curve for Good Y to shift to the left.
 - B quantity demanded of Good X to fall and the demand curve for Good Y to shift to the right.
 - C quantity demand of Good X to remain constant, but the demand for Good Y to fall.
 - D demand curves for both Good X and Good Y to shift to the right.
- [1½]
- 4** Which of the following is not a characteristic of an inferior good?
- A The income elasticity of demand is negative.
 - B The income elasticity of demand is between zero and one.
 - C The demand for the good increases as income falls.
 - D The demand will rise if its price falls.
- [1½]

- 5** The price elasticity of demand for beer is -2 . If beer increases in price by 15 per cent the quantity demanded falls by:
- A 7.5 per cent.
 - B 15 per cent.
 - C 17 per cent.
 - D 30 per cent.
- [1½]
- 6** If a firm incurs a total cost of £874 when it produces 10 units of output and a total cost of £950 when it produces 11 units of output, the marginal cost of the 11th unit is:
- A 1,824.
 - B 950.
 - C 54.
 - D 76.
- [1½]
- 7** Suppose that in a firm the amount of capital and plant size are fixed. With 10 workers, the firm can produce 180 units of output and with 11 workers 190 units of output, then the:
- A average product of labour when 10 workers are hired is lower than when 11 workers are hired.
 - B 11th worker has a higher average product of labour than marginal product of labour.
 - C firm has not yet passed the point of diminishing returns to labour.
 - D marginal product of the 11th worker is negative.
- [1½]
- 8** 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]

- 9** A firm operating in a perfectly competitive industry uses the least cost combination of the two factors of production capital and labour to produce its output. The price per unit of capital and labour are £8 and £200 respectively. If the marginal physical product of labour is 10, then the marginal physical product of capital is:

A 20.
B 250.
C 160.
D 25.

[1½]

- 10** Which one of the following defines the economic growth rate?

A An increase in real investment.
B An increase in Gross Domestic Product.
C An increase in real Gross Domestic Product.
D An increase in the Gross Domestic Product price deflator.

[1½]

- 11** In an economy, economic agents have a marginal propensity to save of 0.25, an income of £200 million and an autonomous expenditure of £15 million. The level of consumption will be:

A £215 million.
B £165 million.
C £65 million.
D £100 million.

[1½]

- 12** In a closed economy with no government sector, the marginal propensity to save is 0.1, investment is £500 million, and autonomous consumption is £200 million. Which of the following statements is true at the equilibrium level of national income?

A Planned savings are £300 million.
B The marginal propensity to consume is higher than the average propensity to consume.
C Consumption expenditure is equal to £6,500 million.
D The Gross Domestic Product is £6,800 million.

[1½]

- 13** In an open economy with a government sector, the marginal propensity to consume is 0.75 and the marginal propensity to import is 0.25. The open economy multiplier will equal:
- A 4
 - B 2
 - C 1
 - D 1.33

[1½]

- 14** Which of the following is not a problem associated with the active management of fiscal policy?
- A time lags
 - B uncertainty
 - C crowding out
 - D the accelerator

[1½]

- 15** If a country experiences high domestic inflation compared to its trading partners with a fixed exchange rate then the effect of the inflation will be to:
- A decrease the country's imports.
 - B increase the country's exports.
 - C shift the country's currency supply curve in the foreign exchange market to the right requiring central bank purchases of the domestic currency to maintain the fixed exchange rate.
 - D shift the demand curve for the country's foreign exchange to the right requiring central bank purchases of the domestic currency to maintain the fixed exchange rate.

[1½]

- 16** Under fixed exchange rates with perfect capital mobility the most effective macroeconomic policy to increase output is:
- A an expansionary monetary policy.
 - B a revaluation of the domestic currency.
 - C an expansionary fiscal policy.
 - D an increase in taxes.

[1½]

- 17** If the central bank has to intervene in the foreign exchange markets to prevent the home currency from appreciating, then its foreign exchange reserves will:
- A decrease and the domestic money supply rise.
 - B decrease and the domestic money supply fall.
 - C increase and the domestic money supply rise.
 - D increase and the domestic money supply fall.
- [1½]
- 18** Which of the following is not included in a country's current account?
- A exports of goods
 - B foreign direct investment flows
 - C unilateral transfers to other nations
 - D imports of services
- [1½]
- 19** Suppose that you import DVDs from France and write a £10,000 cheque to cover a €2,500 billing for your latest purchase of DVDs. The exchange rate is:
- A £0.8 / €1.00
 - B €0.8 / £1.00
 - C £1.25 / €1.00
 - D none of the above
- [1½]
- 20** In a perfectly competitive market, the typical firm cannot affect the price of its output, and so it maximises profits or minimises losses when marginal cost is:
- A less than the price.
 - B greater than the price.
 - C equal to the price.
 - D below average variable cost.
- [1½]
- 21** A firm is producing 1000 units of output at a price of £20, with a marginal cost of £5 and average cost of £8 at that level of output. What is the supernormal profit that the monopoly firm is making?
- A £20,000
 - B £15,000
 - C £7,000
 - D £12,000
- [1½]

- 22** A firm producing carpets has average variable costs of production of £420, marginal costs of production of £500 and operates in a perfectly competitive market. A decrease in the demand for carpets which reduces the price from £600 to £400 will mean that the firm will do which of the following in the short run:
- A shut down its production.
 - B decreases its level of output but continue to produce carpets.
 - C reduce its fixed costs of production.
 - D increases its level of output.
- [1½]
- 23** 5,000 bottles of a soft drink are demanded when the price for each bottle is £5. When the price is £6 only 4000 bottles are demanded. The marginal revenue from increasing the price is:
- A +£1,000.
 - B -£1,000.
 - C +£1.
 - D -£1.
- [1½]
- 24** Which one of the following is NOT a cause of cost push inflation?
- A An increase in the price of raw materials.
 - B A percentage increase in wages which is less than the percentage increase in labour productivity.
 - C An increase in the profit margins applied by firms.
 - D A depreciation of the exchange rate.
- [1½]
- 25** Which one of the following will NOT happen following a devaluation of the domestic currency on the foreign exchange market?
- A Exports become less expensive when measured in the foreign currency.
 - B Imports become more expensive when measured in the domestic currency.
 - C Export values measured in the domestic currency will increase.
 - D Import volumes will increase.
- [1½]

- 26** An implicit or explicit agreement amongst firms in an industry not to compete with each other is known as:
- A the dominant firm hypothesis.
 - B collusion.
 - C non-cooperative oligopoly.
 - D product differentiation.
- [1½]
- 27** (i) State whether each of the following is an example of a horizontal, vertical or conglomerate type of merger or takeover.
- (a) a supermarket takeover of a small grocery store
 - (b) an airline merging with a record company
- [2]
- (ii) Explain the effect of mergers on consumers' interests. [2]
- [Total 4]
- 28** In a country the banking sector is dominated by a single large Bank X with a positive sloping marginal cost curve MC with the sum of other firms' marginal costs being identical to that of Bank X. Assume that the other banks adopt exactly the same mortgage interest rate as set by Bank X and that changes in the mortgage interest rates are initiated by Bank X.
- (i) Draw a diagram to show the market demand curve for loans at different mortgage interest rates and label it D_M . On the same diagram draw the demand curve facing Bank X and its marginal revenue curve MR_X . Add the marginal cost curve MC of Bank X and depict Bank X's profit maximising mortgage interest rate r_1 and the quantity of mortgages sold by Bank X as Q_X . [2]
- (ii) Show on your diagram the mortgage amount provided by the rest of the banking sector as $Q_X Q_R$. [1]
- (iii) Bank X takes over all the other banks and becomes the sole provider in the mortgage market. Bank X has the same marginal cost as before the takeover. Show on your diagram, the new marginal revenue curve facing the new monopoly firm MR_M , the new mortgage interest rate r_2 and the new quantity of mortgages offered by Bank X as Q_{X2} . [2]
- [Total 5]

- 29**
- (i) Explain how the concept of moral hazard can be applied in the context of a government's measures to rescue banks in a financial crisis. [2]
 - (ii) List two ways in which insurance companies attempt to mitigate the additional risk arising from moral hazard. [2]
 - (iii) Explain the adverse selection problems facing banks and why these may mean that raising interest rates may lower rather than raise bank profits. [3]
- [Total 7]

- 30** The following information is available about the labour market in a small country:

<i>Real wage (£'s per hour)</i>	AD_L	AS_L	N
3	480,000	320,000	500,000
4	440,000	360,000	528,000
5	400,000	400,000	556,000
6	360,000	440,000	584,000
7	320,000	480,000	612,000

where AD_L , AS_L and N are the aggregate demand for labour, the aggregate supply of labour and the labour force respectively.

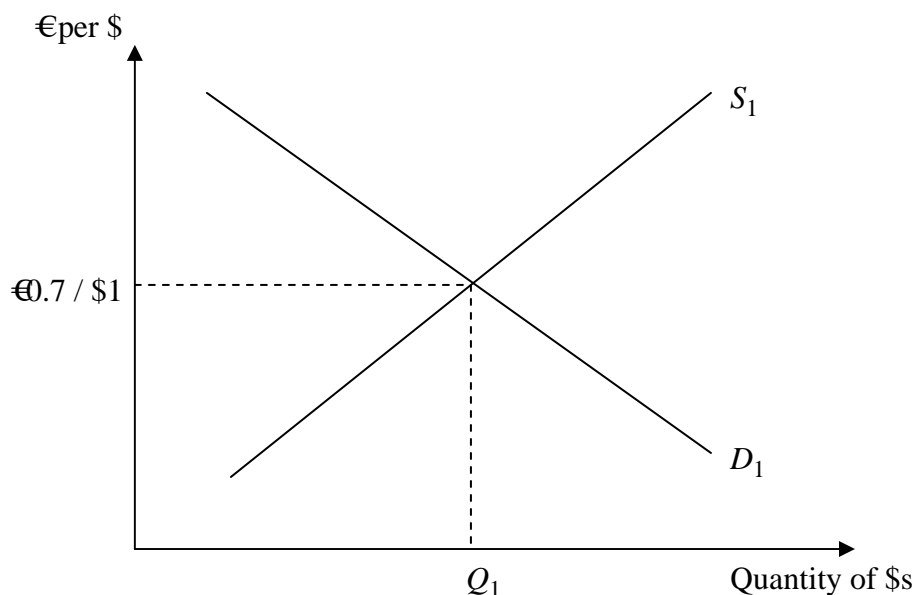
Assume that the real wage is flexible.

- (i)
 - (a) State the equilibrium wage rate per hour. [1]
 - (b) State the number of unemployed at the natural rate of unemployment. [1]
 - (ii) Determine the level of disequilibrium unemployment if the wage rate is rigid at £2 per hour above the equilibrium wage. [1]
 - (iii) Explain the reason why the gap between AS_L and N becomes closer as the wage rate rises. [1]
- [Total 4]

- 31**
- (i) Draw a graph showing the four stages of the product life cycle. [2]
 - (ii) Describe the stages of the life cycle of basic mobile phones. [2]
 - (iii) Explain the pricing policies of the basic mobile phone companies during the cycle including the later introduction of more sophisticated smart phones. [2]
- [Total 6]

- 32** (i) Draw a diagram showing the demand D and supply S curves for a good. Show the equilibrium price by P_1 and the equilibrium level of sales by Q_1 . [1]
- (ii) On your diagram draw the line $S + T$ to show the new supply curve after an excise tax of T is imposed on the good. Denote the new equilibrium price and quantity by P_2 and Q_2 . [2]
- (iii) Show clearly on your diagram consumer and producer surplus before and after the tax, the government revenue and the excess burden (i.e. net welfare loss) from the tax. [3]
- [Total 6]
- 33** A bank's liquidity ratio is 10 per cent, and the bank's deposits increase by £25 billion.
- (i) Calculate the increase in total deposits. [2]
- (ii) Explain the circumstances in which the overall multiplier effect could be smaller than that shown by your result in (i) above. [2]
- [Total 4]
- 34** (i) Describe four broad categories of globalisation drivers. [4]
- (ii) State four of the market drivers within the market category of drivers that influence globalisation. [2]
- [Total 6]

- 35** The following diagram shows the market demand D_1 and supply S_1 for the United States dollar against the Euro. Assume that the US government does not intervene in the foreign exchange market and increases government expenditure in order to reduce unemployment.



Explain the effects that this fiscal expansion would have on the US current account, the financial account and the euro per dollar exchange rate. Show the effects of the government policy on a copy of the diagram. [5]

- 36** There are two companies, Iceberg and Easifreeze, producing a single model of identical freezers in a country. Both companies face identical demand curves and costs and do not collude in deciding their pricing strategy. The following table shows the possible prices they could charge and the profits they could make.

		<i>Iceberg Price</i>	
		£ 200	£250
<i>Easifreeze Price</i>	£200	£80,000 each	£120,000 Easifreeze £50,000 Iceberg
	£250	£50,000 Easifreeze £120,000 Iceberg	£100,000 for each

- Determine the price for each firm when the equilibrium outcome of the game is a Nash equilibrium. [2]
 - Describe the likely result of a Nash equilibrium outcome in the context of expenditure on advertising. [2]
- [Total 4]

- 37** (i) Describe the Keynesian explanation of the business cycle. [5]
- (ii) Explain the fluctuations in the level of the Gross Domestic Product with reference to the interaction of the multiplier and accelerator. [5]
- [Total 10]

END OF PAPER

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

September 2010 examinations

Subject CT7 — Business Economics Core Technical

Introduction

The attached subject report has been written by the Principal Examiner with the aim of helping candidates. The questions and comments are based around Core Reading as the interpretation of the syllabus to which the examiners are working. They have however given credit for any alternative approach or interpretation which they consider to be reasonable.

T J Birse
Chairman of the Board of Examiners

December 2010

1	A
2	C
3	B
4	B
5	D
6	D
7	B
8	B
9	No correct answer – all candidates awarded 1.5 marks
10	C
11	B
12	C
13	B
14	D
15	C
16	C
17	C
18	B
19	A
20	C
21	D
22	A
23	C or D
24	B
25	D
26	B

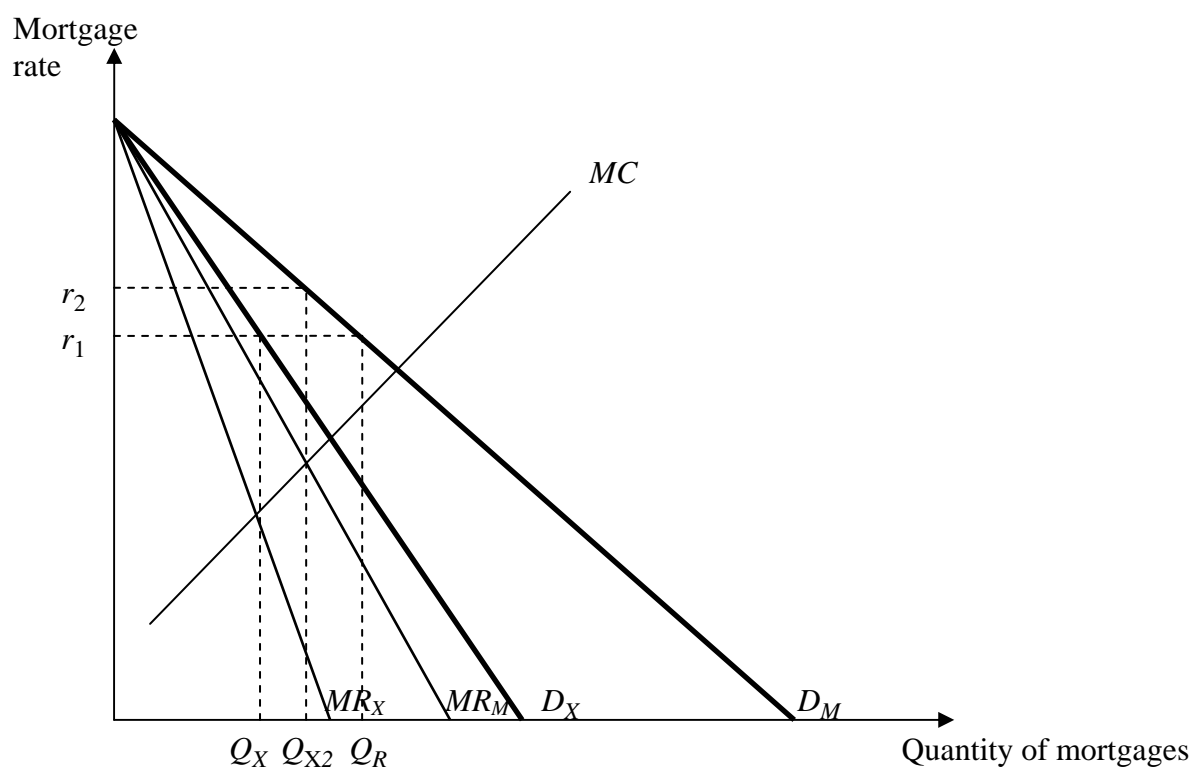
There was a problem with question 9 meaning none of the choices was valid, as such all candidates were awarded 1.5 marks. Two answers were acceptable for question 23, allowing both + and – quantities. The multiple choice section itself was generally well answered.

- 27** (i) (a) Horizontal
- (b) Conglomerate
- (ii) Mergers will generally have the effect of increasing the market power of those firms involved. This could lead to less choice and higher prices for the consumer. These are key reasons for a government's competition policy.

Nonetheless, mergers may facilitate the exploitation of economies of scale as which may then result in price falls for consumers. Also mergers may lead to greater research and development (R&D) as the sunk costs of R&D can be spread in a larger enterprise and also the risk go down due to the enlargement of the company.

This question was generally well answered but students also needed to point out some of the advantages and disadvantages to consumers of mergers as the question required.

- 28** (i)



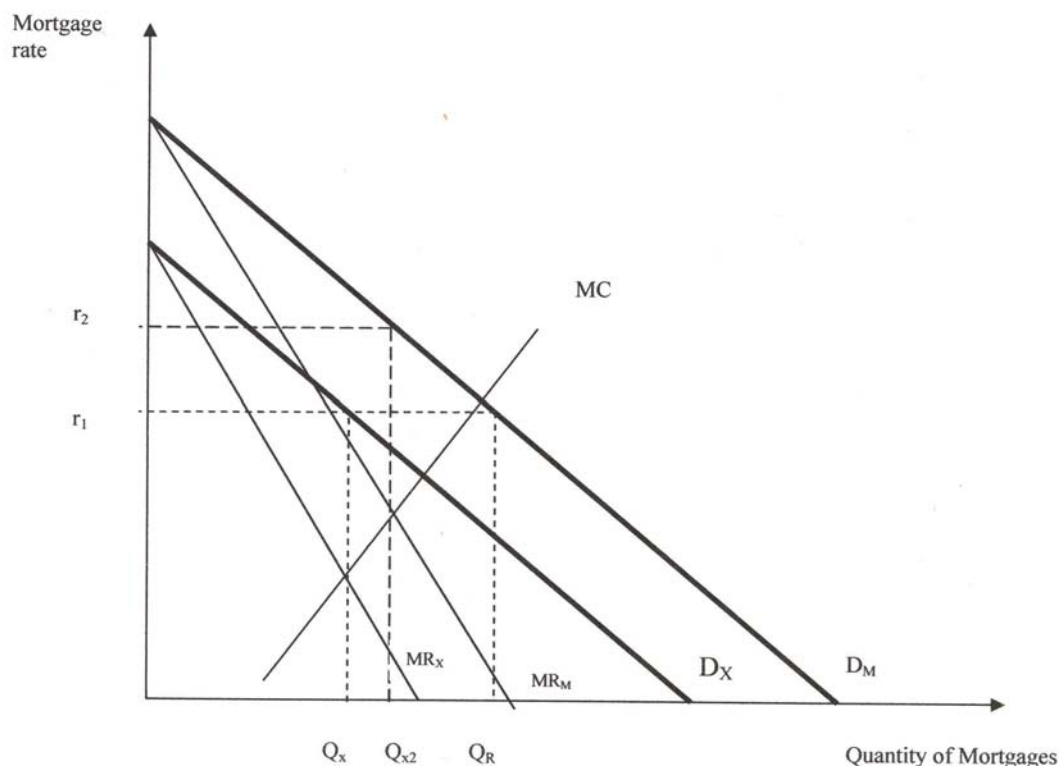
D_X and MR_X are the demand and marginal revenue lines for the leader. D_M is the market demand curve. MR_M is the marginal revenue curve derived from the market demand curve.

- (ii) Bank X sells Q_X of mortgages at r_1 . Other firms sell Q_X Q_R at r_1 .

- (iii) Bank X as a monopolist would sell Q_{X2} at r_2 .

An alternative response that was allowed was the following:

- (i)



D_X and MR_X are the demand and marginal revenue lines for a dominant firm that assumes a output (the difference between D_X and D_M . D_M is the market demand curve. MR_M is the marginal revenue curve derived from the market demand curve.

- (ii) Bank X sells Q_X of mortgages at r_1 . Other firms sell Q_X Q_R at r_1 .

- (iii) Bank X as a monopolist would sell Q_{X2} at r_2 .

The examiners allowed for two possible responses to this question which are outlined above. Candidates generally did fine with the basic diagram(s) but often marks were lost due to poor ;labelling and misidentification of the relevant prices and output.

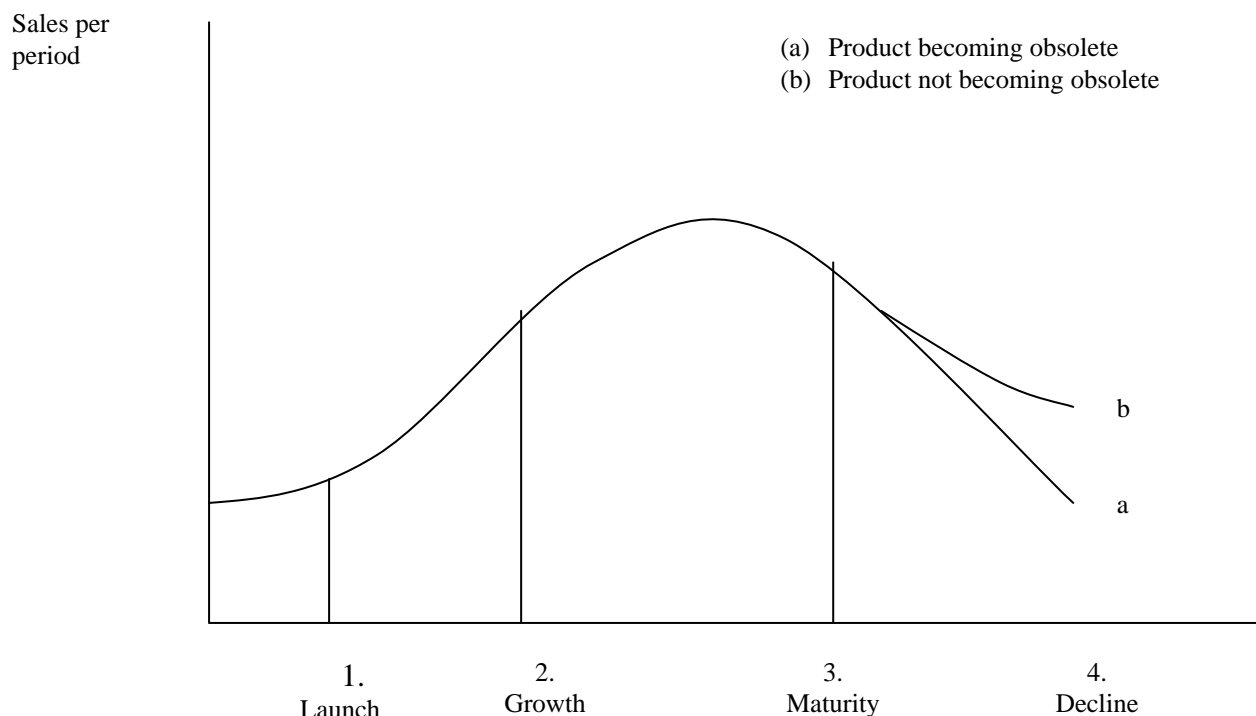
- 29**
- (i) It could be argued that the banks may undertake highly risky activities confident that the government would come to the rescue should there be a threat that they could collapse; activities that they may not otherwise undertake. This means that the presence of government guarantees could mean banks undertake risking lending which increases the likelihood of a financial crisis occurring.
- (ii) Two of the following:
- A no-claims bonus.
 - The insured having to pay a proportion of the value of the loss.
 - Offering lower premiums to those less likely to claim.
 - Invalidating claims if pertinent facts have not been disclosed.
- (iii) The adverse selection problem facing banks is that as they raise interest rates then the risk is that after a certain point profits will fall rather than rise. This is because as interest rates go up they attract an increasing proportion of “bad” customers that do not intend to pay back the loan at high rates of interest. As such, after a certain point raising interest rates will increase a bank’s non performing loans and lower rather than raise profits.

Sometimes candidates showed a poor understanding of the concepts especially when it came to the concept of adverse selection. In part (i) many candidates correctly defined the concept of moral hazard but failed to discuss how it was linked to financial crises as required by the question.

- 30**
- (i) (a) Equilibrium wage rate is £5 per hour.
- (b) Natural unemployment number = $556,000 - 400,000 = 156,000$
- (ii) If the wage rate is £7 per hour, disequilibrium unemployment would be
- $$480,000 - 320,000 = 160,000$$
- (iii) At higher wage rates a larger proportion of the labour force would be prepared to accept work, so the difference between the labour force and those who want to work decreases.

Answers were generally of a high quality and many candidates obtained full marks to this question.

31 (i)



- (ii) The four stages of the product cycle include the launch (early sales and product recognition), then rapid growth of sales during the growth phase, followed by a slower growth rate as the market matures and becomes saturated. Finally, a period of decline in sales as price cutting among existing firms takes place and as new versions of the product come out or the product is replaced by new superior products.
- (iii) The very first mobile phones were a radically new product and so the company launching these was able to charge a high price and make large profits. At this stage, the market for this product was expanding rapidly and the price inelastic demand supported the high price policy.

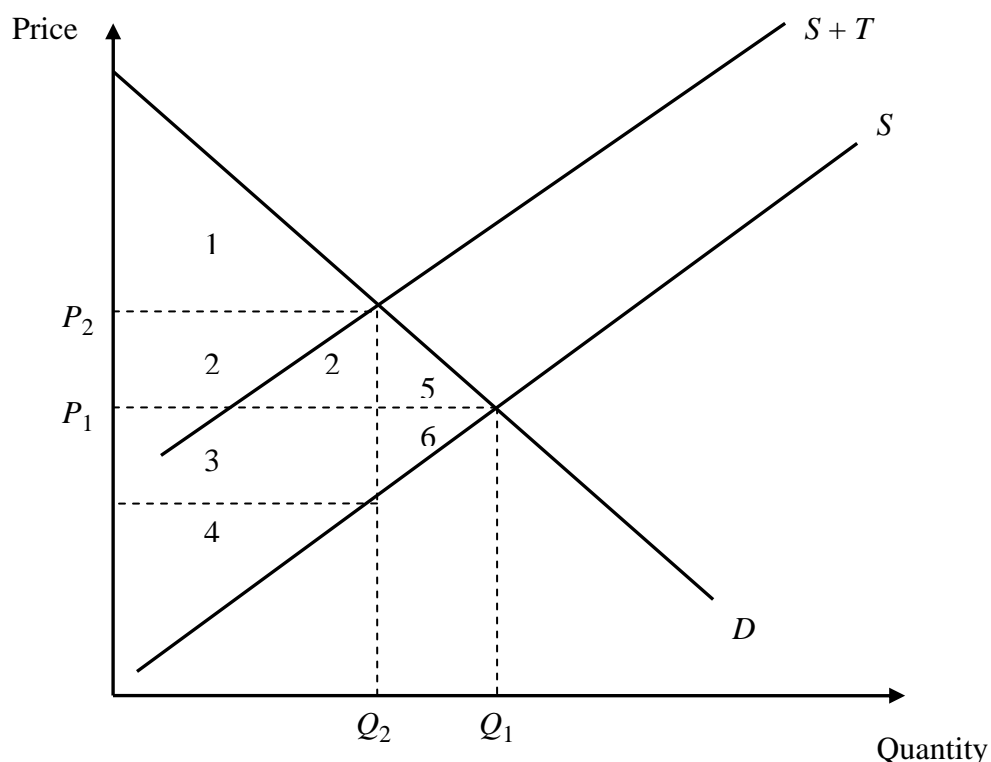
At the growth stage the high profits, rapid growth and low barriers to entry attracted other companies to enter the market and as the sales were expanding rapidly, all firms expanded their sales with very little price competition. The firms in the oligopoly competing in terms of minor product differences and following the price set by the market leaders.

The mobile phone market has since reached its maturity stage with many firms competing. The slowing of the growth in sales has meant more competition and companies following a more aggressive pricing policy in order to maintain their market share. The companies have introduced new models with better capabilities in order to rejuvenate the market and encourage the consumers to upgrade to new models.

With the growing sales for smart phones the market for the traditional mobile phones will decline and may eventually become obsolete.

Answers were generally fine in that students correctly identified the four stages with a relevant description but marks were lost in part (iii) due to many students failing to apply their analysis to the specific case of mobile phones as set out in the question.

32



Before tax

Consumer surplus = 1 + 2 + 5

Producer surplus = 3 + 4 + 6

After tax

Consumer surplus = 1

Producer surplus = 4

Government revenue = 2 + 3

Excess burden of tax = 5 + 6

Answers to this question were generally fine with students correctly identifying the relevant welfare effects of the tax and also the net loss of areas 5 and 6.

- 33** (i) Bank deposits multiplier is $1/\text{Liquidity ratio} = 1/0.1 = 10$

The increase in total deposits = £25 billion \times 10 = £250 billion

- (ii) An increase in the liquidity ratio from 0.11 to say 0.2 will reduce the increase in total deposits to £125 billion.

If the banking system creates deposits resulting from extra cash coming into the banking system and the public decides to hold part of the deposits as cash outside the banking system, this would mean some of the extra cash would leak out of the banking system. This will result in the overall multiplier effect being smaller than the full bank deposits multiplier.

A final reason why banks may not increase their lending when new deposits occur is that there are insufficient demand from borrowers

Part (i) was generally well answered. But many candidates failed to cover part (ii) correctly, at least two reasons were required to get full marks in section (ii).

- 34** (i) Market drivers, Cost drivers, Government drivers, Competitive drivers.

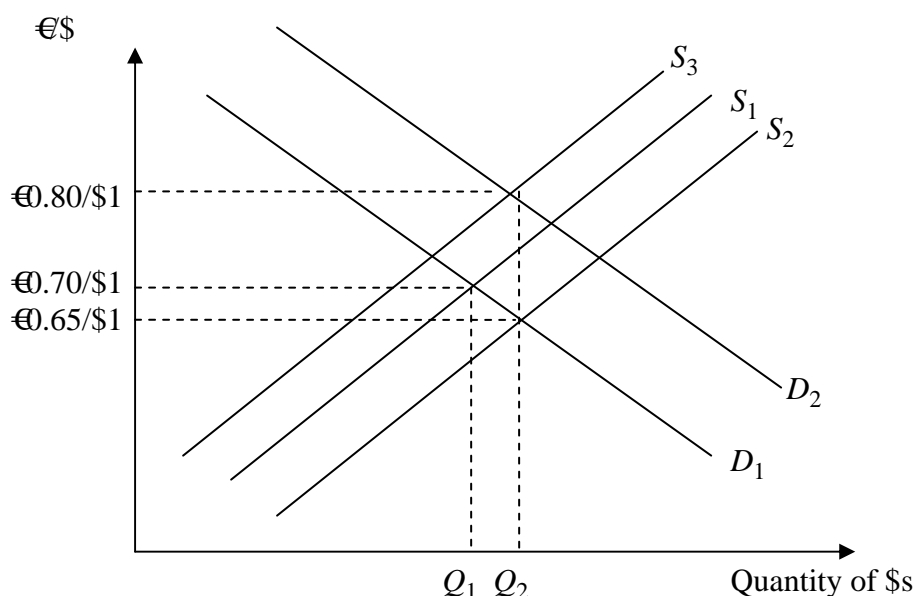
- (ii) Any FOUR from the following list of market drivers:

Per capita income converging among industrial nations
Convergence of lifestyles and tastes
Organisations begin to behave as global customers
Increasing travel creating global customers
Growth of global and regional channels
Establishment of world brands
Push to develop global advertising

The first part of the question was generally well answered but the second part was generally less well answered.

- 35** The increase in US government expenditure will boost aggregate demand and will cause an increase in imports, causing the current account to go into deficit. People will sell dollars to buy euros so shifting S_1 to the right to S_2 causing an appreciation of the euro from €0.70/\$1 to say €0.65/\$1. On the other hand, the higher interest rates caused by the rise in domestic demand and fiscal deficit will encourage a large inflow of short term finance as people abroad will be attracted to deposit their money in the US. This will shift the demand for the dollar to the right to D_2 . It may also cause smaller short-term financial outflows causing S_2 to move to S_3 outflows as US residents keep more of their money in the country resulting in less selling of dollars in the foreign exchange market. The financial account will move into surplus. This financial account effect is likely to outweigh the adverse current account deficit and cause an appreciation of the dollar from the initial value of €0.7/\$1 to say €0.80/\$1. Of course, if the current account effect outweighs the financial account effect, then

the leftward shift of the supply curve S_2 to S_3 will be much smaller as will be the increased demand from D_1 to D_2 meaning a net depreciation of the dollar to say €0.68/\$1



The above solution is only an indicative solution, examiners made allowance for a wide range of reasoned responses when awarding marks. Other answers are acceptable so long as they are rationalised. For example, the rising fiscal deficit might lead to people panicking and selling the dollar and reducing demand for dollars so the dollar would then clearly depreciate. However, it was the case that many candidates considered only the current account effect or only the financial account effect only. Relatively few candidates considered both effects.

- 36** (i) Nash equilibrium is when both firms charge £200 and gain a profit of £80,000 each.
- (ii) Aggressive firms spend large amounts on advertising to get ahead of their rivals (maximax approach), cautious firms do so in case their rivals advertise (maximin approach). Although in both cases it may be in the individual firm's best interest to increase advertising, the resulting Nash equilibrium is likely to result in excessive advertising, which is not recouped in additional sales.

Part (i) was generally well answered but in part (ii) answers were not so good and the problem of excessive advertising was not as well explained as it should have been.

- 37** (i) Keynesian theory proves a "demand-side" explanation of fluctuations in output and employment in terms of fluctuations in aggregate demand.

During a recession there is a lack of aggregate demand, unemployment is high and business and consumer confidence is depressed. Low interest rates will

however likely lead at some point to a pick up of investment demand and consumer expenditure.

During the recovery phase of the business cycle, unemployment starts to fall, investment starts to pick up to the low interest rates, as workers start to obtain jobs then consumer demand starts to rise and consumer and business confidence start to rise leading to further increases in consumer expenditure and investment demand. After a certain point the recovery becomes self reinforcing.

Eventually, the recovery starts to become a boom with low unemployment, high investment and high consumer demand and rises in asset prices such as the stockmarket and housing markets, large scale borrowing by the private sector starts to push up interest rates. In addition as the economy approaches full employment the government may be keen to raised interest rates to slow the economy and contain inflation risks. This then starts to slowdown the economy.

During the slowdown, investment demand starts to slow due to rising interest rates, and consumer and investment demand slows as they try to repay borrowed loans taken out earlier in the cycle. This means that aggregate demand begins to decline and layoffs begin to occur. Hence the slowdown begins to take shape.

- (ii) According to the multiplier theory changes in investment will generate jobs in the economy and through the multiplier effect will lead to a rise in the national income that is bigger than any initial increase in aggregate demand (whether caused by an increase in investment, autonomous consumption or government expenditure). The multiplier for a closed economy will be greater the higher the marginal propensity to consume and the lower the income tax rate.

Planned private investment is linked to the growth of aggregate demand for goods and services in the economy. When aggregate demand rises, this will increase private investment demand which is known as the accelerator effect. Hence an initial increase in investment which generates an increase in the national income will in turn result in a further increase in investment demand via the accelerator effect. The multiplier-accelerator interaction suggests a dynamic relationship between changes in investment and the Gross Domestic product.

In part (i) there were generally good explanations of the various phases of the business cycle although the dynamics behind the four phases required more explanation in some cases. In part (ii) while the multiplier effect was generally well explained, explanations of the accelerator were somewhat weaker and often showed no real understanding of the concept and its interaction with the multiplier as required by the question.

END OF EXAMINERS' REPORT

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

27 April 2011 (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 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>

- 1** Which of the following statements below is always TRUE?
- A Opportunity cost is equal to total revenue minus total variable cost.
 - B Opportunity cost is constant.
 - C Opportunity cost is the cost in terms of the best foregone alternative.
 - D Opportunity cost is equal to a firm's supernormal profits.
- [1½]
- 2** Despite an increase in the minimum price of admission from £15.00 to £18.00, a football club finds that attendance at home matches increased by 20%. Which of the following could most effectively explain this situation?
- A Demand to watch football has a high price elasticity.
 - B Consumer preference has changed in favour of watching football.
 - C Demand to watch football has a very low price elasticity.
 - D The prices of alternative attractions have fallen.
- [1½]
- 3** If the demand and supply for a commodity both increase at each price, the market price will tend to:
- A rise.
 - B be indeterminate.
 - C fall.
 - D remain unchanged.
- [1½]
- 4** In a free market economy the basic function of the price mechanism is to:
- A provide a means of allocating resources.
 - B ensure that consumer wants are satisfied.
 - C enable the government to control prices.
 - D ensure the goods that society needs are produced.
- [1½]

- 5** If the government fixed a minimum price of bread above the equilibrium price and there was no further government intervention in the market for bread, which of the following would result?
- A There would be a surplus on the market and bread producers' income would fall.
 - B There would be an equilibrium in the market but the change in bread producers' income would be uncertain.
 - C There would be a shortage on the market and bread producers' income would rise.
 - D There would be a surplus on the market but the change in bread producers' income would be uncertain.

[1½]

- 6** If a firm increases its output and this results in an equal proportionate increase in its revenue, which of the following can be deduced about the price elasticity of demand for the firm's product?
- A It is -1 .
 - B It is infinite elasticity.
 - C It is $+1$.
 - D It is zero elasticity.

[1½]

- 7** Which of the following would NOT explain why, when the price of a good rises, the quantity supplied will also rise?
- A Firms expect future prices to rise.
 - B At higher levels of output firms will incur higher costs.
 - C The higher the price the more profitable it becomes to produce.
 - D The price of a good remains high over a given time period.

[1½]

- 8** Diminishing marginal utility of income implies:

- A people are risk lovers.
- B people are risk averse.
- C people are risk diversifiers.
- D people are risk neutral.

[1½]

- 9** 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 more inelastic.
 - 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 less inelastic.
- [1½]
- 10** 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]
- 11** Which assumption is essential for a market to be contestable?
- A Firms are free to enter and leave the market.
 - B Firms produce differentiated products.
 - C Firms cannot earn abnormal profits in the short run.
 - D There must be a large number of small firms.
- [1½]
- 12** Given that a firm's fixed costs are £1,000, the average total cost of its output is £4 and its average variable cost is £3.50, which one of the following will represent its total output per period?
- A 2,000 units.
 - B 1,750 units.
 - C 250 units.
 - D None of the above.
- [1½]
- 13** If firms in a perfectly competitive industry are making a loss in the short run then in the long run firms will:
- A increase their price and increase output.
 - B lower their price and increase output.
 - C increase their price and lower output.
 - D lower their price and lower output.
- [1½]

- 14** Which of the following is NOT usually given as a reason why firms form strategic alliances?
- A New markets
 - B Risk sharing
 - C Capital pooling
 - D Economies of scale
- [1½]
- 15** 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** 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]
- 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** If planned injections are less than planned withdrawals:
- A unemployment will fall.
 - B the balance of trade will tend to improve.
 - C inflation will tend to rise.
 - D national income will rise.
- [1½]

19 Which of the following is an example of disequilibrium unemployment?

- A Frictional unemployment
- B Cyclical unemployment
- C Seasonal unemployment
- D Structural unemployment

[1½]

20 Given the following macroeconomic data:

Consumer expenditure	£70 million
Investment expenditure	£20 million
Government expenditure	£40 million
Exports	£20 million
Imports	£30 million
Net income from abroad	£10 million

What is the value of the Gross Domestic Product?

- A £150 million
- B £130 million
- C £120 million
- D £110 million

[1½]

21 An economy with a floating exchange rate has a deficit on the current account of its balance of payments. Which policy combination would be most likely to solve this problem?

- A Decrease interest rates and increase income tax rates.
- B Increase interest rates and leave income tax rates unchanged.
- C Decrease interest rates and decrease income tax rates.
- D Increase interest rates and increase income tax rates.

[1½]

22 Where would interest payments on short term foreign deposits in banks be entered on the balance of payments account?

- A Visible payments
- B Income flows
- C Portfolio investment
- D Direct investment

[1½]

- 23** The use of debit cards and cash withdrawal machines will have the following effect on a bank:
- A Lower the bank's liquidity ratio and increase the bank deposits multiplier.
 - B Increase the bank's liquidity ratio and lower the bank deposits multiplier.
 - C Lower the bank's liquidity ratio and leave the bank deposits multiplier unchanged.
 - D The effect on the bank's liquidity ratio and the bank deposits multiplier will be uncertain.

[1½]

- 24** Which of the following would cause the demand for money curve to shift inwards to the left?
- A An increase in the frequency of payments to individuals.
 - B An increase in real Gross Domestic Product.
 - C A decrease in the rate of interest.
 - D An increase in prices.

[1½]

- 25** The Bank of England'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]

- 26** The overall money multiplier effect might be smaller than the full bank deposits multiplier because:
- A governments are pursuing an expansionary monetary policy.
 - B high rates of interest are discouraging borrowing.
 - C banks are not holding excess cash reserves.
 - D all proceeds of loans are re-deposited with banks.

[1½]

- 27** Explain, using appropriate diagrams, why price elasticity of supply might be important to:

- (i) a government deciding whether to introduce a new sales tax. [3]
- (ii) a business expecting a significant increase in demand for its product. [3]

[Total 6]

- 28** (i) Draw a diagram to show a profit maximising monopoly in long run equilibrium. [2]
- (ii) Use this diagram to:
- (a) Identify “deadweight welfare loss”. [1]
- (b) Explain why this firm will produce a less than socially efficient level of output. [2]
- [Total 5]
- 29** Explain each of the following:
- (i) The law of diminishing marginal returns. [2]
- (ii) Diseconomies of scale. [2]
- [Total 4]
- 30** (i) Draw **one** fully labelled diagram to illustrate the long run equilibrium position of a firm under perfect competition and a firm under monopolistic competition. Assume that both firms have the same Long Run Average Total Cost Curve. [2]
- (ii) Identify, with reference to your diagram, the excess capacity relating to the firm in monopolistic competition. [1]
- (iii) Explain how, compared to perfect competition, the price and output decision under monopolistic competition affects the consumer. [1]
- [Total 4]
- 31** (i) Define and give an example of an external benefit of consumption. [2]
- (ii) Draw a fully labelled diagram to illustrate an external benefit of consumption. [2]
- [Total 4]

- 32** State the adjustments needed to:
- (i) obtain Gross Value Added at basic prices from Gross Domestic Product at market prices. [1]
 - (ii) obtain Gross National Income at market prices from Gross Domestic Product at market prices. [1]
 - (iii) obtain Net National Income at market prices from Gross National Income at market prices. [1]
 - (iv) obtain households' disposable income from Gross National Income at market prices. [2]
- [Total 5]

- 33** Identify and explain three functions of money. [3]

- 34** Each of the two countries A and B produce two products, bread and wine. Assume that before trade and with given resources, the alternatives shown in the table below can be produced by each country.

	<i>Wine</i>	<i>Bread</i>
Country A	10	20
Country B	4	16

- (i) Which country should specialise in the production of bread? [1]
 - (ii) Calculate the global production of bread and wine by both countries after complete specialisation. [1]
 - (iii) Select an appropriate terms of trade of units of bread for units of wine and demonstrate why both countries can be better off after specialisation and exchange. [3]
- [Total 5]
- 35**
- (i) Explain the difference between a tariff and a quota. [2]
 - (ii) State three arguments that can be used to support the introduction of barriers to trade. [3]
- [Total 5]

- 36** In an economy, an increase in aggregate expenditure of £120 million will cause an increase in the equilibrium level of Gross Domestic Product of £360 million.
- (i) Calculate the multiplier and the marginal propensity to consume domestically produced goods. [2]
- (ii) Explain the effect on the multiplier of:
- (a) a rise in consumer confidence.
- (b) an increase in income tax rate. [2]
- [Total 4]
- 37** Describe the factors that can restrict the ability of a business to expand. [6]
- 38** (i) Identify alternative types of supply side policy. [4]
- (ii) Discuss the effectiveness of supply side policies. [6]
- [Total 10]

END OF PAPER

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

April 2011 examinations

Subject CT7 — Business Economics Core Technical

Introduction

The attached subject report has been written by the Principal Examiner with the aim of helping candidates. The questions and comments are based around Core Reading as the interpretation of the syllabus to which the examiners are working. They have however given credit for any alternative approach or interpretation which they consider to be reasonable.

T J Birse
Chairman of the Board of Examiners

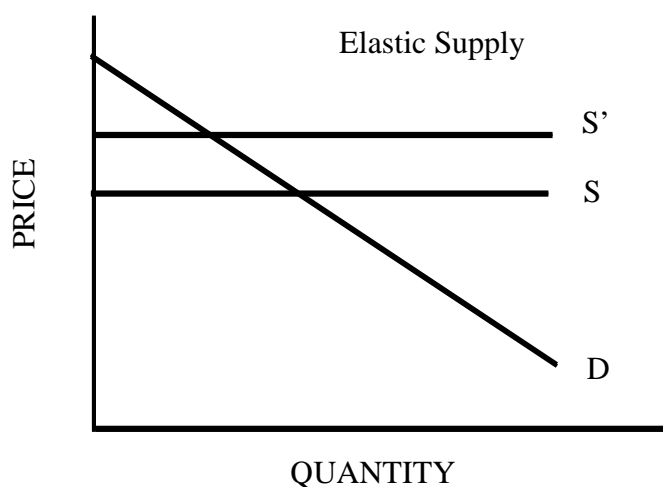
July 2011

1	C
2	B
3	B
4	A
5	D
6	B
7	A
8	B
9	C
10	D
11	A
12	A
13	A
14	D
15	B
16	D
17	B
18	B
19	B
20	C
21	D
22	B
23	D
24	A
25	C
26	B

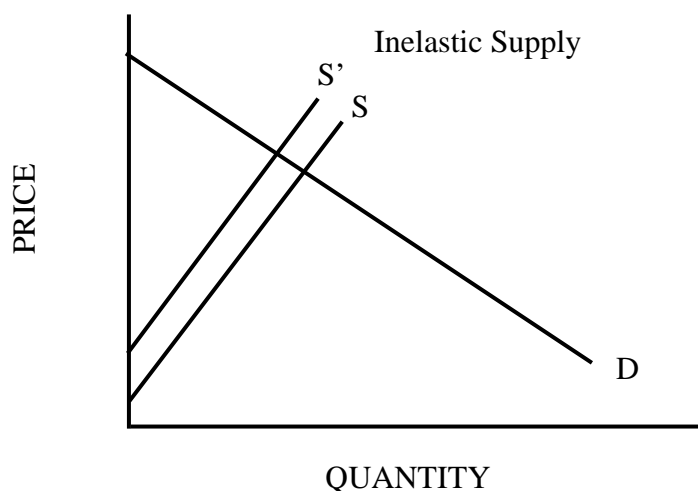
Examiner comment

This part of the paper was generally well answered although questions 6, 14, 23 and 25 tended to have the poorest successful response rate.

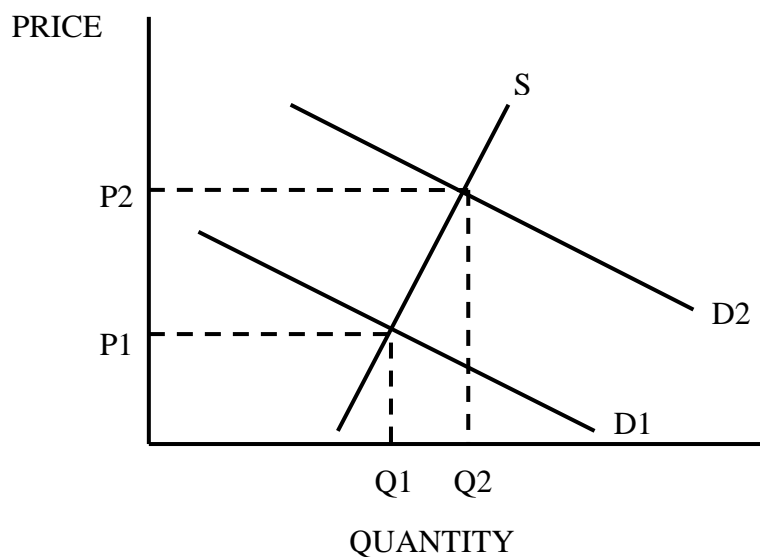
- 27** (i) The first diagram illustrates the case of a perfectly elastic supply curve S and a downward sloping demand curve D . Here the introduction of a tax shifts the supply curve upwards from S to S' , and all the tax is passed on to the consumer.



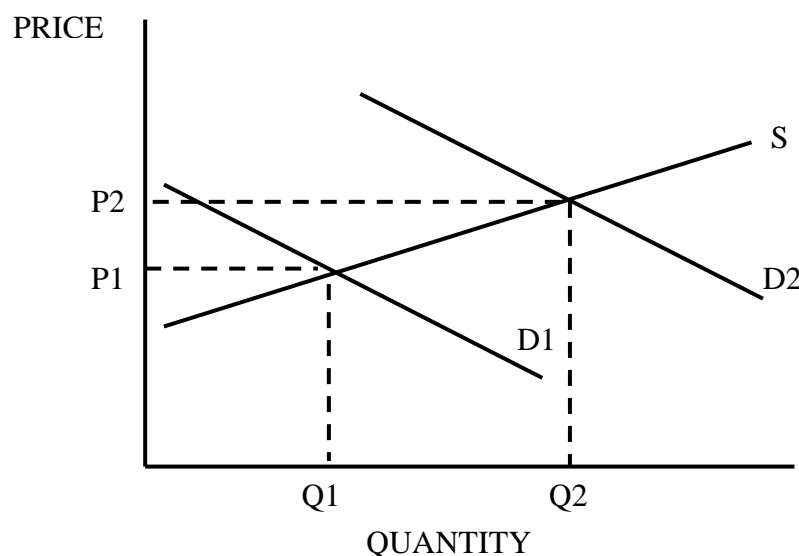
In the second diagram, the supply curve is relatively inelastic. Here the introduction of the tax shifts the supply curve from S to S' , but the price rises by less than the tax (the vertical difference between S and S'). Hence some of the tax has been absorbed in the firm's cost. Areas between the supply and demand curves can be used to indicate the exact distribution of the burden of the tax between consumers and producers.



- (ii) The diagram below illustrates the effect of a significant increase in demand from D_1 to D_2 on expected market price and sales, when the business has an inelastic supply. Price will rise significantly from P_1 to P_2 hence total revenue should rise and subject to costs remaining constant, overall profitability should increase.



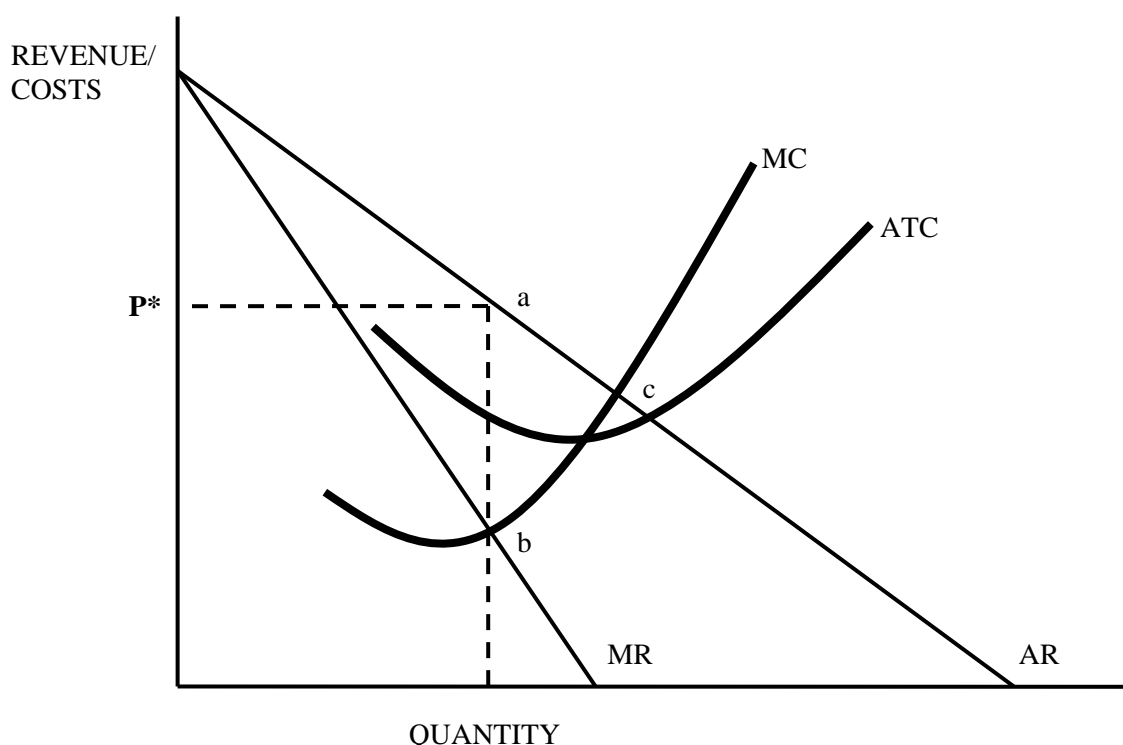
When the business has an elastic supply, as shown below, the market price will not rise significantly but there is likely to be a significant increase in sales. Total revenue will rise in this situation and also profits should rise because the business can expand supply to meet the extra demand without incurring significant increases in unit costs.



Examiner comment

Part (i) of this question was not answered well. Candidates often did not show the effect of varying the slope of the supply curve on the amount of the price rise. It was expected that candidates should make it clear that there would be a smaller increase in price when the supply curve is less elastic. Part (ii) was generally answered well.

28 (i)



- (ii) (a) Area abc = deadweight welfare loss.
- (b) Socially efficient level of output will be attained when the firm operates at a level of output where $AR = MC$. We assume that the monopolist is a profit maximiser, hence it will operate at an output where $MR = MC$. At this level of output the monopolist would set the price at P^* which would not be equal to the marginal cost, therefore socially efficient output would not be achieved.

Examiner comment

This question was generally answered well but many candidates failed to discuss adequately the socially efficient output at point c.

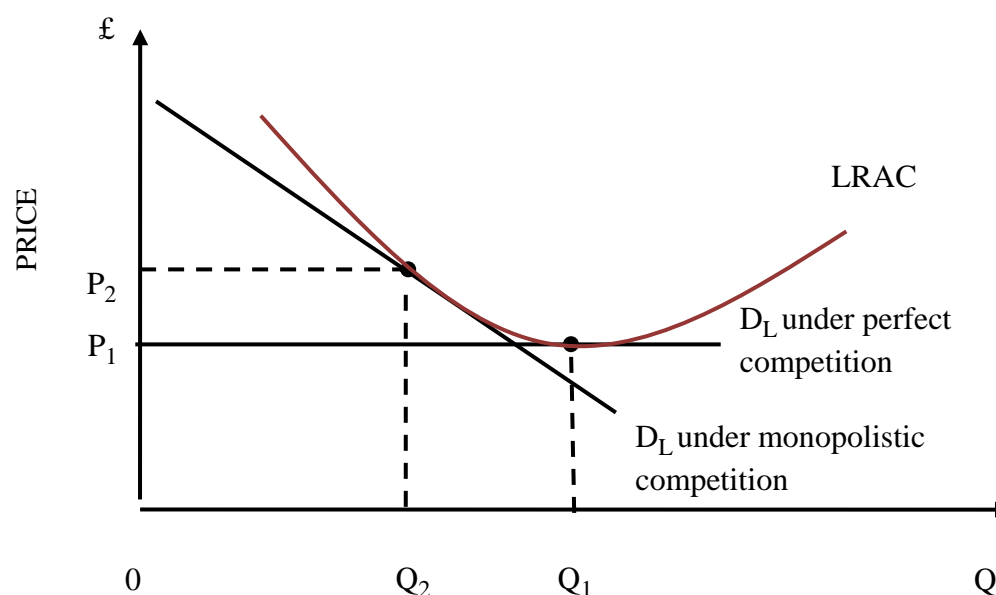
- 29 (i) The law of diminishing marginal returns is an attempt to explain why the marginal and average total costs of a firm will eventually begin to rise. The law will only apply in the short run that is that time period where at least one factor of production will be fixed. The law states that if an increasing amount of a variable factor of production is combined with a fixed factor, then eventually the marginal product of the variable factor will fall. This will cause both the marginal and average total cost of production to rise.
- (ii) Diseconomies of scale represent an attempt to explain why the long run average cost of production of a firm will eventually begin to rise. The long run is that time period where it is possible to vary all the factors of production. When the total percentage increase in output is less than each of the factors of

production, this will cause unit costs to rise. This can be shown by an upward movement along the long run average total cost curve.

Examiner comment

This question was generally answered very well and many candidates achieved full marks.

30 (i) Long-run equilibrium of the firm under perfect and monopolistic competition



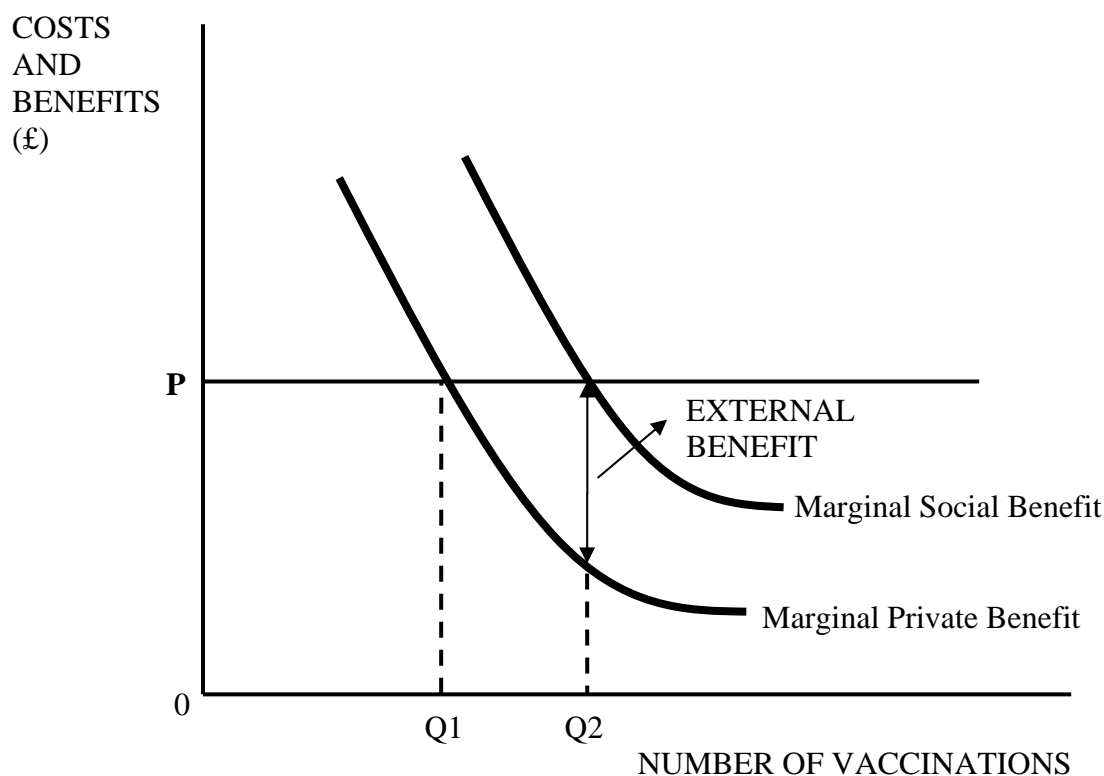
- (ii) In the long run, firms operating under monopolistic competition will produce at an output below their minimum cost point. This is known as excess capacity and would be shown on the diagram as **Q1 – Q2**.
- (iii) Under monopolistic competition, although firms may charge a higher price than under perfect competition, the difference may be very small. As there are a large number of substitutes, the demand curve for the firm under monopolistic competition is likely to be highly elastic. Also consumers could benefit by having a greater variety of products to choose from.

Examiner comment

This question was answered well by the majority of the candidates. However, some students did not include in their answer to part (iii) the importance of greater product variety for consumers.

- 31** (i) An external benefit from consumption is the benefit experienced by people **other** than the consumer. Examples might include: vaccinations, education, health care.

(ii)



Examiner comment

This question was answered very well and many candidates obtained full marks.

- 32** (i) Gross Value Added at basic prices = Gross Domestic Product at market prices – taxes + subsidies
- (ii) Gross National Income at market prices = Gross Domestic Product at market prices + net income from abroad
- (iii) Net National Income at market prices = Gross National Income at market prices – capital depreciation
- (iv) Households' disposable income = Gross National Income at market prices – taxes paid by firms + subsidies received by firms – depreciation – undistributed profits – personal taxes + benefits

Examiner comment

The majority of the candidates answered parts (i)-(iii) of the question well. However some candidates did not include subsidies by firms and benefits to consumers in their answers to part (iv).

33 Three of the following:

- A medium of exchange which provides a means through which goods and services can be bought and sold.
- A store of value, which allows consumers and businesses to save and enable goods to be purchased in the future.
- A unit of account which allows the price of goods and services to be compared and allows the price mechanism to operate.
- A standard of deferred payment which facilitates the system of trade credit.

Examiner comment

This question was answered very well, and most candidates achieved full marks.

- 34**
- (i) Country B should specialise in bread production.
 - (ii) Country A would produce 20 units of wine and Country B would produce 32 units of bread.
 - (iii) An appropriate exchange rate would be 3 units of bread for 1 unit of wine.

Country B can exchange 12 units of bread for 4 units of wine. Country B will now have the same wine as before but now has 20 units of bread instead of 16.

Country A will gain 12 units of bread and lose 4 units of wine so it will now have 16 units of wine and 12 units of bread. Country A can now reallocate domestic resources and exchange 5 of its own units of wine for 10 of its own units of bread, therefore Country A can have 11 units of wine and 22 units of bread, 1 more unit of wine and 2 more units of bread than before.

Both countries have therefore benefited through specialisation and trade.

Examiner comment

The above solution is appropriate in parts (ii) and (iii) if it is assumed that both countries devote $\frac{1}{2}$ their resources to producing each product. However, this was not clearly specified in the question. Therefore, in awarding marks, examiners allowed for a range of plausible solutions and responses.

- 35** (i) A tariff is a tax charged on imported goods. A tariff will shift the supply curve for the good upwards by the amount of the tax.

A quota is a physical limit on the numbers or value of goods that can be imported into a country.

- (ii) Any three of the following:
- to protect domestic employment
 - to protect infant industries
 - to protect against low cost overseas competition
 - to protect against dumping
 - to avoid the risks of over specialisation
 - for strategic reasons
 - to raise government revenue
 - to correct a balance of payments deficit

Examiner comment

This question was generally answered well.

- 36** (i) Multiplier $k = \text{change in GDP} / \text{change in aggregate expenditure}$

$$k = 360/120 = 3$$

$$k = 1/(1 - \text{mpc}), \text{mpc} = 2/3$$

- (ii) (a) If consumer confidence is high then they will tend to spend a higher proportion of their income so the mpc will be higher and the multiplier will increase.
- (b) A increase in income tax rate will leave less income for households and lower the proportion of consumer expenditure on domestic goods which will reduce the multiplier.

Examiner comment

This question was generally answered well and many candidates obtained full marks.

37 There are a number of factors which might restrict the ability of a business to expand, including:

- Insufficient access to the necessary finance. Internal finance might be limited due to lack of profits available to plough back from the business – this is often related to the cyclical nature of business activity.
- Small and medium size enterprises do not have access to fund-raising through the issue of new shares.
- The nature of the existing market will also influence opportunities for growth. An expanding market is likely to generate sufficient profit to ensure that desired levels of investment can be maintained or increased. There may be market constraints due to the nature of the business's product/service. For example it is difficult for businesses in the hairdressing industry to significantly expand their market share, given the specific nature of the service provided.
- The existing management team might lack entrepreneurial vision or the necessary organisational skills.
- Diseconomies of scale may operate at relatively low levels of output.

Examiner comment

Many candidates offered a reasonable listing and a brief discussion of some of the factors that limit a firm's growth, but in many cases a more detailed discussion was required.

38 (i) Supply side policies can be divided up into market orientated supply side policies and interventionist supply side policies. Market orientated policies would include:

- A reduction in the size of the public sector and promotion of the private sector.
- Cuts in corporation and income tax to increase profit for further investment and to increase incentive in the labour market.
- Reducing welfare benefits to encourage more individuals to return to work.
- Deregulation and the introduction of policies to encourage competition.
- The introduction of new legislation to reduce the power of the trade unions and remove rigidities in the labour market.
- Provide investment grants to promote research and reduce regional imbalances.

- The introduction of new training schemes to encourage labour mobility.
- Encourage geographic mobility through the provision of better means of communication/new Job Centres.

Interventionist policies would include:

- Despite the trend towards privatisation, in many countries some key transport and power industries are government owned. Also the financial crisis of 2007–2009 has resulted in nationalisation of some financial institutions to ensure the stability of the financial system.
 - Improvements in infrastructure such as motorways can directly benefit the industry.
 - In most countries governments finance R&D in areas such as defence, aerospace, nuclear power industry and IT. In the UK a system of tax credits for expenditure by SMEs encourages R&D in these enterprises.
 - Governments may set up training schemes or encourage educational institutions to provide vocational training courses. Alternatively, the governments can provide grants or tax relief to firms that provide training schemes.
 - Providing advisory services, grants and tax concessions to small firms and imposing fewer planning and other controls on such firms.
 - Governments can engage in discussions with firms and facilitate communication and discussion between firms to improve efficiency, encourage innovation, exchange information, coordinate decisions and create greater certainty.
 - Governments may provide various information services to firms, such as technical assistance, the results of public research, information on markets etc.
- (ii) The main aim of supply side policies is to increase an economy's potential output primarily by reducing market rigidities. In the labour market the aim would be to increase labour productivity and ensure that those who are able to work do become an active part of the workforce. Problems might arise in relation to the lack of mobility of the workforce and that labour supply for many jobs will be very inelastic. Also, prohibitive living expenses in some areas like the South East of England further reduces geographical mobility.

Plans to encourage business investment through cuts in corporation tax do not always achieve the desired objective; associated increases in profits sometimes result in an increase in shareholder dividend rather than in further capital investment.

Attempts to reduce trade union power can result in very costly industrial action which has a negative effect upon companies and the macro-economy.

Investment grants can be costly and have to be financed by further taxation or expenditure cuts, both of which might have negative effects on economic growth.

Deregulation can introduce new competition from overseas which might have a negative effect on domestic industry.

Government's attempts to improve the infrastructure will be costly and this is likely to have a negative effect on the government's financial planning

More privatisation may lead to a fall in the demand for labour and add to unemployment.

Examiner comment

Many candidates correctly identified the supply side policies in part (i). However, the answers to part (ii) often lacked sufficient depth to demonstrate the candidates' understanding of both the positive and negative effects of supply side policies. In addition, candidates were expected to discuss some of the problems associated with the implementation of supply side policies.

END OF EXAMINERS' REPORT

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

5 October 2011 (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 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>

- 1** 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 a normal 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]
- 2** 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 next best alternative use to which the 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]
- 3** Under the Cournot model of duopoly a firm:
- A attempts to maximise sales after assuming that the other firm will attempt to maximise sales.
 - B assumes the other firm will produce a given output and then chooses its profit maximising output.
 - C assumes the other firm's price is given and then chooses its profit maximising price.
 - D will attempt to collude with the other firm so as to set a price and output level which will maximise industry level profits.
- [1½]
- 4** Which one of the following is NOT a barrier to entry into a monopoly market?
- A Significant economies of scale.
 - B Heavy potential advertising costs.
 - C Large capital requirements.
 - D Constant returns to scale.
- [1½]

- 5** Following an increase in the price of fuel there is a 20% increase in the price of air travel tickets which results in a 20% decrease in total revenue. Which of following statements is TRUE about the demand for air travel?

A The demand for air travel is price inelastic.
B The demand for air travel is price elastic.
C The demand for air travel is infinitely price elastic.
D The demand for air travel has zero price inelasticity.

[1½]

- 6** The managing director of a monopoly firm is given the following data:

Marginal revenue = £9, Marginal cost = £10
Average cost = £11, Average revenue = £15

To maximise profits the firm should:

A reduce price and increase output.
B reduce price and reduce output.
C increase price and increase output.
D increase price and reduce output.

[1½]

- 7** Global Airways, which is a profit maximising firm, has to decide whether or not to run an extra daily flight between London and Paris. The total daily fixed costs of the airline are £3,000, the total variable costs of the extra flight are £2,000 and the expected revenue from the extra flight is £2,500. In such circumstances Global Airways will:

A not run the extra flight as it will expect to lose £2,500 from its profits.
B not run the extra flight as its expected profit of £500 is insufficient to cover its fixed costs.
C run the extra flight as it will add £500 to its profits.
D not run the extra flight as the expected revenue of £2,500 is less than its fixed costs.

[1½]

- 8** 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 abnormal profits in the long run.
- [1½]
- 9** A monopolist facing a downward sloping demand curve for its product will set its price in the region of the demand curve where the demand:
- A has price elasticity equal to minus unity.
 - B is price inelastic.
 - C is price elastic.
 - D has price elasticity equal to zero.
- [1½]
- 10** The demand for Good X has a price elasticity of minus unity while the supply curve has a positive slope. If the government decided to impose a tax of £10 per unit on Good X this would:
- A shift the supply curve for Good X up by less than £10 and increase the price by less than £10.
 - B shift the supply curve for Good X up by less than £10 and increase the price by more than £10.
 - C shift the supply curve for Good X up by £10 and increase the price by £10.
 - D shift the supply curve for Good X up by £10 and increase the price by less than £10.
- [1½]

11 Which one of the following illustrates the problem of adverse selection?

- A A bank, by raising its interest rates, will tend to increase the proportion of borrowers in its loan portfolio who do not intend to repay their loans.
- B An insurance company by inserting extra clauses into an insurance contract will tend to reduce its customer base.
- C Bank directors will tend to act in their own interests rather than that of their shareholders.
- D An insurance policy with a 2 year time horizon is more likely to have a claim made against it than an insurance policy with a 1 year time horizon.

[1½]

12 Consider the following table:

<i>Units of capital</i>	<i>Units of labour</i>	<i>Output</i>
10	1	100
10	2	190
10	3	270
10	4	340
10	5	400

The table illustrates which one of the following:

- A economies of scale
- B constant returns to scale
- C diseconomies of scale
- D diminishing marginal productivity

[1½]

13 Which one of the following statements about market structure is TRUE?

- A Under perfect competition, in the long run only some firms can make excess profits.
- B Under oligopoly all firms make decisions without 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 Firms under monopolistic competition charge a price above their marginal revenue.

[1½]

14 Which of the following would constitute a supply side economic policy for reducing unemployment?

- A Increasing social security benefits.
- B Increasing the money supply.
- C Reducing corporate and personal taxation.
- D Increasing government expenditure aimed at exploiting the multiplier effect.

[1½]

15 Which of the following statements defines moral hazard in relation to insurance?

- A Moral hazard describes the fact that people who know that they are a particularly bad risk are more inclined to take out insurance.
- B Moral hazard describes the fact that a policyholder may act in a way which makes the insured event more likely to occur.
- C Moral hazard describes the fact that people who know that they are a particularly bad risk are less inclined to take out insurance.
- D Moral hazard describes the risk that an insurance company will face false insurance claims.

[1½]

16 In the circular flow of income model:

- A savings, taxes and investment are withdrawals.
- B savings, imports and taxes are withdrawals.
- C investment, government expenditure and imports are injections.
- D investment, exports and consumption are injections.

[1½]

17 Which of the following does NOT form part of a country's Gross Domestic Product?

- A salaries of school teachers
- B net income from abroad
- C company profits
- D investment expenditure

[1½]

- 18** Which one of the following statements about real variables in the economy is FALSE?
- A If nominal Gross Domestic Product (GDP) rises by 5 per cent then the real GDP may have risen, fallen or remained unchanged.
 - 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** In a simple economy, consumption is given by the relationship

$$C = 0.75 Y$$

Where C is consumption expenditure and Y is Gross Domestic Product.

If government expenditure is £150 million, investment is £50 million and there is no taxation or international trade, what will be the equilibrium value of Gross Domestic Product of the economy?

- A £200 million
- B £312.5 million
- C £1,000 million
- D £800 million

[1½]

- 20** The aggregate demand schedule 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]

- 21** To obtain a measure of Net National Income from Gross Domestic Product it is necessary to:

- A add net income from abroad and deduct transfer payments.
- B deduct net income from abroad and add capital depreciation.
- C add net income from abroad.
- D add net income from abroad and deduct capital depreciation.

[1½]

22 If the money supply increases due to an expansionary open market operation by the central bank then the price of treasury bills will:

- A rise as the short term interest rate rises.
- B rise as the short term interest rate falls.
- C fall as the short term interest rate rises.
- D fall as the short term interest rate falls.

[1½]

23 A tightening of 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]

24 You are given the following data for an economy:

	<i>£ millions</i>
Consumer expenditure (including indirect taxes)	120
Investment	60
Government expenditure (including transfer payments)	70
Exports	40
Imports	30
Net income from abroad	20
Indirect taxes	10
Capital depreciation	20
Transfer payments	10

The value of the economy's Gross National Income at market prices is:

- A £250 million
- B £260 million
- C £270 million
- D £280 million

[1½]

- 25** Given the following labour hours required to produce 1 unit of each of Goods X and Y, which one of the statements below is TRUE?

<i>Country</i>	<i>Good X</i>	<i>Good Y</i>
A	8	10
B	10	20

- A Country A has a comparative advantage and an absolute advantage in producing Good Y.
- B Country B has a comparative advantage in producing Good X and an absolute advantage in producing Good Y.
- C Country A has a comparative advantage in producing Good X and an absolute advantage in producing Good Y.
- D Country B has a comparative advantage in producing Good Y and an absolute advantage in producing Good X.

[1½]

- 26** A country is running a current account surplus. In relation to the rest of the world it is:

- A increasing its net liabilities and/or increasing its net assets.
- B decreasing its net liabilities and/or increasing its net assets.
- C increasing its net liabilities and/or decreasing its net assets.
- D decreasing its net liabilities and/or decreasing its net assets.

[1½]

- 27** Read parts (i), (ii) and (iii) before answering:

- (i) Draw a diagram to illustrate the profit maximising price and output for an oligopolist with a kinked demand curve. Use the following labels: AR1 for the average revenue curve, MR1 for the marginal revenue curve, AC1 for the average cost curve, MC1 for the marginal cost curve, P1 for price and Q1 for quantity.
- (ii) Using the diagram drawn in part (i) show an increase in the marginal and average costs of production at each output level which do not affect the firm's profit maximising price and output. Use the labels MC2 and AC2 for these new cost curves.
- (iii) Explain what you would expect to happen to the firm's total revenue if the firm decided to raise the price above P1.

[2]

[2]

[1]

[Total 5]

28 Draw the following curves on four separate diagrams, with price on the vertical axis and quantity on the horizontal axis.

- (i) A demand curve with price elasticity of -1 throughout its entire length. [1]
- (ii) A demand curve with price elasticity of zero throughout its entire length. [1]
- (iii) A demand curve for a good with no substitutes. [1]
- (iv) A demand curve with infinite price elasticity throughout its entire length. [1]

[Total 4]

29 You are given the following data concerning the production costs and the average revenue of a profit maximising firm that produces Good X. The fixed costs of production are £100.

<i>Output of Good X</i>	<i>Short Run Average Variable Cost (£s)</i>	<i>Average Revenue (£s)</i>
1	110	300
2	95	250
3	80	210
4	75	180
5	82	150
6	85	120
7	90	100
8	100	90
9	110	80
10	120	70

- (i) Calculate the profit maximising output of the firm. [1]
- (ii) State the level of output at which average total costs are minimised. [1]
- (iii) State what will happen to the production in the short run if the fixed costs of production rise from £100 to £400. [1]
- (iv) Calculate the smallest rise in total variable costs (to the nearest pound) that would force the firm to cease production in the short run. [2]

[Total 5]

30 Explain with the aid of examples the following terms:

- (i) Vertical mergers [1]
- (ii) Horizontal mergers [1]
- (iii) Conglomerate mergers [1]

[Total 3]

- 31** (i) Using supporting diagrams show how a profit maximising firm will practice third degree price discrimination by dividing its market into two distinct markets A and B with different demand elasticities. Show the price in the market with inelastic demand (Market A) and in the market with a more elastic demand (Market B) and the overall output of the firm made up of demand in both Market A and Market B. [3]
- (ii) Give an example of second degree and third degree price discrimination. [2]
[Total 5]
- 32** Explain the combination of variables known as the “four P’s” that determine a business’s marketing mix. [4]
- 33** (i) (a) Explain what is meant by a negative externality in consumption. [2]
(b) Give an example of such an externality. [2]
- (ii) Draw a diagram showing the marginal social benefit curve and marginal private benefit curve when a negative externality in consumption exists. Show on your diagram the quantity that would be consumed at the market price P by the private sector as Q1 and the socially optimal level of production as Q2. [3]
[Total 5]
- 34** (i) Explain the concepts of voluntary and involuntary unemployment. [2]
- (ii) Outline two reasons which might explain why some people choose to be voluntarily unemployed on a long term basis. [2]
[Total 4]
- 35** (i) Explain how the general government debt may be linked to this year’s budget deficit and how a rising general government debt can impact on next year’s budget deficit. [2]
- (ii) Explain why it is that countries with a high general government debt tend to have to pay a higher rate of interest on their debt, other things being equal, than countries with a low general government debt. [3]
[Total 5]

36 You are given the following data on Country A's balance of payments:

	<i>£ millions</i>
1) Exports of goods	+200
2) Imports of goods	−250
3) Exports of services	+100
4) Imports of services	−150
5) Income balance	−50
6) Net current transfers	+10
8) Capital account balance	+80
9) Financial account net flows	+60

- (i) Calculate the value of the balance of trade for Country A. [1]
 - (ii) Calculate the value of the current account balance for Country A. [1]
 - (iii) Explain what a net surplus in the capital account and financial account means in terms of the Country's foreign assets and liabilities. [1]
 - (iv) Explain what an increase in the national income of the Country which is not caused by an increase in exports will imply for the current account balance. [2]
- [Total 5]

- 37**
- (i) Explain why firms might wish to grow. [3]
 - (ii) Explain the relationship between growth and profitability in a firm. [3]
- [Total 6]

- 38**
- (i) Explain the solutions that have been advocated by Keynesian economists to solve demand deficient unemployment. [4]
 - (ii) Discuss criticisms that have been made concerning these Keynesian solutions. [6]
- [Total 10]

END OF PAPER

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

September 2011 examinations

Subject CT7 — Business Economics Core Technical

Purpose of Examiners' Reports

The Examiners' Report is written by the Principal Examiner with the aim of helping candidates, both those who are sitting the examination for the first time and who are using past papers as a revision aid, and also those who have previously failed the subject. The Examiners are charged by Council with examining the published syllabus. Although Examiners have access to the Core Reading, which is designed to interpret the syllabus, the Examiners are not required to examine the content of Core Reading. Notwithstanding that, the questions set, and the following comments, will generally be based on Core Reading.

For numerical questions the Examiners' preferred approach to the solution is reproduced in this report. Other valid approaches are always given appropriate credit; where there is a commonly used alternative approach, this is also noted in the report. For essay-style questions, and particularly the open-ended questions in the later subjects, this report contains all the points for which the Examiners awarded marks. This is much more than a model solution – it would be impossible to write down all the points in the report in the time allowed for the question.

T J Birse
Chairman of the Board of Examiners

December 2011

General comments on Subject CT7

The Business Economics examination paper includes different types of questions requiring a variety of styles of answers in the degree of detail required. The questions clarify the amount of detail necessary in the answer.

For questions requiring calculations with workings, full marks would only be awarded if workings are shown. Similarly, in questions requiring explanation, full marks will be awarded for providing adequate explanation. For essay questions, candidates are expected to include the relevant facts and issues *as well as* the linkages so that a direct and coherent answer to the specific question is provided. Thus, mere statement of facts and a general discussion of issues around the specific question will not be sufficient to gain a high mark.

Comments on the September 2011 paper

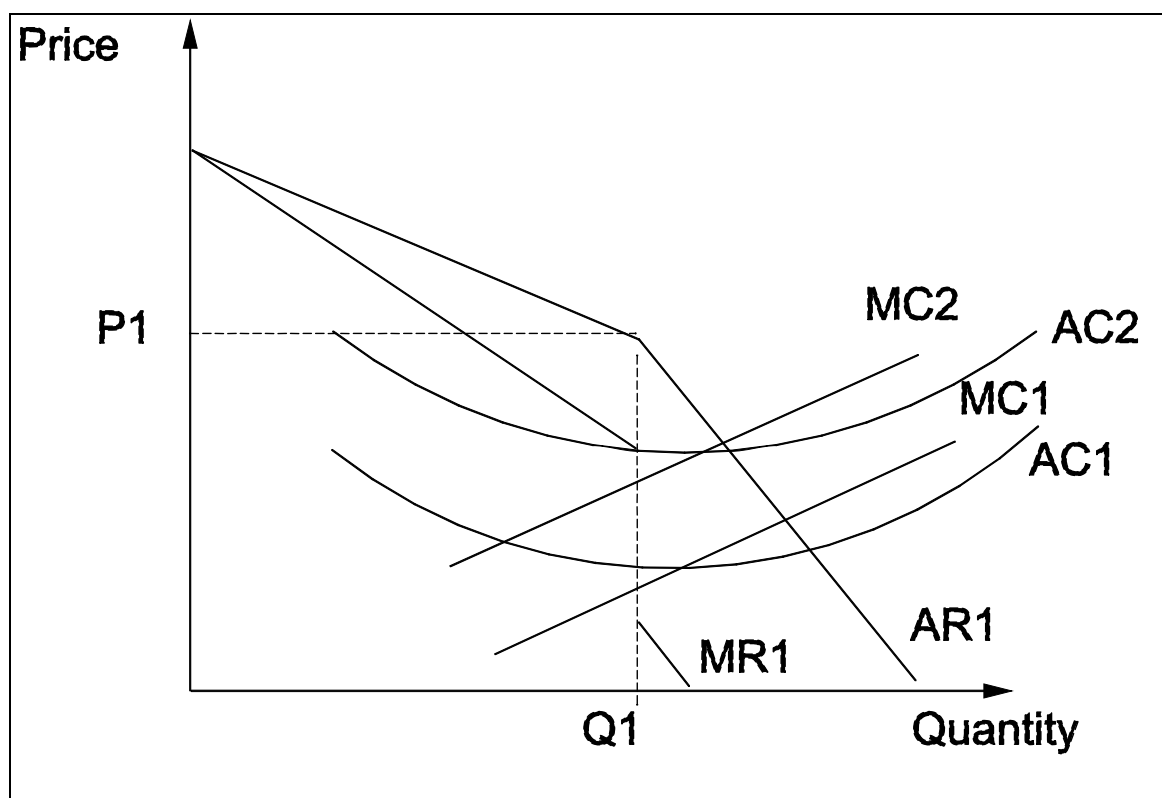
The paper was of a similar standard to last year's, when the new syllabus was introduced. The new syllabus includes a discussion of many new topics relevant to the world of business and to the economy as a whole. The paper, therefore, is balanced in favour of the more discursive type of questions. The new syllabus places a greater emphasis on, and provides a greater scope for testing the candidate's discursive and analytical as well as technical skills.

The standard of the performance in this diet was slightly below that in April. Candidates were generally able to provide correct answers to parts of the questions where these involved offering standard numerical solutions and diagrams, or listing of the relevant factors. However in later parts, where the answer was a variation on the standard calculation and diagrams, or required explanation of the concepts, answers were not as strong. The majority of the questions 31 to 38 in the paper fall under this category. These questions aimed to test the knowledge as well as a deeper understanding of the concepts and issues in economics. Candidates preparing for the examination for this subject are, therefore, encouraged to focus on building strength in these areas.

1	C
2	B
3	B
4	D
5	B
6	D
7	C
8	A
9	C
10	D
11	A
12	D
13	D
14	C
15	B
16	B
17	B
18	D
19	D
20	A
21	D
22	B
23	A
24	C
25	A
26	B

The multiple choice section was generally answered well although the number of incorrect responses to questions 6, 7, 11, 18 and 26 were higher than expected.

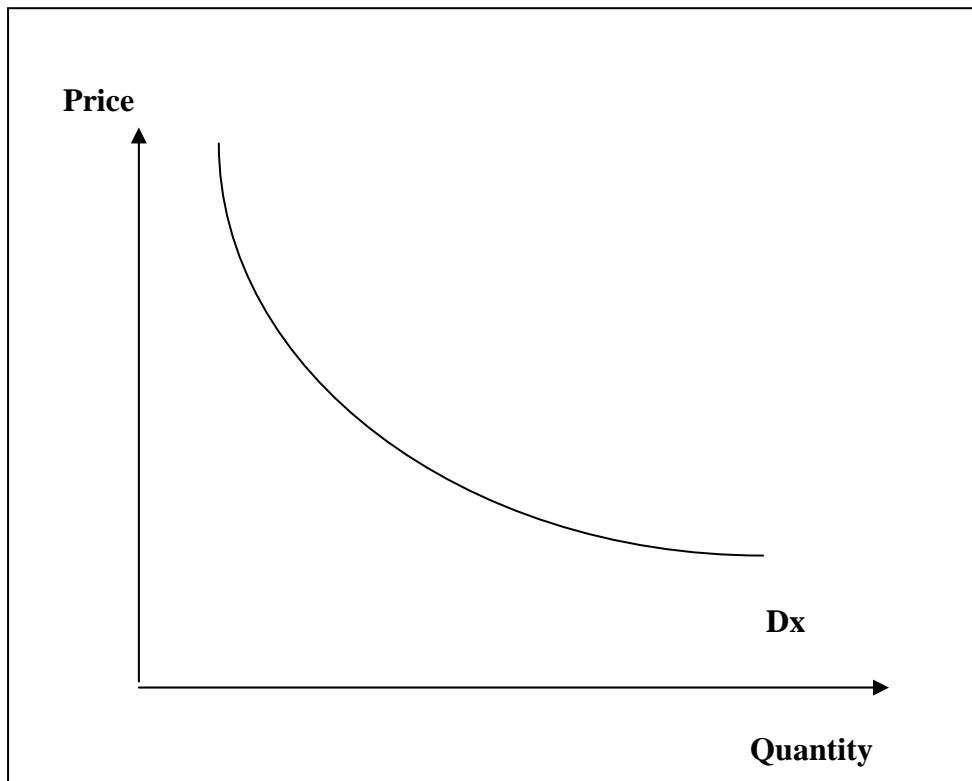
27 (i) and (ii)



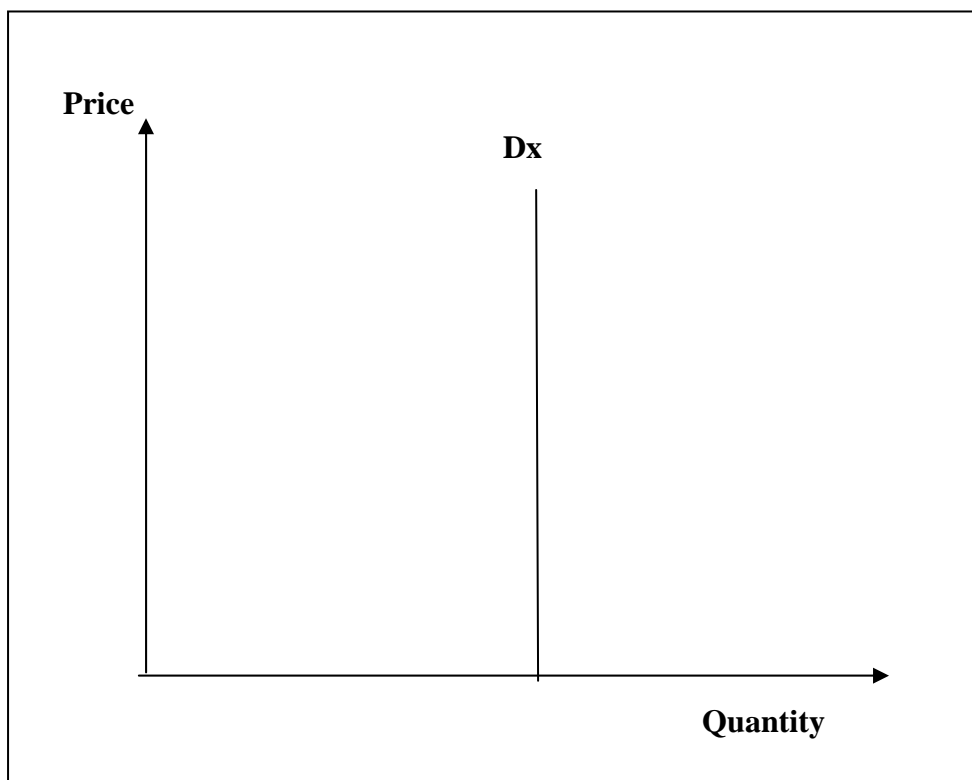
- (iii) The firm's total revenue will fall as demand is highly price elastic above P_1 . Consumers will switch to the firms that hold price at P_1 .

This question was generally answered well, although greater care needed to be taken to ensure that the marginal cost curve cuts the average cost curve at the latter's minimum point.

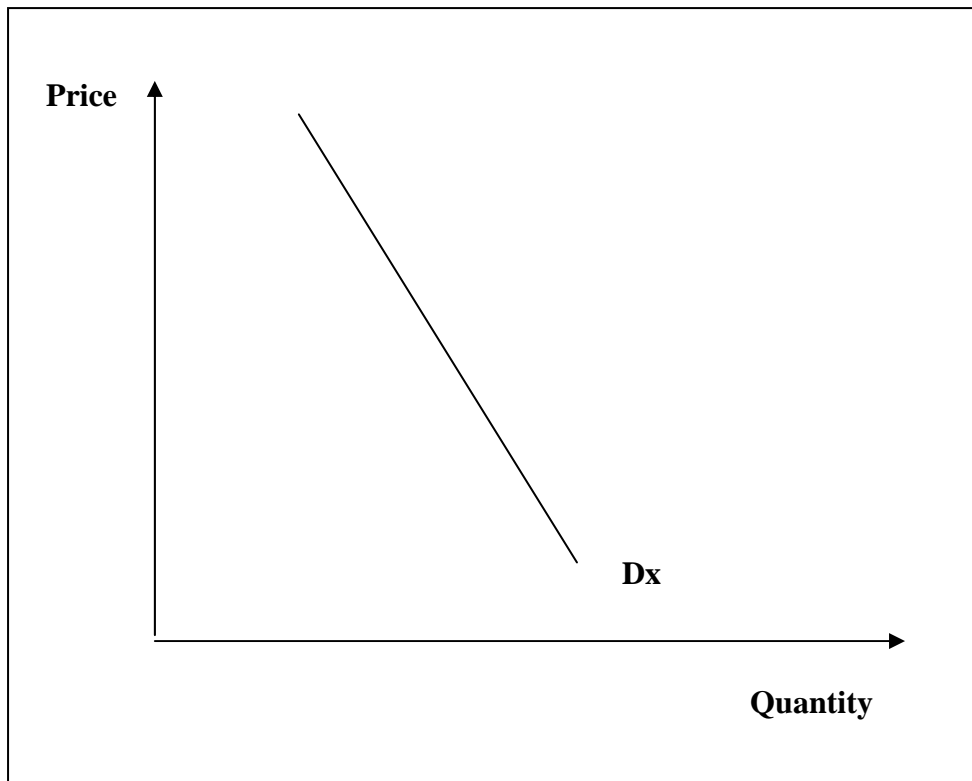
- 28** (i) A demand curve with price elasticity of -1 throughout its entire length.



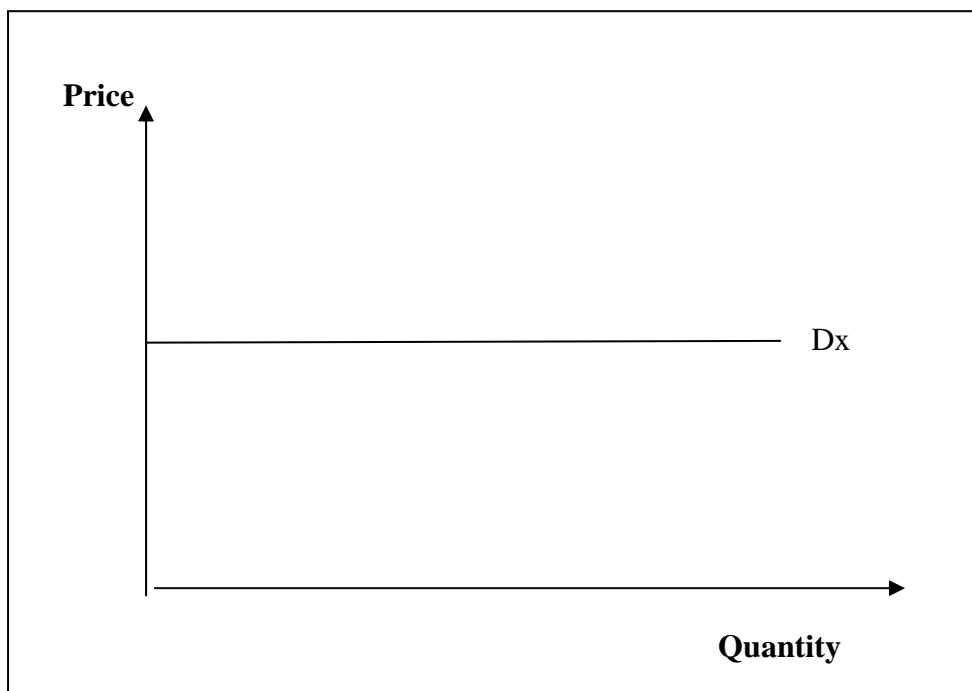
- (ii) A demand curve with zero elasticity throughout its entire length.



- (iii) A demand curve for a good with no substitutes.



- (iv) A demand curve with infinite price elasticity throughout its entire length.



This question was generally answered well with many candidates obtaining full marks. Some candidates confused zero elasticity with infinite elasticity.

29 (i) 4 units

At 4 units the gap between total revenue and total cost is greatest.

(ii) 4 units

(iii) Output would be unchanged.

(iv) £421 although £420 would be an acceptable answer.

The majority of the answers to parts (i) to (iii) of this question were correct but many candidates failed to provide an answer or the correct answer to part (iv).

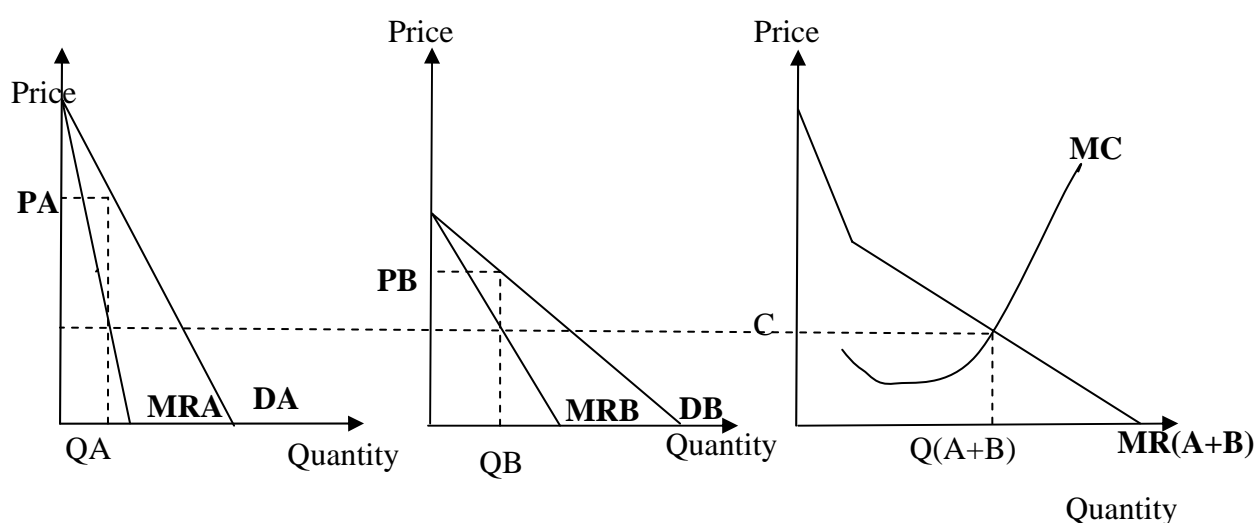
30 (i) A vertical merger is a merger whereby two firms in the same industry at different stages of the production process merge. An example could be a car producer that buys its engine maker.

(ii) A horizontal merger is a merger between two firms in the same industry at the same stage of the production process. For example, a bank merges with another bank.

(iii) A conglomerate merger is where firms in totally separate industries merge. For example, a supermarket merges with an insurance company.

Answers to all three parts were generally of a good standard and most candidates provided useful examples.

31 (i)



Market A has relatively inelastic demand (DA) compared to Market B (DB). The resulting MR curve for both markets is MR(A+B). The Marginal cost equals marginal revenue overall at output Q(A+B). The profit maximising

firm will equate the marginal cost C to marginal revenue in each market leading to price P_A in market A and price P_B in market B with sales Q_A in market A and Q_B in market B. The result is the price charged for an identical product is higher in market A than in market B so we have third degree price discrimination.

- (ii) An example of second degree price discrimination is an electricity company that charges a high price for the first so many kilowatts, the amount that would be used for lighting and running appliances and for which there is no substitute. Additional kilowatts are charged at a much lower rate as there are fuel substitutes for heating and cooking.

Also could mention marketing strategy used by firms of buy a certain number of units, would incur a percentage discount.

An example of third degree price discrimination is different-priced seats on buses for children, adults and pensioners.

This response to this question was generally poor. Many candidates provided the correct diagrams in the two separate markets and identified the prices in markets A and B. However, the result for the combined markets was often omitted or was incorrect.

- 32** Product considerations – include issues such as quality and reliability as well as branding packaging and after sales service.

Pricing considerations include issues such as pricing in relation to competitor products, use of discounts, payment terms, and also whether to practice price discrimination.

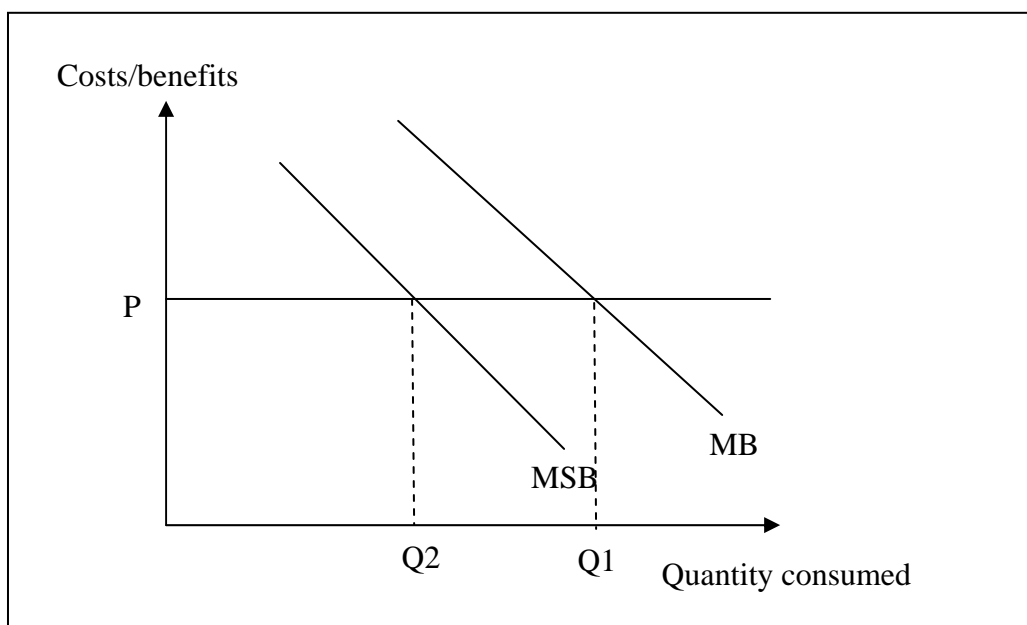
Place considerations involves issues such as the products distribution network, the location of retail outlets, warehousing of the product and method of transportation to market.

Promotion considerations include the amount and type of advertising, selling techniques, special offers, trial discounts and other methods of stimulating interest in the product such as viral marketing, public relation stunts etc. [4]

This question was generally answered well and many candidates obtained full marks.

- 33** (i) (a) A negative externality in consumption occurs when the marginal social benefit (MSB) of consuming something is less than the marginal private benefit (MB).
- (b) An example would be when people use their cars other people suffer from the exhaust fumes, someone playing their radio loud in a public place can lead to disruption for others, smokers can similarly upset others because of the smoke they generate.

(ii)



In the diagram the marginal social benefit (MSB) is below the marginal private benefit (MB).

The result is that at a market price P the private consumption will be Q_1 while the optimal social consumption level would be Q_2 . The free market leads to consumption over what is socially desired in the presence of negative consumption externalities.

The first part of the question was generally answered well. But very few candidates provided the correct graph for the second part and so very few responses scored the full mark for this question. Alternative correct answers were accepted for this question.

34 (i) Voluntary unemployment. A worker who is registered as part of the labour force but is not prepared to immediately accept a job at the going wage rate for his skills is voluntarily unemployed.

Involuntary unemployment. A worker who is registered as unemployed and is prepared to accept a job immediately at the going wage rate for their skills is involuntarily unemployed.

(ii) People are more likely to choose to be voluntarily unemployed on a long term basis if:

- high state benefits for being unemployed reduce the opportunity cost of being unemployed
- high rates of tax on earned income reduce the incentive to work - finding out about jobs and travelling to interviews is expensive (i.e. high search costs)

- retraining is difficult to obtain and / or expensive

Generally answered well.

- 35**
- (i) This year's budget deficit may be financed by bond sales which will increase the size of the general government debt. A higher government debt will then impact upon next year's budget deficit because interest on the debt is part of the government expenditure used to calculate the budget deficit.
 - (ii) The general government debt of a country is the outstanding stock of government bonds in the market. The higher a country's government debt the higher the stock of bonds available on the market and, other things being equal, the higher the interest rate. Apart from this, governments with a high government debt tend to be distrusted by the financial markets. The markets may attach a higher risk to countries with high government debts for fear that the government may ultimately redeem the debt by printing money which could lead to inflation. This extra inflation risk will tend to be priced into the rate at which the government can borrow.

While part (i) was generally answered well, the responses to part (ii) were often significantly weaker. Very few candidates specifically linked high national debts to market fears and the risk of inflation if governments decided to attempt to monetize the debt.

- 36**
- (i) Deficit £50 million
 - (ii) Deficit £140 million
 - (iii) A net surplus in the capital and financial accounts means that the country is increasing its liabilities and/or decreasing its holdings of foreign assets
 - (iv) A rise in domestic income will lead to an increase in imports via the marginal propensity to import and hence a deterioration in the current account balance.

The answers to this question were generally disappointing. Most candidates answered parts (i) and (ii) correctly. But the other parts were often poorly answered showing a lack of understanding.

- 37** (i) Firms might wish to grow to increase their market share and ultimately establish greater market power and subsequently attain a higher level of profits. Firms also grow to benefit from economies of scale and therefore cut unit costs which further enhances profitability. In some instances, firms diversify to reduce risk and establish their place in what is sometimes a very aggressive market environment.

Sometimes growth is closely linked to the key objectives of managers such as managerial status, prestige, promotion and salary. Business growth might be essential if the business is to successfully manage change and at the same time, deal with the many uncertainties of the business environment.

- (ii) The growth/profitability relationship can operate in two ways:

Growth depends upon profitability. The more profitable the firm, the more likely it is able to raise finance for investment.

Growth also affects profitability. In the short run growth above a certain rate may reduce profitability. A firm wishing to expand its operations in an existing market will require greater advertising and marketing expenditure or a firm seeking to diversify may have to spend considerable sums on market research and employing managers with specialist skills. In both cases investment is likely to be needed for plant and machinery and the necessary finance may have to come from the firm's sales revenue. Thus some of the short-run profits will be sacrificed for long run gain.

In the long run, if growth leads to expansion into new markets where demand is growing, or to increased market power, or increased economies of scale, it may increase long-run profits. But if growth leads to diseconomies of scale or to investment in risky projects, then long-run profitability will be sacrificed for growth.

In part (i) many candidates chose to list various points rather than explain these. In part (ii) many candidates failed to explain the link between profitability and growth in the short and the long run adequately. While many candidates knew the facts, they failed to articulate the linkages well.

- 38** (i) Candidates should provide a full explanation of the relevant points and include any relevant diagrams.

The main solution for demand deficient unemployment advocated by Keynesian economists is an expansionary fiscal policy. The expansionary fiscal policy is usually associated with an increase in government expenditure which it is believed will then have a multiplier effect on aggregate demand. The simple multiplier is given by $1/\text{MPS}$ where MPS is the marginal propensity to save (or equivalently $1/(1 - \text{MPC})$ where MPC is the marginal propensity to consume out of disposable income). An alternative to increasing government expenditure is cutting the tax rate which should in turn lead to increased demand in the form of higher consumption and investment, although

Keynesians regard this as a less effective means of stimulating aggregate demand.

- (ii) The main criticism of Keynesian expansionary fiscal policies concerns the possible crowding out effects. A fiscal expansion which is financed by borrowing may have the effect of raising national income but the increased bond sales will depress bond prices and raise the real interest rates and the increase in national income raises money demand which for a given money stock requires a higher interest rate to clear the money market. Higher interest rates may reduce private sector expenditure.

Expansionary fiscal deficits not matched by similar percentage increases in GDP will also have the effect of raising the national debt to GDP ratio, which can undermine confidence as business and consumers start to forecast future government expenditure cuts or tax rises, this lack of confidence can then hit consumer and investment demand in the economy.

Other crowding out effects include the tax effect whereby an increase in government expenditure which is financed by taxation will reduce consumer demand and firms' investment expenditure. Also there are expectations effects. An increase in government expenditure financed by borrowing will lead to expectations of future increases in taxes which will lead to increased saving and reduced investment by firms. Finally, critics point out that Keynesians ignore potential supply side effects, a fiscal expansion may lead to a tightening of the labour market and inflationary effects on the economy which will reduce investment and the demand for labour.

This question was in general poorly answered. Many candidates focused on demand deficient unemployment whilst ignoring the solutions. Also there was not a sufficient understanding of some of the criticisms that have been levelled against the Keynesian policy prescriptions in the second part of the question.

END OF EXAMINERS' REPORT

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

20 April 2012 (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 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>

- 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** In economics the concept of scarcity means:
- A all resources will eventually be exhausted.
 - B there are unlimited resources, we just have an allocation problem.
 - C there are unlimited wants and limited resources.
 - D all of the above.
- [1½]
- 3** Good Y has a cross elasticity of demand with respect to Good X of 0.5 and 100 units of Good Y are demanded when Good X costs 50 pence. A rise in the price of Good X to 75 pence will lead to a change in the demand for Good Y to:
- A 150 units.
 - B 125 units.
 - C 75 units.
 - D 50 units.
- [1½]
- 4** The demand equation for Good X is $Q_d = 15 - 0.5P$ and the supply equation for Good X is $Q_s = 3 + 2P$, where P is the price. When the price is £6 there will be:
- A a surplus of Good X and price will rise.
 - B a shortage of Good X and price will fall.
 - C a surplus of Good X and price will fall.
 - D a shortage of Good X and price will rise.
- [1½]
- 5** A demand curve which has price elasticity of minus one throughout its length will be:
- A vertical.
 - B horizontal.
 - C upward sloping.
 - D downward sloping.
- [1½]

6 According to the law of diminishing marginal utility, the total satisfaction that a consumer gets from consuming Good X will:

- A rise at an increasing rate as consumption of Good X increases.
- B rise at a decreasing rate as consumption of Good X increases.
- C fall at an increasing rate as consumption of Good X increases.
- D fall at a decreasing rate as consumption of Good X increases.

[1½]

7 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]

8 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 reflecting different production costs.
- D different varieties offered at the same price.

[1½]

9 Which one of the following is TRUE when economies of scale are present?

- A The short run average cost declines.
- B If inputs are doubled then output less than doubles.
- C An increase in the variable factor of production holding the fixed factor of production constant leads to a higher increase in output.
- D The long run average cost curve declines.

[1½]

- 10** Which of the following statements is TRUE?
- A Marginal physical product is equal to total physical product divided by average product.
 - B Average physical product is always greater than marginal physical product.
 - C Marginal physical product can never become negative.
 - D Average physical product can never become negative.
- [1½]
- 11** A perfectly competitive firm is producing at a level of output where short run marginal cost is rising and exceeds marginal revenue. What should the firm do to maximise its short run profits?
- A Reduce its output.
 - B Raise its output.
 - C Raise its price.
 - D Reduce its price.
- [1½]
- 12** 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 price.
 - C the firm has to reduce price on all units sold in order to sell an additional unit.
 - D of the law of diminishing returns.
- [1½]
- 13** If the demand for Good X is price elastic then the burden of a sales tax on Good X will be borne:
- A equally by buyers and sellers.
 - B more heavily by buyers.
 - C more heavily by sellers.
 - D by neither buyers nor sellers.
- [1½]

- 14** A profit maximising oligopolistic firm has marginal cost 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** The range of output over which average variable cost falls will be the same as the range over which:

A average physical product falls.
B average physical product rises.
C marginal physical product falls.
D marginal physical product rises.

[1½]

- 16** 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 fall.
D The effect on quantity is indeterminate but price will rise.

[1½]

- 17** Assume two countries, with the same level of technology and resources, do not presently trade. In Country X one unit of labour and one unit of capital can produce 20 units of Good A or 15 units of Good B. In Country Y one unit of labour and one unit of capital can produce 50 units of Good A or 25 units of Good B.

<i>Country</i>	<i>Good A</i>	<i>Good B</i>
X	20	15
Y	50	25

Which of the following is TRUE?

A Country Y has a comparative advantage in the production of Good A.
B Country X has an absolute advantage in the production of Good B.
C Country X has an absolute advantage in the production of Good A.
D Country Y has a comparative advantage in the production of Good B.

[1½]

- 18** 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 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]
- 19** Which of the following is a possible explanation for an increase in the average price level and a decrease in real national income?
- A An increase in short run aggregate supply.
 - B A decrease in short run aggregate supply.
 - C An increase in aggregate demand.
 - D A decrease in aggregate demand.
- [1½]
- 20** Which of the following statements about the demand for money is FALSE?
- A The demand for money is negatively related to the interest rate.
 - B The demand for money is positively related to the level of national income.
 - C The demand for money is negatively related to the price level.
 - D The demand for money can be divided into speculative, precautionary and transactions motives.
- [1½]
- 21** Which one of the following would NOT constitute a demand side economic policy for reducing unemployment?
- A Increased government expenditure on domestically produced goods.
 - B Increased money supply.
 - C Reduced corporate and personal taxation.
 - D A privatisation programme.
- [1½]
- 22** The adoption of a policy to reduce the government's budget deficit will involve:
- A an increase in aggregate demand and a reduction in real output.
 - B an increase in aggregate demand and an increase in real output.
 - C a reduction in aggregate demand and a reduction in real output.
 - D a reduction in aggregate demand and an increase in real output.
- [1½]

- 23** If the central bank has to intervene in the foreign exchange markets to prevent the home currency from appreciating, then its foreign exchange reserves will:
- A decrease and the domestic money supply will rise.
 - B decrease and the domestic money supply will fall.
 - C increase and the domestic money supply will rise.
 - D increase and the domestic money supply will fall.

- 24** In a country with a population of 25 million people there are 16 million in the total workforce and 2 million unemployed. What is the rate of unemployment?

- A 8%
- B 11.1%
- C 12.5%
- D 44%

[1½]

- 25** 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]

- 26** If the rate of inflation is lower than the anticipated rate used for negotiating interest rates and wages:

- A lenders will gain at the expense of borrowers and employers will gain at the expense of workers.
- B borrowers will gain at the expense of lenders and employers will gain at the expense of workers.
- C borrowers will gain at the expense of lenders and workers will gain at the expense of employers.
- D lenders will gain at the expense of borrowers and workers will gain at the expense of employers.

[1½]

- 27** (i) Explain with the use of an appropriate formula the term cross price elasticity of Good X and Good Y. [2]
- (ii) The demand for Good X is 260 units per year when price is £2.50 per unit.
- (a) If the price of Good X falls to £2.00 per unit and demand for Good X increases to 300 units per year, calculate the own price elasticity of demand for Good X. [2]
- (b) If consumer income increases from £23,000 to £26,000 per year and demand for Good X rises to 320 units per year, calculate the income elasticity of demand for Good X. [1]
- [Total 5]

- 28** A perfectly competitive firm sells Good X at a market price of £18 per unit. The firm's short run total fixed cost is £450 per day and the daily wage rate paid by the firm is £130 per employee. No other costs are involved in production.

The output of the firm varies with the level of employment as follows:

<i>Number of Employees</i>	<i>Units of output per day</i>
0	0
1	22
2	42
3	58
4	66
5	67

If the firm employs three workers per day, determine the firm's daily:

- (i) Total Revenue. [1]
- (ii) Total Cost. [1]
- (iii) Economic Profit. [1]
- [Total 3]

29 Outline with the aid of a diagram the four stages of the business cycle. [6]

30 Draw a diagram to represent a firm operating in monopolistic competition in the short run.

Use your diagram to show:

- (a) the firm's profit maximising price and level of output.
- (b) the area representing total profit.
- (c) the effect of an increase in fixed costs.

[5]

31 Explain with the use of examples the following terms:

- (a) risk neutral
- (b) risk loving
- (c) risk averse

[3]

32 The following table shows the consumption schedule for a closed economy.
Investment is currently £40bn and the marginal propensity to consume is 0.67.

National income (Y) (£bn)	30	60	90	120	150	180	210	240	270	300
Consumption (C) (£bn)	20	40	60	80	100	120	140	160	180	200

- (i) Calculate the equilibrium level of national income assuming that the government is currently spending £20bn. [1]
- (ii) Calculate the level of savings in this economy if the government has a budget deficit of £5bn at the equilibrium level of national income. [2]

Now assume that full employment is achieved at a national income level of £240bn.

- (iii) Assuming no change in tax rates, determine the increase in the government expenditure required to achieve full employment. [1]
 - (iv) Assume that as an alternative measure to changing government expenditure, the amount of taxes levied is changed in order to raise the national income to its full equilibrium level. Determine the change in taxes in this case. [1]
- [Total 5]

33 (i) Outline the reasons why the market may fail to provide an environment in which technological change can thrive. [2]

- (ii) Outline how the government may intervene in the market to encourage firms to undertake research and development. [2]
- [Total 4]

34 The following table represents an economy's labour market:

<i>Average (real) wage rate US \$</i>	<i>Aggregate demand for labour (thousands of workers)</i>	<i>Aggregate supply for labour (thousands of workers)</i>	<i>Total labour force (thousands of workers)</i>
20	700	100	200
40	500	200	300
60	350	350	400
80	200	530	600
100	100	700	750

- (i) Calculate the following:
- (a) the equilibrium wage rate.
 - (b) the natural level of unemployment.
 - (c) the level of disequilibrium unemployment that would arise if trade union pressure increased the average (real) wage to US\$ 80.
 - (d) the equilibrium unemployment rate.
- [4]
- (ii) Draw a diagram to show and explain the impact of an increase in immigration on the labour market equilibrium.
- [2]
[Total 6]

35 Outline with the use of examples the key characteristics of public goods. [2]

36 Discuss the various categories of unemployment that can exist in an economy. [4]

- 37** (i) Draw a diagram to show the demand and supply for Good X in Country A which is producing and importing Good X where the world price P_w is below the domestic market equilibrium price of Good X.
- Show on your diagram the quantity of Good X supplied in Country A labelled as Q_1 , the quantity demanded of Good X in Country A labelled as Q_2 and the amount of Good X imported. [3]
- (ii) Now assume that Country A imposes a tariff (t). The new world price after imposing the tariff is still below the domestic market equilibrium price of Good X. Show the new world price P_{w+t} on your diagram following the imposition of the tariff, the new quantity supplied Q_3 , the new quantity demanded Q_4 and the amount imported of Good X. [1]

- (iii) Explain with the use of your diagram who gains and who loses as a result of Country A imposing a tariff. [2]
- (iv) Show on your diagram and explain the impact of the government introducing a subsidy to assist domestic producers of Good X in Country A. [2]
- [Total 8]

38 In a large city there are many taxi firms which can provide identical services.

- (i) State the type of market structure under which the city's taxi firms operate. [1]
- (ii) Explain and show on a diagram the possible changes in a taxi firm's economic profit, price and output given the following events. Use diagrams which are initially in long run equilibrium and take each event separately.
- (a) The city council decides to ease traffic congestion by banning cars from inner city areas but not taxis.
- (b) The price of petrol and diesel fuel increases.
- (c) A new licence fee for all taxis is introduced.

[9]
[Total 10]

END OF PAPER

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

April 2012 examinations

Subject CT7 – Business Economics Core Technical

Purpose of Examiners' Reports

The Examiners' Report is written by the Principal Examiner with the aim of helping candidates, both those who are sitting the examination for the first time and who are using past papers as a revision aid, and also those who have previously failed the subject. The Examiners are charged by Council with examining the published syllabus. Although Examiners have access to the Core Reading, which is designed to interpret the syllabus, the Examiners are not required to examine the content of Core Reading. Notwithstanding that, the questions set, and the following comments, will generally be based on Core Reading.

For numerical questions the Examiners' preferred approach to the solution is reproduced in this report. Other valid approaches are always given appropriate credit; where there is a commonly used alternative approach, this is also noted in the report. For essay-style questions, and particularly the open-ended questions in the later subjects, this report contains all the points for which the Examiners awarded marks. This is much more than a model solution – it would be impossible to write down all the points in the report in the time allowed for the question.

T J Birse
Chairman of the Board of Examiners

July 2012

General comments on Subject CT7

The Business Economics examination paper includes different types of questions requiring a variety of styles of answers in the degree of detail required. The questions clarify the amount of detail necessary in the answer.

For questions requiring calculations with workings, full mark would only be awarded if workings are shown. Similarly, in questions requiring explanation, full mark will be awarded for providing adequate explanation. For essay questions, candidates are expected to include the relevant facts and issues *as well as* the linkages so that a direct and coherent answer to the specific question is provided. Thus, mere statement of facts and a general discussion of issues around the specific question will not be sufficient to gain a high mark. Where a question requires drawing diagrams and showing particular points or areas on the diagram, the diagram needs to be clearly drawn and labelled and clear explanation offered.

Comments on the April 2012 paper

The paper was of a similar standard to the last two years' papers which test the new syllabus. The new syllabus, first introduced in 2010, includes a discussion of many new topics relevant to the world of business and to the economy as a whole. The paper, therefore, is balanced in favour of the more discursive type of questions. The syllabus places a greater emphasis on, and provides a greater scope for testing the candidate's discursive and analytical as well as technical skills.

The standard of the performance in this diet was similar to the previous diets. Candidates were generally able to provide correct answers to parts of the questions where these involved offering standard numerical solutions and diagrams, or listing of the relevant factors. However, where the answer was a variation on the standard calculation and diagrams, or required explanation of the concepts, answers were not as strong. Questions 38 involved a combination of application, diagrams and explanation and aimed to test the knowledge as well as a deeper understanding of the concepts and issues. However, very few candidates succeeded in providing the correct answer for this question. Candidates preparing for the examination for this subject are encouraged to focus on building strength in these areas.

A few candidates provided explanation for some of the questions in the multiple choice section. Providing explanation for multiple choice questions is unnecessary and will claim valuable time that needs to be spent on other sections.

Many diagrams offered in answer to question 30 would have benefited from more clarity or some explanation. Future candidates need to take note that where a question requires drawing diagrams and showing particular points, the diagram needs to be clearly drawn and labelled and clear explanation offered.

A number of candidates incorrectly provided the description for the product cycle instead of the business cycle in answering question 29. Future candidates are advised to read the questions carefully, since in economics similar terms often refer to entirely different concepts.

1	D
2	C
3	B
4	C
5	D
6	B
7	C
8	C
9	D
10	D
11	A
12	C
13	C
14	A
15	B
16	A
17	A
18	B
19	B
20	C
21	D
22	C
23	C
24	C
25	A
26	D

The multiple choice section was generally answered well, although candidates found the questions in the first half of the section more challenging.

- 27** (i) This is a measure of the responsiveness of the demand for one product to a change in the price of another (i.e. a substitute or complement). It is used to estimate how much the demand for one product will change in response to a change in price of the other good.

$$\text{CED} = \frac{\text{The percentage change in the demand for Good X}}{\text{The percentage change in the price of Good Y}}$$

If Goods X and Y are substitutes then demand for Good X will rise as the price of Good X rises. The cross price elasticity is positive. If X and Y are complements then the demand for Good X will fall as the price of Y rises. Cross price elasticity in this case is negative. A determinant of the CED will be the relative closeness of the two goods; the closer they are to one another the greater will be the effect of a change in price on the quantity demanded of the other good.

- (ii) (a) $(300-260)/280 * 100 = 14.29$ (percentage change in quantity of Good X)
 $(2.00-2.50)/2.25 * 100 = -22.22$ (percentage change in price of Good X)
 $14.29/-22.22 = -0.64$
- (b) $(320-260)/290 * 100 = 20.69$ (percentage change in quantity of Good X)
 $(26,000-23,000)/24,500 * 100 = 12.2$ (percentage change in income)
 $20.69/12.2 = 1.69$

The alternative point method in calculating the elasticity was also accepted.

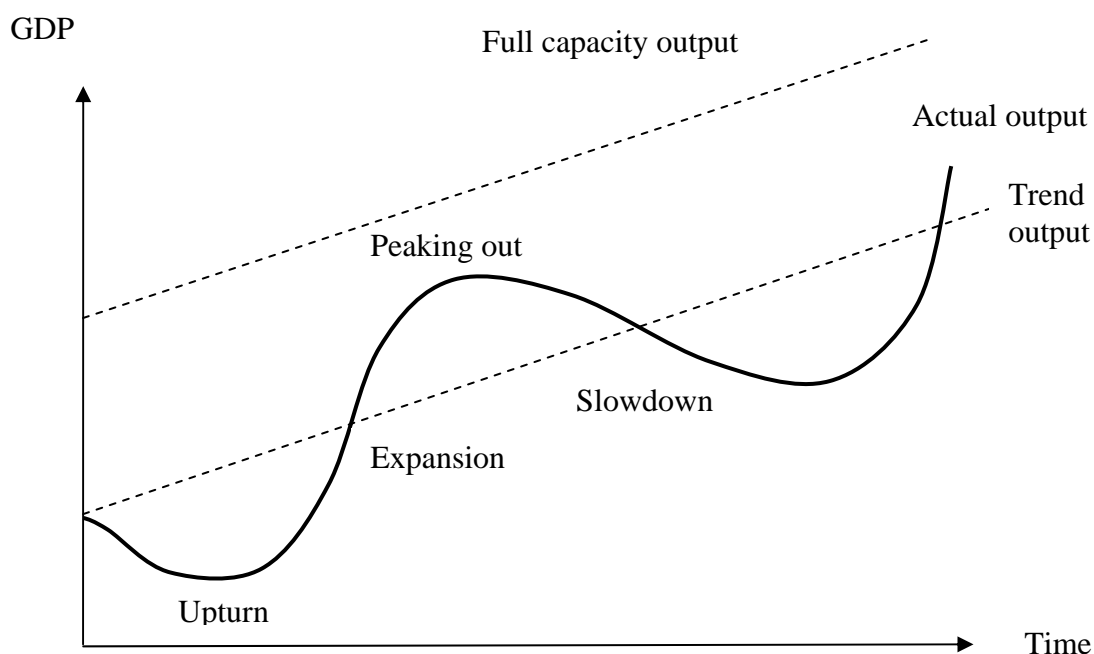
- (ii) (a) $(\text{new-old})/\text{old} * 100$
 $(300-260)/260 * 100 = 15.38$ (percentage change in quantity of Good X)
 $(2.00-2.50)/2.50 * 100 = -20.00$ (percentage change in price of Good X)
 $15.38/-20.00 = -0.77$
- (b) $(320-260)/260 * 100 = 23.01$ (percentage change in quantity of Good X)
 $(26,000-23,000)/23,000 * 100 = 13.04$ (percentage change in income)
 $23.01/13.04 = 1.76$

Although the majority of the answers presented the formula and a general explanation for the cross elasticity of demand, very few candidates mentioned substitutes and complements.

- 28** (i) Total Revenue = 58 units \times £18 = £1044
- (ii) Total Cost = fixed costs + variable costs = £450 + (3 \times £130) = £840
- (iii) Economic profit = Total Revenue – Total Cost = £1044 – £840 = £204

This question was generally well answered.

- 29** The answer may refer to the stages in any order. The diagram should show GDP on vertical axis and time on the horizontal, an upward sloping line to indicate trend output and a line fluctuating above and below this line to show actual GDP. Also it is necessary to indicate the appropriate points on the diagram.



Four phases:

Upturn – economy is in recovery and showing signs of growth following a recession/downturn. Also acceptable are Recovery or other phrases which are indicative of understanding that output is starting to rise following a period of recession/downturn.

Expansion – economic growth in this stage is more rapid and the economy may be “booming”. Actual output and potential output converge. Also acceptable is a discussion of growth rather than expansion, looking for an indication that output is growing and nearing potential output.

Peaking out – growth is slowing/peaking/ceases

Slowdown/recession/slump – little or no growth. A discussion of a recession provided that the correct definition is given is acceptable. Similarly a discussion of falling output and the resulting unemployment is acceptable.

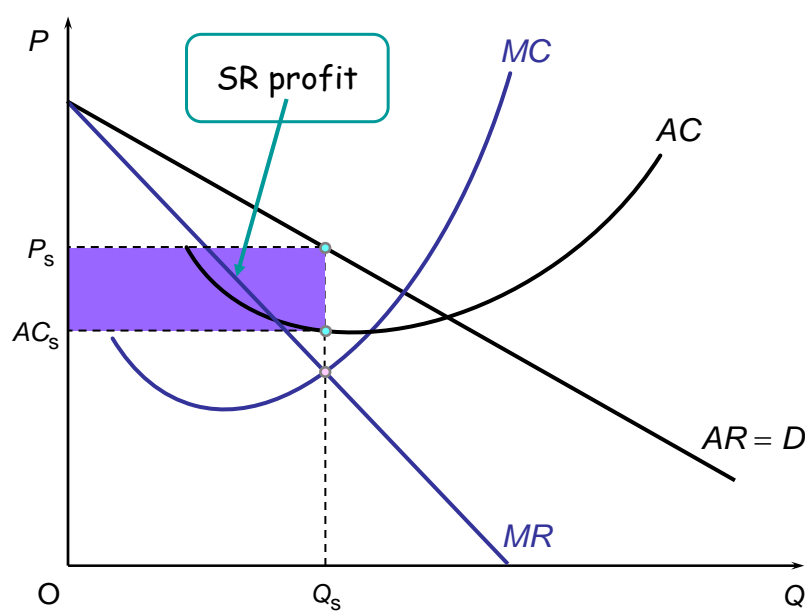
For each phase, candidates may offer a discussion of the reasons for the economy moving from one phase into the next, with possible reference to macroeconomic variables.

In answering this question a number of candidates focussed on the product cycle, and not the business cycle as the question demanded. Other candidates answered the question well.

30 Diagrams below should clearly show:

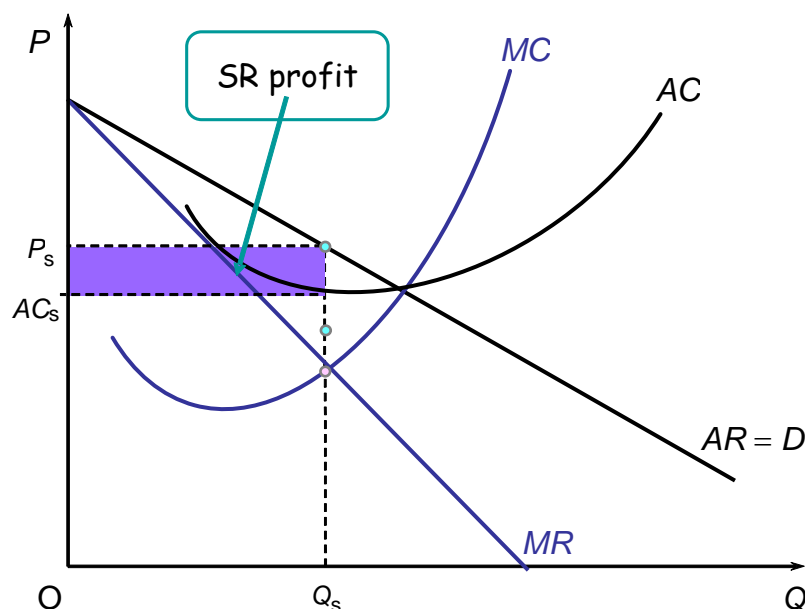
- (a) a line going through the profit maximising level of output (where $MC=MR$) and extended upward to D, AR and then across to the price axis as shown by the line.
- (b) the area above the ATC curve and under the demand curve at the profit maximising price and quantity.

Monopolistic Competition - short-run equilibrium



- (c) AC shifted upwards, no change in output or prices but leading to a reduction in profits as shown below or if it is move it to above AR then losses are incurred.

Monopolistic Competition - short-run equilibrium



(Note: The answer to this part should be clearly shown using one or more diagrams.)

This question was generally well answered. Some of the diagrams were not clearly labelled.

- 31**
- (i) Risk neutral: a person takes a gamble when the odds are favourable and will not take a risk when the odds are unfavourable. The risk neutral person is indifferent about the gamble when the odds are fair.
 - (ii) Risk loving: a person is more willing to take a gamble even when the odds are unfavourable. The more risk loving the person is, the worse the odds that they are willing to accept.
 - (iii) Risk averse: a person may be unwilling to take a gamble even when the odds are favourable. The more risk averse the person is the better the odds need to be before the person will gamble. Few people are totally risk averse.

This question was generally answered well, although in many cases, the examples provided by the candidates needed to be more specific with more explanation.

- 32** (i) $Y = C + I + G$.
 $I = £40\text{bn}$ and $G = £20\text{bn}$ so $Y - C = £60\text{bn}$ and therefore $Y = £180\text{bn}$
- (ii) Withdrawn (see below)
- (iii) £20bn

Equilibrium national income, at £180bn, is £60bn below the full-employment level. Now injection multiplier = $1/(1 - mpc) = 3$. Change in G = Change in Y /injection multiplier, so the required increase in government expenditure is $£60\text{bn}/3 = £20\text{bn}$.

- (iv) Withdrawn (see below)

Parts (i) and (iii) of this question were answered well. But there was an inconsistency in parts (ii) and (iv) of this question so parts (ii) and (iv) of the question were withdrawn and the marks for these parts were awarded to all candidates. The withdrawn parts accounted for only 3 marks. There was no evidence that candidates wasted time unnecessarily on the two withdrawn part questions.

- 33** (i) The market may fail to provide an environment in which technological progress may take place for some of the following reasons:

R & D free riders – If firms can benefit from the R&D activities of other firms which carry risk and uncertainty, then firms may be less inclined to undertake R&D activity and may choose instead to free ride on others' activities. It is in firms' interest to keep R&D activities secret so that they reap the gains of such activities.

Monopolistic and oligopolistic market structures – In these market structures, large firms have less incentive to reduce costs and hence they engage in less R&D. Firms are able to afford R&D as they tend to be more profitable but have fewer incentives and hence engage in less R&D activity that aims to reduce costs. Generally competition provides more incentive to engage in R&D in order to reduce costs or to develop new products.

Duplication – As more firms engage in R&D activity, the likelihood of duplication increases which is a waste of resources. Given limited resources available for R&D, such resources need to be used as efficiently as possible.

Risk and uncertainty – Payoffs to R&D are highly uncertain and can be very costly. Activities which are low risk or those with clear market potential are likely to be undertaken leading to a lack of funding for longer term activities.

(ii) Policies used include:

Patent system – This system provides legal rights over products developed and hence encourages firms to engage in R&D activity.

Public provision – The government may provide the R&D activity itself to minimise some of the problems associated with free riders and duplication. This may be through its own research institutions or other organisations such as universities.

R&D subsidies – By providing subsidies to firms the cost of undertaking R&D activity is reduced. It is also possible that this may help diffuse R&D findings to others.

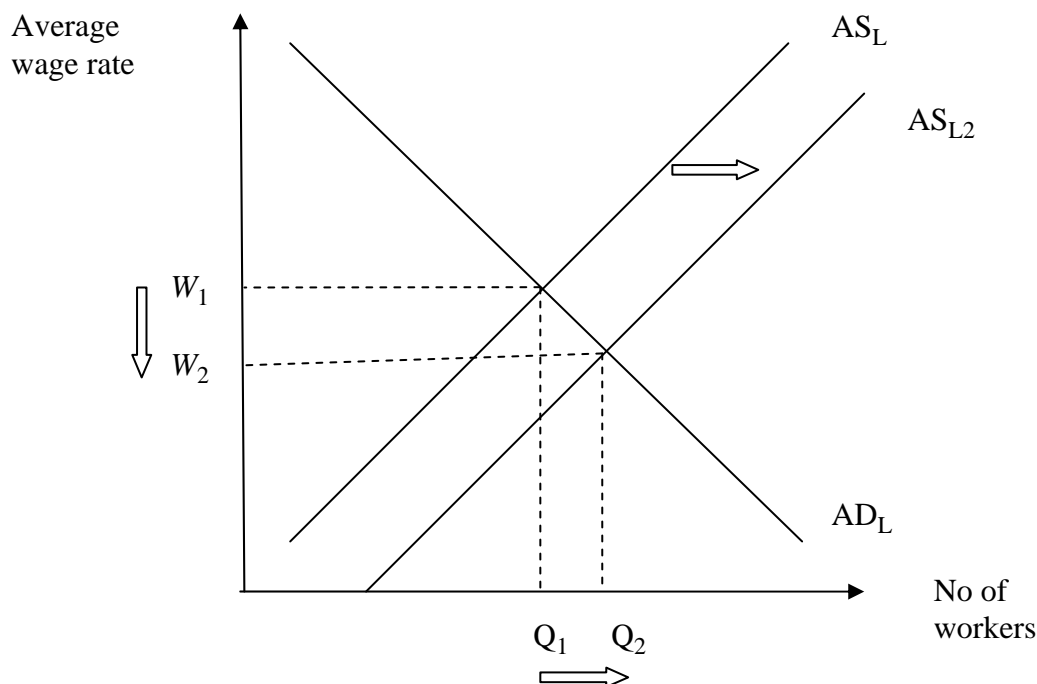
Cooperative R&D – The government may be directly involved in the R&D activity with a firm/firms or it may be the case that it helps firms come together to undertake R&D. Possible advantage is that this reduces duplication and helps to pool scarce resources.

Diffusion policies – Information about new technology and use of subsidies to help firms use new technology.

Other policies – Other policies which may influence R&D include education and training, competition policy, standards and compatibility

This question was generally well answered.

- 34** (i) (a) 60
 (b) 50
 (c) 330
 (d) $50 / (50 + 350) * 100 = 12.5\%$
- (ii) Following an increase in immigration, the labour supply curve will shift to the right. At the original wage there is a surplus of labour, there would be downward pressure on wages. Firms wish to hire more labour at lower wage rates and equilibrium is restored.



This question was generally well answered.

- 35** Two key characteristics are (i) non-rivalry and (ii) non-excludability.

Non rivalry – The consumption of a good by one person does not prevent the consumption of that good by anyone else. Goods have large external benefits of consumption relative to private benefits. This makes such goods socially desirable but these goods would not be profitable for individuals to provide for themselves – examples include pavements and street lighting.

Non-excludability – People reap the benefits of the good even if they have not paid for it. It is not possible to provide the good without others also benefiting and as a result, they have no incentive to pay for it. This creates the free rider problem.

This question was generally well answered, and most candidates identified the two key characteristics correctly.

36 There are a number of categories of unemployment inter alia:

Frictional – is the irreducible minimum amount of unemployment caused by labour market turnover when new people enter the labour force and look for jobs and existing workers change jobs. Frictional unemployment is most easily identifiable when unemployment is low and the majority of the workforce has been unemployed only for a short time.

Structural – occurs because changes in the regional, occupational and industrial structure of the demand for labour do not match changes in the structure of the supply of labour. Changes in demand may be due to international competition e.g. shipping decline in UK or new technology e.g. motor car industry.

Structural unemployment is often associated with the decline of particular sector. Many of the unemployed are from particular declining sectors of an economy.

Regional – refers to the case where a whole region is in decline due to closure of one or more industries within the region. Regional unemployment is identifiable if the unemployment in a particular region is substantially higher than other regions of a country.

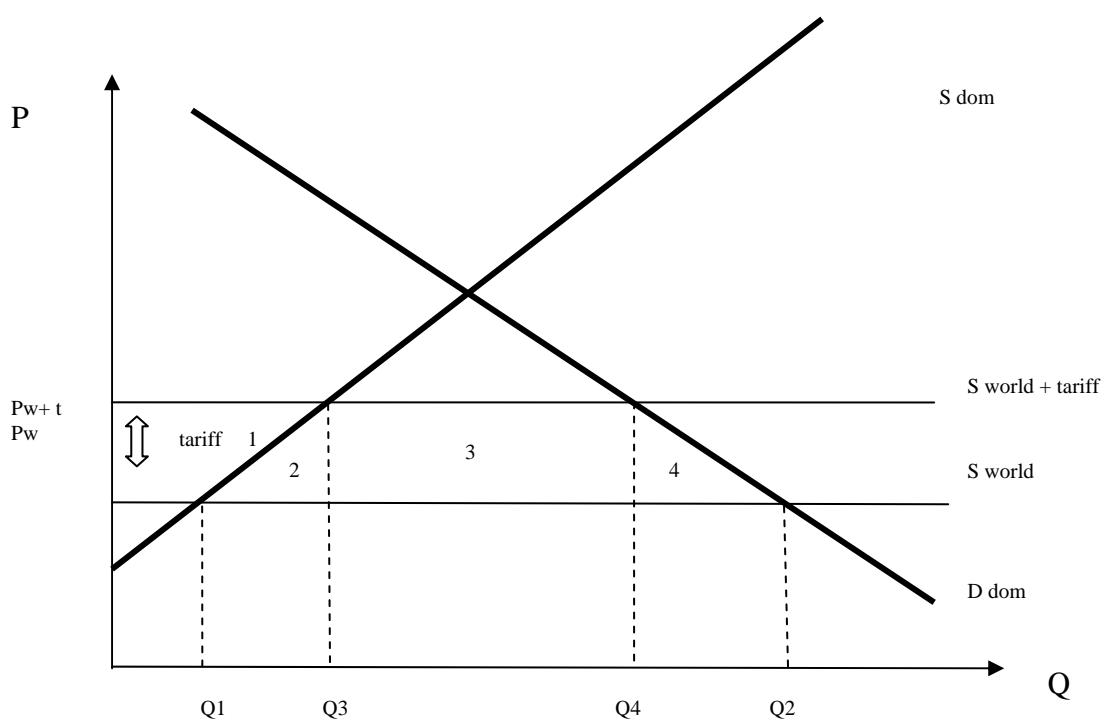
Demand Deficient – is due to insufficient aggregate demand in the economy as a whole so that full employment is not achieved. Demand deficient unemployment affects all regions but some are affected more than others. A sign of demand deficient unemployment is that the unemployment rate is quite high across the whole country.

Real Wage Unemployment – occurs because real wages are too high in relation to labour productivity. At the going real wage it does not pay for firms to employ all the labour force that is willing to work at the real wage. A sign of real wage unemployment can be that real wages have risen by more than can be justified by productivity increases.

Modern analysis also makes a distinction between **voluntary** and **involuntary** unemployment. Voluntarily unemployed are not willing to work at the going real wage rate while the involuntary unemployment would be prepared to, but cannot find work. One key factor that may raise the amount of voluntary unemployment is a rise in the net income with no work to net income when working ratio.

This question was generally answered well.

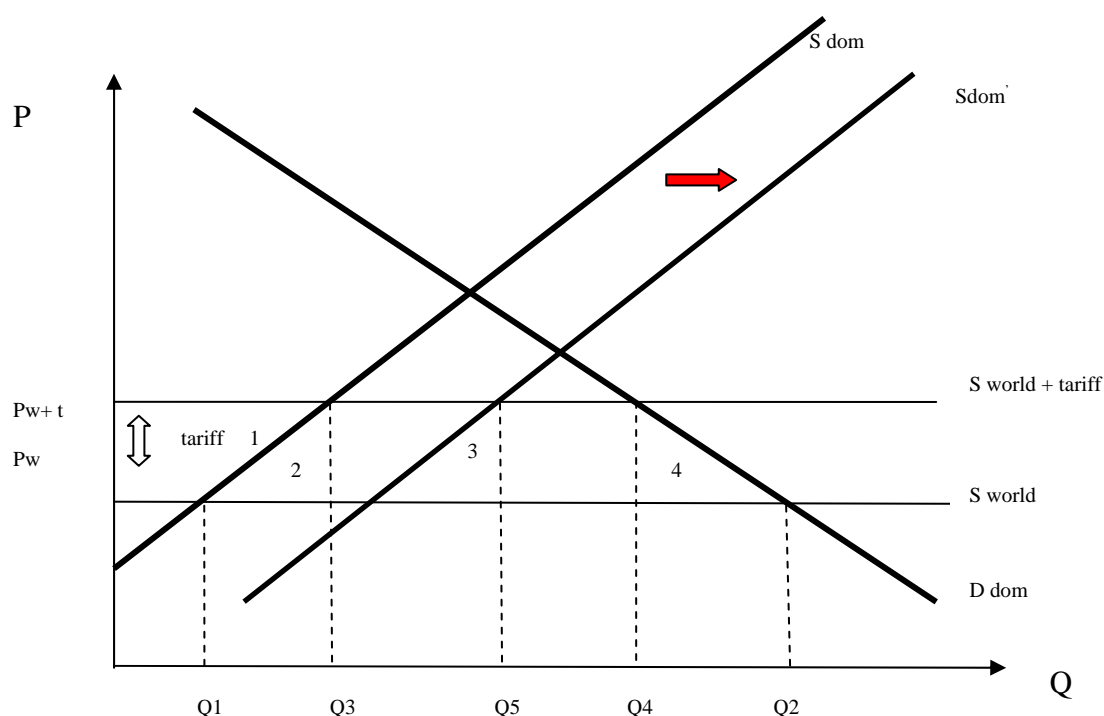
37 (i) and (ii)



$$\text{imports} = Q_2 - Q_1$$

- (iii) Reference should be made to the fact that following the tariff, the consumer would pay a higher price. Imports are now $Q_4 - Q_3$. Consumer surplus therefore falls – loss of areas 1 + 2 + 3 + 4. Part of this loss is redistributed to firms who now receive a higher price and gain additional profits (area 1). Government receives additional revenues from the tariff represented by area 3 (the amount of imports \times tariff). Some of the cost is not redistributed and therefore there is a net loss to society which is represented by areas 2 + 4.

- (iv) On the diagram below, the supply curve shifts to the right. Fewer imports are required as shown by the difference between Q5 and Q4.

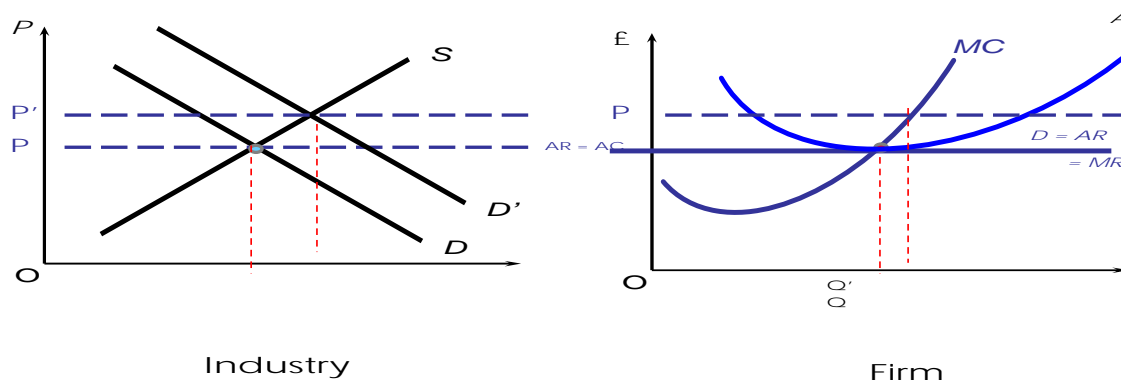


This question was generally well answered. Most candidates drew the diagrams correctly but a few could not provide the required explanation.

38 (i) Perfect competition.

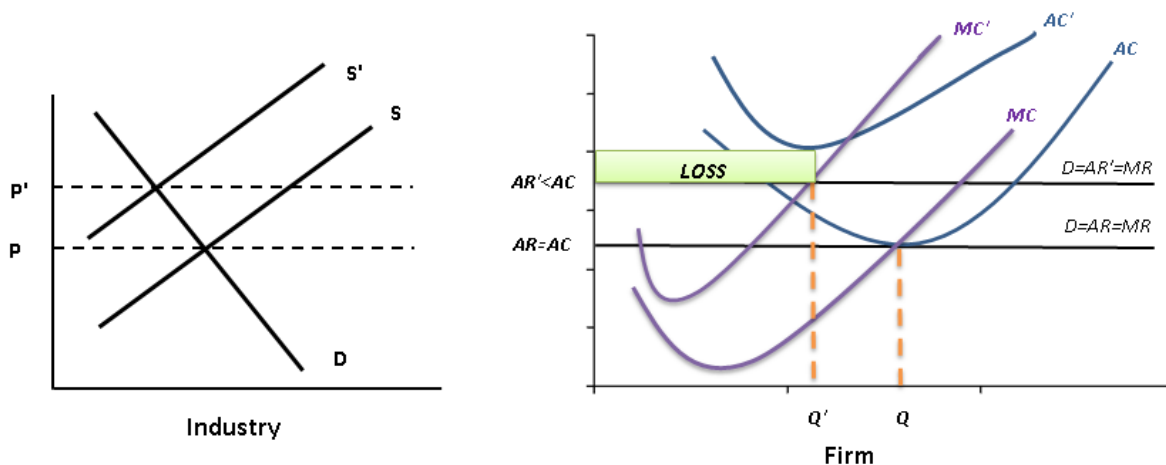
- (ii) (a) In the short run there would be a greater demand for taxis, demand shifts right for the industry and prices and quantity traded increase. For the firm, a new SR equilibrium experiencing abnormal profit would result. In the long run due to the characteristics of the market, new firms enter and normal profits are restored.

Short Run Equilibrium Perfect Competition



- (b) Starting from an initial equilibrium – The higher AVC would shift the supply line up and to the left. Therefore ATC and MC would all shift up resulting in higher prices and lower quantity traded. Losses would lead to firms exiting the market in the short run.

Increased Variable Cost Perfect Competition



- (c) An increase in fixed costs would result in ATC shifting up. There would be no change in output or price but losses are made (or if they have shown profits initially, then profits would fall). Losses would lead to firms exiting the market.

In this question an application of the concepts was needed and the answers were not generally of a high standard. Drawing industry diagrams proved a challenge for most candidates and where correct diagrams were offered, the explanation given was often general or insufficient. Very few candidates answered part (c) of the question correctly.

END OF EXAMINERS' REPORT

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

1 October 2012 (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 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>

- 1** Which of the following will result from the imposition of a 9 per cent sales tax on household fuel, the demand for which has an absolute price elasticity of demand equal to 1.5?
- A A rise in the price of fuel by 10.5 per cent.
 - B A rise in the price of fuel by 9 per cent.
 - C A rise in the price of fuel by 12 per cent.
 - D A rise in the price of fuel by less than 9 per cent.
- [1½]
- 2** A minimum price is set for Good X at £10 which happens to coincide with the free market price. An increase in the demand for Good X keeping the minimum price fixed at £10 will lead to:
- A no change in price and a shortage.
 - B a rise in price and quantity sold.
 - C a rise in price and a shortage.
 - D a rise in price and a surplus.
- [1½]
- 3** Which of the following statements about short run costs of production is incorrect?
- A Marginal cost is equal to average variable cost when average variable cost is at a minimum.
 - B Average fixed cost always falls as output rises.
 - C Marginal cost cannot exceed average total cost.
 - D Average total cost exceeds average variable cost by an amount that declines with increasing output.
- [1½]
- 4** Which of the following is NOT a feature of an industry characterised by monopolistic competition?
- A There are many firms.
 - B Firms sell differentiated products.
 - C In the long run monopolistic powers enable firms to make excess profits.
 - D A firm can raise its price without losing all its customers.
- [1½]

- 5** A profit maximising monopolist with positive marginal costs and a downward sloping demand curve will be able to make most profit if the demand curve is:
- A price inelastic.
 - B price elastic.
 - C of unit price elasticity.
 - D of infinite price elasticity.

[1½]

- 6** The following data is for a perfectly competitive firm producing Good X in the short run:

<i>Number of machines</i>	<i>Number of men</i>	<i>Total Output of Good X</i>
5	7	100
5	8	140
5	9	170
5	10	190

Which one of the following statements is correct?

- A The marginal physical product of the 8th man is lower than the marginal physical product of the 10th man.
- B The marginal physical product of the 8th man is higher than the marginal physical product of the 9th man.
- C The marginal physical product of the 9th man is lower than that of the 10th man.
- D The marginal physical product of the 10th man is negative.

[1½]

- 7** In the long run, a firm operating under conditions of monopolistic competition will produce at an output at which:

- A average total cost equals average revenue.
- B average total cost is less than average revenue.
- C average total cost is at a minimum.
- D marginal cost is equal to average total cost.

[1½]

8 Which one of the following is TRUE?

- A The long run average total cost curve is derived by joining all the minimum points of the short run average total cost curves.
- B The minimum efficient scale is the point at which long run average costs must begin to fall.
- C In the long run a firm cannot alter its fixed costs of production.
- D If a firm trebles all its inputs and its output doubles then this is indicative of diseconomies of scale.

[1½]

9 Total costs of production for a firm producing 100 units of output are \$5,000 and fixed costs are \$2,000. If output is increased by 1 unit in the short run, the total costs of production are \$5,030. Which one of the following statements is TRUE with respect to the extra unit of output?

- A The marginal cost of production is less than the average fixed cost of production.
- B The average cost of production is rising.
- C The average fixed cost of production is rising.
- D The average cost of production exceeds the marginal cost of production.

[1½]

10 The idea that an oligopolistic firm faces a kinked demand curve is based upon the assumption that:

- A a firm's competitors match both its price increases and price decreases.
- B one firm in the industry sets the price for all other firms.
- C a firm's competitors match its price decreases but ignore its price increases.
- D prices can either rise or fall; it depends on what happens to a firm's competitors' prices.

[1½]

- 11** First 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]

- 12** The profit payoffs to Firm X from various strategies 1 to 4 and the presumed responses of the other firm in a duopoly industry is given below:

		<i>Other Firm's Response</i>			
		<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>Strategy of Firm X</i>	<i>1</i>	90	15	90	100
	<i>2</i>	40	70	−20	−80
	<i>3</i>	25	50	120	130
	<i>4</i>	10	40	70	60

Which one of the following represents the maximin strategy of Firm X?

- A Strategy 1
 - B Strategy 2
 - C Strategy 3
 - D Strategy 4
- [1½]

- 13** Given the following labour hours to produce 1 unit of Goods X and Y, which of the statements below is TRUE?

<i>Country</i>	<i>Good X</i>	<i>Good Y</i>
A	10	5
B	5	20

- A Country A has a comparative advantage and an absolute advantage in producing Good Y.
- B Country B has a comparative advantage in producing Good X and an absolute advantage in producing Good Y.
- C Country A has a comparative advantage in producing Good Y and an absolute advantage in producing Good X.
- D Country B has a comparative advantage in producing Good Y and an absolute advantage in producing Good X.

[1½]

- 14** In an open economy with no taxation, the marginal propensity to save is 0.25 and the level of income is €800m. What is the likely level of consumption expenditure resulting from a rise in government expenditure of €100 million?

- A €700 million
- B €800 million
- C €900 million
- D €1000 million

[1½]

- 15** The accelerator principle states that:

- A investment is increased when interest rates fall.
- B an increase in consumer demand leads to a more than proportionate increase in the level of investment.
- C an increase in investment will lead to a more than proportionate increase in output.
- D the rate of change of investment affects the rate of change of output.

[1½]

- 16** If a country has a negative net income from abroad 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 from this information.
- [1½]
- 17** If the money supply decreases due to a contractionary open market operation by the central bank then the price of treasury bills will:
- A fall as the short term interest rate rises.
 - B fall as the short term interest rate falls.
 - C rise as the short term interest rate rises.
 - D rise as the short term interest rate falls.
- [1½]
- 18** Which of the following will increase the size of the multiplier?
- A An increase in Government expenditure.
 - B A decrease in the marginal propensity to save.
 - C An increase in the marginal propensity to save.
 - D An increase in autonomous investment.
- [1½]
- 19** In a closed economy with no government sector if the amount people plan to save exceeds the amount they plan to invest then there will be:
- A a rise in national income.
 - B an unplanned rise in stocks.
 - C inflationary pressures.
 - D a rise in the amount people plan to invest.
- [1½]

- 20** According to Keynesian analysis, 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]
- 21** Which of the following is best suited to reducing the level of structural unemployment?
- A Lowering the rate of interest.
 - B Raising the rate of unemployment benefit.
 - C Higher voluntary redundancy payments for workers in declining industries.
 - D More government funds for retraining of the unemployed.
- [1½]
- 22** According to Keynesian analysis, the adoption of a policy to reduce the government's budget deficit will involve:
- A an increase in aggregate demand and a reduction in real output.
 - B an increase in aggregate demand and an increase in real output.
 - C a reduction in aggregate demand and a reduction in real output.
 - D a reduction in aggregate demand and an increase in real output.
- [1½]
- 23** The quantity theory of money in its simplest form assumes that the:
- A velocity of circulation and nominal output are both fixed.
 - B ratio of the velocity of circulation to the price level is fixed.
 - C ratio of the money supply to the velocity of circulation is fixed.
 - D velocity of circulation and real output are both fixed.
- [1½]

24 Country A exports Good X and imports Good Y from Country B. The price of Good X rises by 20 per cent and the price of Good Y falls by 40 per cent. Which of the following statements is correct about Country A's terms of trade?

- A It has improved by 100 per cent.
- B It has improved by 60 per cent.
- C It has deteriorated by 100 per cent.
- D It has deteriorated by 60 per cent.

[1½]

25 Which of the following would NOT be included in the current account of a country's balance of payments?

- A Migrant remittances
- B Interest, profits and dividends paid to the rest of the world.
- C Exports of services
- D The purchase of foreign shares by a domestic pension fund.

[1½]

26 The law of comparative advantage states that countries should specialise in producing and exporting the goods that they produce at a lower:

- A marginal cost than other countries.
- B labour cost than other countries.
- C absolute cost than other countries.
- D opportunity cost than other countries.

[1½]

27 A manufacturer of Good X can sell all of Good X produced at the market price of ¥50 per unit.

When the firm is operating efficiently, the total cost of production per day is as follows:

<i>Output per day</i>	<i>Total Cost (¥)</i>
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) State the level of maximum profit at the profit maximising output. [1]

[Total 4]

- 28** Outline the major factors which explain the shape of a firm's average cost curve in the short and the long run. [4]
- 29** Read both parts (i) and (ii) before answering the question.
- (i) Draw a diagram for a profit maximising monopoly making excess profits using the following labels: AC1 for the average cost curve, MC1 for the marginal cost curve, MR1 for the marginal revenue line, AR1 for the average revenue line. Show on the average revenue line a point A at which profits will be maximised and the corresponding profit maximising price (P1) and output (Q1). [2]
- (ii) Show on the average revenue line a point N at which only normal profits will be made and the corresponding price (P2) and output (Q2). [2]
- [Total 4]
- 30** Outline with the use of a diagram why essentials, such as water, have such low prices, whilst luxuries, such as diamonds, have relatively high prices. [4]
- 31** The market demand curve (Q_d) and supply curve (Q_s) of Good X are given by the following equations:
- $$Q_d = 120 - 2P$$
- $$Q_s = 2P$$
- where P is the price in pounds.
- (i) Calculate the market equilibrium price and quantity. [2]
- (ii) Calculate the market equilibrium price and quantity if a sales tax of £10 per unit is imposed on Good X. [2]
- (iii) Calculate the total tax revenue raised by the sales tax. [1]
- [Total 5]
- 32** Explain four methods by which a country can reduce its trade deficit without resorting to the use of quotas and tariffs. [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
Bank multiplier	= 20%

Use the equation of exchange to determine the following with the above figures as your starting point in each of your calculations:

- (i) the numerical value of the velocity of circulation. [1]
- (ii) the value of the price index if the money supply were to increase to 300. [1]
- (iii) the likely change in the money supply if there is an initial increase in bank deposits of 15. [1]
[Total 3]

- 34**
- (i) Draw a diagram representing equilibrium in the money market showing both the real money supply (MS1) and real money demand (MD1) at an interest rate r_1 that clears the money market. [2]
 - (ii) Explain and show on your diagram how a reduction in the real money supply to MS2 would affect the market rate of interest in the short run. [2]
[Total 4]

- 35**
- (i) Explain what is meant by economic growth. [1]
 - (ii) Discuss THREE factors which influence a developed country's economic growth. [3]
[Total 4]

36 The following data relates to a closed economy with no government sector:

<i>Income level</i> <i>Y</i>	<i>Planned</i> <i>Consumption</i> <i>C</i>	<i>Planned</i> <i>Investment</i> <i>I</i>
80	64	22
100	78	22
120	92	22
140	106	22

where:

- $C = 8 + 0.7Y$.
 - planned consumption is the amount of consumption expenditure households plan to undertake.
 - planned investment is the amount of investment firms plan to carry out.
 - planned savings is the amount that households plan to save.
- (i) Determine the equilibrium level of national income. [1]
 - (ii) If the national income were £140 million calculate the rise or fall in unplanned stocks. [1]
 - (iii) Determine the level of planned savings that will yield a level of income at which there will be no rise or fall in unplanned stocks. [1]
 - (iv) Calculate the amount by which planned savings exceed planned investment at an income level of £120 million. [1]
 - (v) Determine the increase in the level of national income if planned investment rose from £22 million to £28 million. [1]
- [Total 5]

37 Discuss the main advantages and disadvantages of both fixed and floating exchange rates. [10]

38 Discuss the merits and problems of alternative measures that the government might adopt to alleviate the various categories of unemployment. [10]

END OF PAPER

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

September 2012 examinations

Subject CT7 – Business Economics Core Technical

Introduction

The Examiners' Report is written by the Principal Examiner with the aim of helping candidates, both those who are sitting the examination for the first time and using past papers as a revision aid and also those who have previously failed the subject.

The Examiners are charged by Council with examining the published syllabus. The Examiners have access to the Core Reading, which is designed to interpret the syllabus, and will generally base questions around it but are not required to examine the content of Core Reading specifically or exclusively.

For numerical questions the Examiners' preferred approach to the solution is reproduced in this report; other valid approaches are given appropriate credit. For essay-style questions, particularly the open-ended questions in the later subjects, the report may contain more points than the Examiners will expect from a solution that scores full marks.

D C Bowie
Chairman of the Board of Examiners

December 2012

General comments on Subject CT7

The Business Economics examination paper includes different types of questions requiring a variety of styles of answers in the degree of detail required. The questions clarify the amount of detail necessary in the answer.

For questions requiring calculations with workings, full mark would only be awarded if workings are shown. Similarly, in questions requiring explanation, full mark will be awarded for providing adequate explanation. For essay questions, candidates are expected to include the relevant facts and issues *as well as* the linkages so that a direct and coherent answer to the specific question is provided. Thus, mere statement of facts and a general discussion of issues around the specific question will not be sufficient to gain a high mark. Where a question requires drawing diagrams and showing particular points or areas on the diagram, the diagram needs to be clearly drawn and labelled and clear explanation offered.

Comments on the September 2012 paper

The paper was of a similar standard to the last two years' papers which test the new syllabus. The new syllabus, first introduced in 2010, includes a discussion of many new topics relevant to the world of business and to the economy as a whole. The syllabus places a greater emphasis on, and provides a greater scope for testing the candidate's discursive and analytical as well as technical skills.

The standard of the performance in this diet was similar to the previous diets. Candidates were generally able to provide correct answers to parts of the questions where these involved offering standard numerical solutions and diagrams, or listing of the relevant factors.

Some questions such as question 32 and question 35 required an answer that explained two aspects of the issue. In both questions many candidates did not include an adequate explanation of the supply side which was necessary to obtain full marks for these questions.

Similarly in question 37 where a full explanation of advantages and disadvantages of the two types of exchange rate mechanism is asked for, a listing of the relevant factors will not be sufficient to obtain the full allocated marks.

- | | |
|-----------|---------|
| 1 | D |
| 2 | B |
| 3 | C |
| 4 | C |
| 5 | A and B |
| 6 | B |
| 7 | A |
| 8 | D |
| 9 | D |
| 10 | C |
| 11 | C |
| 12 | C |
| 13 | A |
| 14 | C |
| 15 | B |
| 16 | A |
| 17 | A |
| 18 | B |
| 19 | B |
| 20 | C |
| 21 | D |
| 22 | C |
| 23 | D |
| 24 | A |
| 25 | D |
| 26 | D |

The multiple choice section was generally well answered although questions 3, 12, 13 and 26 had the lowest success rates.

27 (i)

<i>Output</i>	<i>Average total cost</i>	<i>Marginal cost</i>
0	-	-
1	60	10
2	39	18
3	35	27
4	35	35
5	37	45
6	44	79

(ii) At 5 units of output

(iii) 65

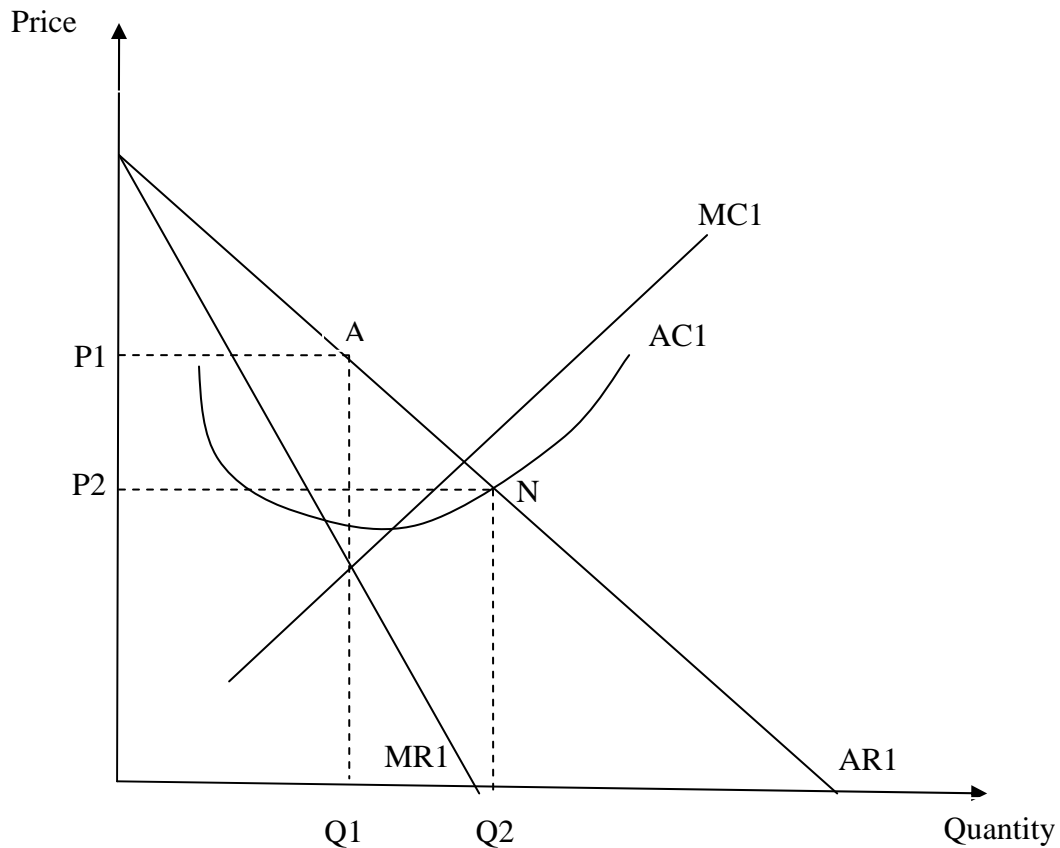
Generally well answered with many candidates obtaining full marks.

28 In the short run the law of diminishing returns is the relevant factor in determining short run average costs. As increasing amounts of a variable factor of production are added to a given amount of a fixed factor, marginal and average product initially tend to rise implying a fall in short run average costs. However, after a certain point marginal and eventually average product begin to decline. As average product declines then short run average costs rise.

Long run average costs are affected by economies and diseconomies of scale. In the long run all factors of production are variable. If increasing all inputs increases output more than proportionately then long run average costs decline. Examples of economies of scale include: discounts for bulk purchasing, lower borrowing costs etc. Eventually diseconomies of scale may set in eg bureaucracy, inflexibility etc. When diseconomies of scale outweigh economies of scale then long run average cost will begin to rise.

This question had mixed responses with many students failing to distinguish between the law of diminishing returns as the key determinant of short run costs and economies and diseconomies of scale as longer run determinants.

29



Generally well answered but many students failed to locate the appropriate break even output.

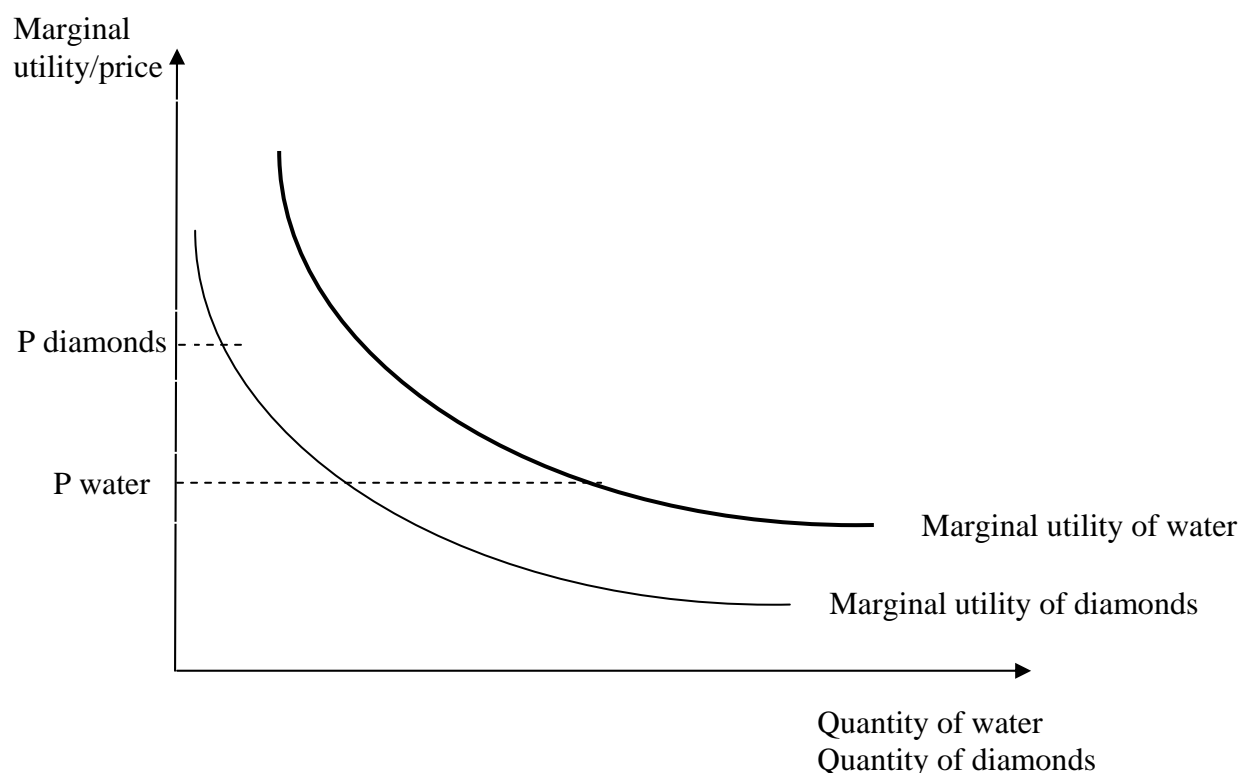
- 30** Essential products such as water have relatively low prices, but some luxuries such as diamonds have high prices. The paradox results from confusion between total and marginal utilities.

The relationship between total market value and total utility varies depending on the product. Total market value may be a very high or very low fraction of total utility. In equilibrium the value consumers place on the last unit consumed of any product (its marginal utility) is equal to the product's price.

Plentiful good (water) has a low price. It is consumed to the point where all purchasers place a low value (or marginal utility) on the last unit consumed and hence it results in a relatively low price. This is despite the fact that they place a high value on their total consumption of the product.

Scarce good such as diamonds have a high price. Consumption stops at a point where consumers place a high marginal value on the last unit consumed whatever value they place on their total consumption of the good. The result is that the marginal utility of diamonds results in a higher price for diamonds whatever the value of total utility.

The market price of a product depends on a mixture of demand and supply. Hence, there is no paradox is involved when a product from which consumers receive a high total utility sells for a low price, and hence has only a low total market value.



Answers to this question were varied and while examiners allowed for supply and demand type answers that emphasised the relative abundance of water. Good answers tended to focus on the importance of marginal utilities and the fact that diamonds have a higher marginal utility and hence in equilibrium diamonds have a higher price.

31 (i) The equilibrium price is obtained from the equilibrium condition $Q_d = Q_s$

$$120 - 2P = 2P$$

$$\text{Hence } 4P = 120$$

$$P = 30$$

$$\text{Equilibrium quantity} = 2 \times 30 = 60 \text{ units}$$

(ii) The sales tax (t) affects the supply curve:

$$Q_s = 2P^*$$

$$\text{Where } P^* = P - t = P - 10$$

The price received by the producer after the sales tax is paid is P^* which is

P – 10:

$$Q_s = 2P^* = 2(P - 10) = 2P - 20$$

We need $Q_d = Q_s$

$$120 - 2P = 2P - 20$$

$$4P = 140$$

Hence the new equilibrium price is £35

The new equilibrium quantity is $120 - 2 \times 35 = 50$ units

(iii) The tax revenue raised = units sold \times tax per unit = $50 \times £10 = £500$.

This question was generally well answered with many candidates obtaining full marks.

32 Devaluation – this makes imports more expensive in domestic currency terms and exports cheaper in foreign currency terms. This should lead to a fall in import volumes and a rise in export volumes.

Fiscal restraint – a cut in fiscal expenditure (rise in taxes) will have reverse multiplier effects on national income resulting in reduced import expenditure via the marginal propensity to import.

Monetary restraint – as tight monetary policy will via higher interest rates restrain consumer expenditure and investment. This will reduce national income and import expenditure.

Productivity improvements – increased productivity will improve the competitiveness of exports and the ability of import competing industries to compete against imports.

Subsidies – the government could subsidise exports of import competing industries.

Government procurement policies could change such that government expenditure is switched away from imported goods to domestically produced goods so improving the trade balance.

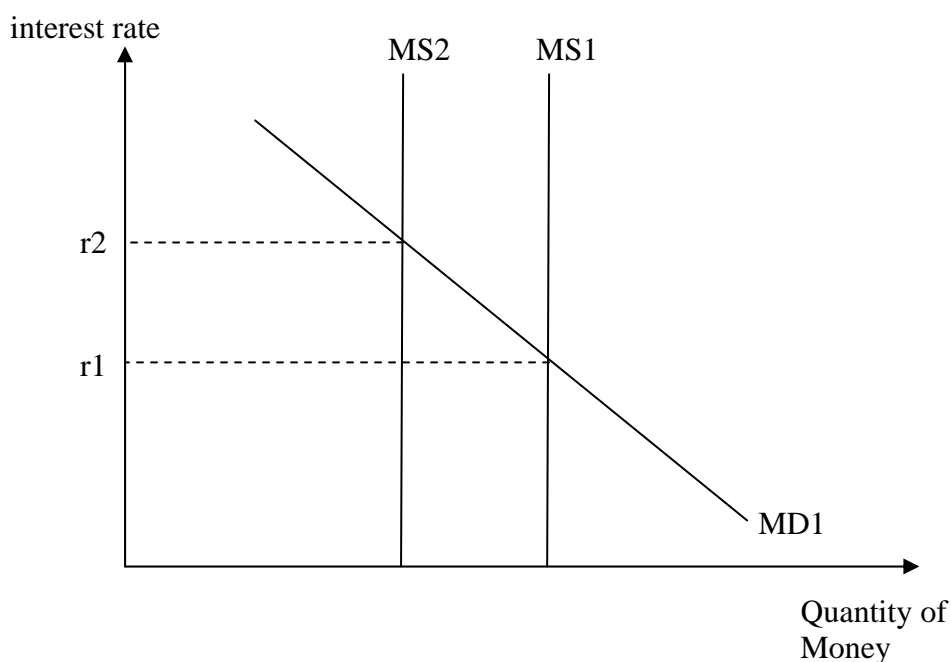
A government could introduce exchange controls that restrict its citizens ability to purchase foreign exchange and hence imports. If this is the case then they may switch expenditure from imports to domestically produced goods.

There were some very good answers to this question but overall not enough students emphasised the supply side factors that can contribute to an improved balance of payments performance.

- 33** (i) 5
(ii) 15
(iii) 75 (or 3 due to ambiguity in the meaning of bank multiplier)

Parts (i), (ii) and (iii) were well answered. Due to some ambiguity in the phrasing the question for part (iv) of the question examiners allowed for two possible answers as above.

34



The original money supply and demand are given by MS1 and MD1 respectively giving equilibrium at interest rate r1. A reduction in the real money supply from MS1 to MS2 due to Treasury bill sales causes a disequilibrium in asset holders' portfolios, such that there is an excess of Treasury bills and shortage of money at the prevailing interest rate r1. The result will be that Treasury bill prices fall and the interest rate will rise. Equilibrium is restored at interest rate r2 where the higher interest rate eliminates the excess supply of bills and the shortage of money.

There were some very good answers to this question with well drawn diagrams.

- 35** (i) Economic growth is an increase in the real output of an economy.
(ii) Investment – this is current output that is not consumed. An increase in investment will result in higher production in the future.

Education and training – this improves the productivity of the labour force and thereby raises the economic growth rate.

Technological change – this increases the productive potential of an economy.

Improved management skills – this will lead to improved efficiency, better economic organisation and greater output.

There are various aggregate demand measures that can assist economic growth such as increased government expenditure and reductions in taxation which boosts the incentive for firms to raise investment and worker to take up employment.

Another way to boost economic growth are structural reforms such as privatization, reductions in market distortions such as breaking up monopolies and making it easier and less bureaucratic for firms to take on workers and offer new products and series and new firms to set up business.

Population growth – this increases the productive potential of an economy and provides a steady increase in demand that will improve the investment climate.

Further ways of increasing economic growth over time are increased participation rate in the labour force or increasing working hours to get more hours work per worker. Similarly improving health standards means you will get more hours of work per worker so raising economic growth.

In the definition of economic growth it was essential to emphasise the increase in real output; many candidates made reference to nominal output or output without clearly specifying real output. In part (ii) there was a need to emphasise supply side factors such as increased participation rates and population growth rates as drivers of economic growth.

- 36**
- (i) £100 million
 - (ii) A rise in unplanned stocks of £12 million
 - (iii) £22 million
 - (iv) £6 million
 - (v) £20 million

This question was generally well answered.

37 Advantages of floating exchange rates

Monetary policy can be conducted independently of other countries without the need for controls on the movement of capital. This means governments are able to pursue independent fiscal and monetary policies suited to the needs of the domestic economy.

A floating exchange rate will tend to move to offset a balance of payments deficit or surplus automatically. A large deficit in the balance of payments will lead to a depreciation of the exchange rate which over time will boost exports (by making them cheaper for foreigners to buy) and reduce imports (by making them more expensive for domestic residents to purchase) and thus bring down or eliminate an unsustainable deficit.

A floating exchange rate can also insulate the domestic economy from the effects of foreign price shocks and other economic shocks. For example if foreign inflation rises, this may lead to an appreciation of the domestic currency so insulating the domestic economy from the foreign price shock.

There is no need for the central bank to hold large amounts of gold and foreign currencies, as the government need not intervene in foreign exchange markets.

Disadvantages of floating exchange rates

The major disadvantage of floating exchange rates is that they introduce uncertainty into foreign trade transactions. However, traders can alternatively use financial markets to carry out forward exchange deals to protect themselves against unexpected movements.

Foreign exchange markets when left to float can also lead to overvalued and undervalued currencies that can cause trade frictions between economies. Countries of currencies that become substantially overvalued will complain about unfair trade advantages that are conferred on countries with undervalued currencies.

Exchange rate under floating might be subject to excessive volatility caused by irrational speculation or by the tendency to overshoot their long run equilibrium values in the short run. This may adversely affect global trade volumes.

Although floating exchange rates give policy makers a high degree of monetary autonomy, there are some governments who use this autonomy to pursue excessively inflationary policies with adverse outcomes for the economy over the medium to long run.

Advantages of fixed exchange rates

Fixed exchange rates give greater certainty, and hence encourage foreign trade, allowing the potential gains from trade to be realised.

Fixed exchange rates can lead to lower inflation when the domestic currency is fixed relative to a low inflation currency. By pegging to a low inflation currency a country can send a signal to economic agents that they need to keep their wage demands and prices under control otherwise the country will lose some of its competitiveness and jobs.

Fixed exchange rate can also force discipline on governments since the fear of devaluation may prevent governments pursuing irresponsible macroeconomic policies, e.g. if a government deliberately expands aggregate demand to increase popularity with voters, a balance of payments deficit will arise and so it may have to constrain aggregate demand to prevent an excessive balance of payments deficit.

Fixed exchange rates can promote international policy coordination. Frequently fixed exchange rate systems are maintained by two or more countries that cooperate to maintain a fixed exchange rate system. This may lead to a superior economic outcome

than a floating exchange rate where countries may be more inclined to pursue economic policies that are in their national interest rather than in the joint interest.

Disadvantages of fixed exchange rates

A major problem with a fixed exchange rate is that the authorities will lose their monetary autonomy if their currency is under pressure to devalue then they have to raise interest rates to protect the domestic currency even if this is not desirable for the domestic economy. For example, if there are already high levels of unemployment and/or slow economic growth. Similarly if there is pressure for the currency to appreciate then they will be forced to lower the domestic interest rate even if there are inflationary pressures in the domestic economy

If there is a balance of payments deficit, the level of domestic aggregate demand must be reduced, which can have serious effects in terms of higher unemployment and lost output.

Fixed exchange rates may prove inappropriate compared to floating exchange rates when an economic shock hits the economy because the exchange rate is not free to adjust to the shock. Instead the economic shock may require unnecessarily large adjustments in the real economy. For example a sudden rise in oil may require the oil importing government to pursue deflationary policies to prevent a large current account deficit under fixed exchange rates resulting in a large increase in unemployment. Whereas with a floating exchange rate the oil price shock effect on the current account may be offset by a depreciation of the currency which boosts exports. Usually a balance of payments deficit can be corrected by a depreciation of the value of the domestic currency, which is not an option with fixed exchange rates. Under fixed exchange rates the government may be forced to impose fiscal austerity in a bid to restore international competitiveness and reduce balance of payments deficits.

The government may find it difficult in practice to maintain a fixed exchange rate, as holders of substantial cash balances may speculate that there will be a devaluation. This means that fixed exchange rate regimes can be subjected to speculative attacks requiring the authorities to pursue deflationary policies such as reducing budget deficits and tightening monetary policy by raising short term interest rates.

Fixed exchange rates can on occasion be maintained only by imposing controls on capital flows, together with quotas and tariffs. This is economically inefficient as it prevents an efficient allocation of global capital and trade.

Risk of a crisis – fixed rates are often characterised by crises as pressure mounts on a currency to devalue or revalue. The fact that, with a floating rate, such changes are automatic should remove the element of crisis from international relations.

Need to maintain high levels of foreign exchange reserves. Under fixed exchange rates the authorities need to hold foreign exchange reserves to enable them to purchase the domestic currency in the face of a speculative attack on the currency,

There were a large variety of responses to this question and some answers failed to discuss in sufficient detail both advantages and disadvantages of fixed and floating exchange rates. Listing advantages and disadvantages was not sufficient to obtain higher marks since some explanation was required.

- 38** There are various measures that could be adopted to reduce unemployment some of which are of a short-term and others that are of a long-term nature. Frictional unemployment is hard to reduce but improved information flows about job availability might help. Some argue that cuts in social security payments for the unemployed will increase the incentive for people to take jobs, such policies can however prove to be highly politically contentious. Regional unemployment might be tackled by regional policy. However, the efficacy of such policies is far from clear cut as the fiscal consequences in the form of increased government expenditure in the way of subsidies, tax concessions can be damaging to other regions of the economy. In addition, regions tend to compete with each other to attract new investment significantly raising the cost of regional policies.

When it comes to structural unemployment which involves a mismatch between the unemployed and jobs available then longer term measures a better education and training programmes both at schools and in the workplace should lead to a more productive and employable labour force. Retraining programmes can also be useful in tackling structural unemployment. Education and training programmes are, however, costly in budgetary terms. Other measures designed to boost investment such as tax cuts and stable macroeconomic policies may also lead to higher employment levels over the longer term.

To reduce demand deficient unemployment in the short term, a fiscal expansion has been advocated, this could be increased government expenditure or cuts in taxes or some combination of the two. Fiscal policy could via multiplier effects lead to a boost to the economy, but the key question about fiscal policy concerns the financing of such an expansion. If fiscal expansion is financed by borrowing there will be upward pressure on interest rates which will partially crowd out investment and consumption. In addition, economic agents will anticipate future tax rises to repay any borrowing which will lead to further reductions in consumption and investment. If the fiscal expansion is financed by tax rises this will also crowd out private consumption and investment (although a balanced budget multiplier might come into play). A fiscal expansion may involve large fiscal deficits and a rising national debt to national income ratio.

To reduce demand deficient unemployment an alternative (or complement) to fiscal policy would be to reflate the economy through a monetary expansion. In the short run, a monetary expansion will lower interest rates and boost prices relative to wages which should lead to increased employment levels. However, in the long run wages will catch up relative to prices and this will mean that employers will then lay off workers. The effect of a monetary expansion over the longer run is therefore only to cause inflation.

Some argue that widespread unemployment in the economy can be caused by excessively high wages that reduce employers demand for labour and generous social

security benefits that reduce workers willingness to take up jobs. They argue that reductions in minimum wages, the weakening of trade union powers and reductions in unemployment benefits will lead to a better working of labour markets and consequently a reduction in unemployment.

Another possible policy that may be used by an economy with a fixed exchange rate is a devaluation of the currency to reduce large scale unemployment. This will tend to boost the export and import competing industries, at least in the short run. Over the long run the benefits of devaluation are far from clear cut, a devaluation raises the costs of imports including imported inputs, workers will seek wage rises to compensate and if the authorities adopt an accommodating monetary policy there is likely to be significant inflationary problems.

Although many candidates identified different categories of unemployment many failed to engage sufficiently with the question asked which involved discussing policy measures that might reduce the category of unemployment identified. In particular some discussion of the merits and problems of the potential policy responses was required to get higher marks.

END OF EXAMINERS' REPORT

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>

- 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.

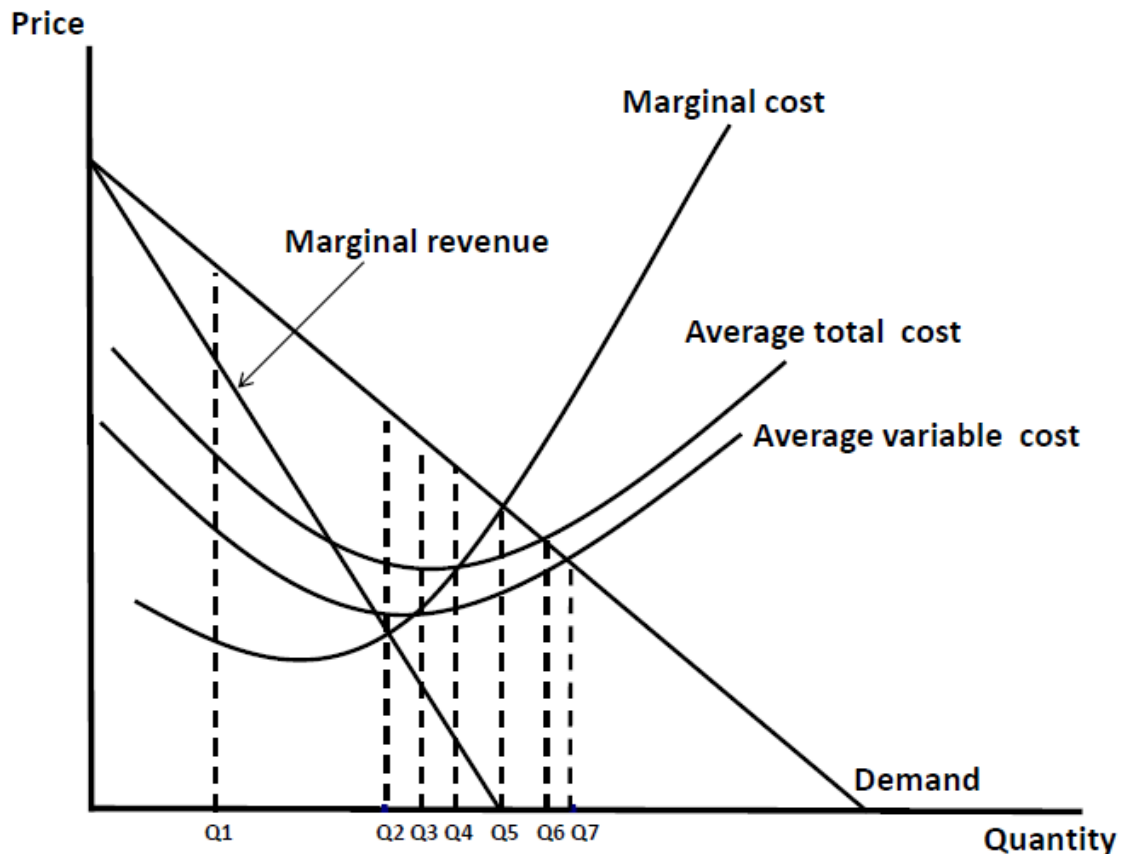
[1½]

- 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]
- 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

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

April 2013 examinations

Subject CT7 – Business Economics Core Technical

Introduction

The Examiners' Report is written by the Principal Examiner with the aim of helping candidates, both those who are sitting the examination for the first time and using past papers as a revision aid and also those who have previously failed the subject.

The Examiners are charged by Council with examining the published syllabus. The Examiners have access to the Core Reading, which is designed to interpret the syllabus, and will generally base questions around it but are not required to examine the content of Core Reading specifically or exclusively.

For numerical questions the Examiners' preferred approach to the solution is reproduced in this report; other valid approaches are given appropriate credit. For essay-style questions, particularly the open-ended questions in the later subjects, the report may contain more points than the Examiners will expect from a solution that scores full marks.

The report is written based on the legislative and regulatory context pertaining to the date that the examination was set. Candidates should take into account the possibility that circumstances may have changed if using these reports for revision.

D C Bowie
Chairman of the Board of Examiners

July 2013

General comments on Subject CT7

The Business Economics examination paper includes different types of questions requiring a variety of styles of answers in the degree of detail required. The questions clarify the amount of detail necessary in the answer.

For questions requiring calculations with workings, full mark would only be awarded if workings are shown. Similarly, in questions requiring explanation, full mark will be awarded for providing adequate explanation. For essay questions, candidates are expected to include the relevant facts and issues *as well as* the linkages so that a direct and coherent answer to the specific question is provided. Thus, mere statement of facts and a general discussion of issues around the specific question will not be sufficient to gain a high mark. Where a question requires drawing diagrams and showing particular points or areas on the diagram, the diagram needs to be clearly drawn and labelled and clear explanation offered.

Comments on the April 2013 paper

The paper was of a similar standard to the last three years' papers which test the new syllabus. The new syllabus, first introduced in 2010, includes a discussion of many new topics relevant to the world of business and to the economy as a whole. The syllabus places a greater emphasis on, and provides a greater scope for testing the candidate's discursive and analytical as well as technical skills.

The standard of the performance in this diet was similar to the previous diets. Candidates were generally able to provide correct answers to parts of the questions where these involved offering standard numerical solutions and diagrams, or listing of the relevant factors.

Longer answer questions such as Questions 36 and Question 37 offer more scope for a wider discussion of policy and could prove more challenging. In question 36 (ii) a reasonable list and explanation of the various factors that hamper the effectiveness of monetary expansion were required to gain the full mark. Similarly in question 37(ii) a reasonable list and explanation of the methods to raise economic growth were asked for and a listing of the relevant factors was not sufficient to obtain the full allocated marks.

1	A
2	B
3	C
4	C
5	C
6	A
7	D
8	C
9	C
10	A
11	B
12	A
13	C
14	A
15	D
16	D
17	A
18	D
19	B
20	D
21	C
22	B
23	C
24	C
25	B
26	C

The multiple choice section was generally well answered. The marks for questions 7 and 17 were awarded to all answers due to a typo in the questions. In question 11, answers B and D and in question 18 answers D and C were accepted.

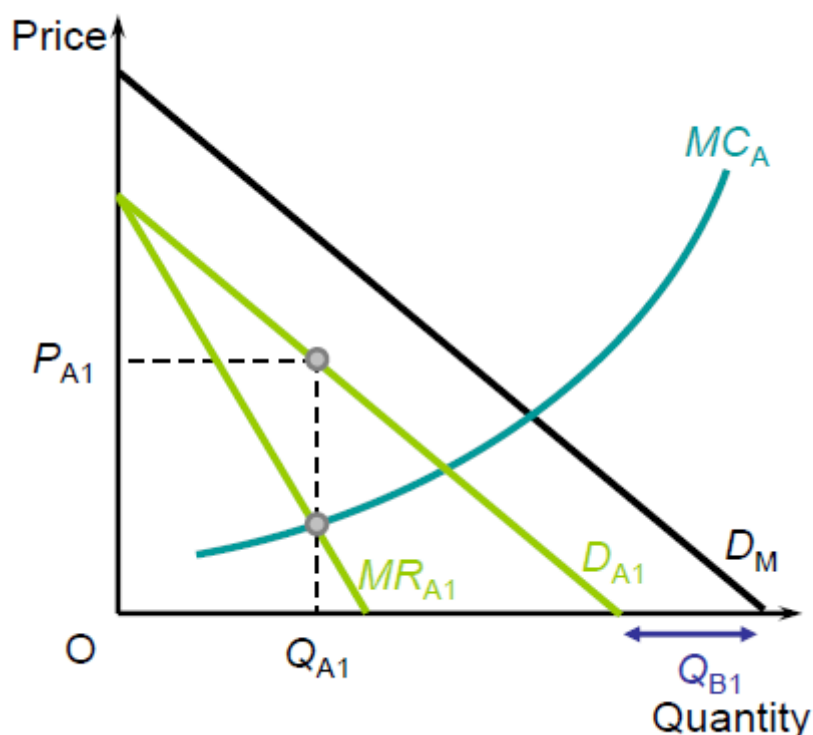
- 27** Improving the following aspects of the product would differentiate one laptop computer from another:
- (1) Technical standards – examples are a better computer screen, larger hard disk or faster processor
 - (2) Quality standards – the quality of the materials used in building a laptop computer. For example the quality of plastics and keyboards, and the quality of the batteries to power the laptop.
 - (3) Design characteristics – these refer to those factors that appeal to the consumer in terms of appearance, such as the ergonomics, colour, styles and general look of the laptop compared to its competitors.
 - (4) Service characteristics – these include the length of the guarantee offered, the after care service, and the general support offered to consumers of the product.

Some candidates offered a variety of methods other than those above for which marks were allowed. However stating the main four groups and adequate explanation of the other methods offered was required for scoring full marks.

- 28**
- (i) A perfectly contestable market is one where the costs of entry and exit by potential rivals are zero and where such entry and exit can be made rapidly.
 - (ii) If a monopoly firm faces potential entrants then it will no longer be able to charge high prices and restrict output. It will be forced to reduce its prices and increase its output to prevent the threat of entry and this will erode its ability to maintain supernormal profits.
 - (iii) Sunk costs are costs that cannot be recouped when a firm exits an industry. For example research and development for a new drug are a sunk cost that cannot be recouped if the drug is not produced. The existence of large sunk costs can act as a barrier to entry as it makes new firms reluctant to enter an industry if they fear that should they not be successful.

This question was answered well.

29 (i)



In the above diagram D_M represents the market demand curve for the product. In the Cournot model of duopoly Firm A will assume that Firm B will produce a give Quantity Q_{B1} and then will deduct this from the market demand curve D_M . This gives it a demand curve D_{A1} and a related marginal revenue curve MR_{A1} . It will then equate its marginal cost to the marginal revenue so giving it an output level Q_{A1} and price level P_{A1} .

- (ii) The equilibrium price and will be lower in the Cournot model since in determining the output of a monopoly Q_{B1} is assumed to be zero which means a higher price in a monopoly situation. Since both firms have a lower price than a monopoly then the combined industry output of Firms A and B will be higher than that of a monopoly.

This question was answered well.

- 30 (i) Q5
(ii) Q1, Q2, Q3, Q4, Q5
(iii) Q6
(iv) Q1, Q2, Q3, Q4
(v) Q7

This question was generally well answered.

- 31**
- (i) Examples of external costs of production include global warming, unsightly factories, and pollution.
 - (ii) Examples of external benefits of production include research and development which leads to new products being formed, production of services like education can benefit society as a whole and production of health services can likewise benefit production by ensuring a healthy work force.
 - (iii) Examples of external costs of consumption include litter when people consume goods and throw packaging on the streets, nuisance from mobile phones and personal music players.
 - (iv) Examples of external benefits of consumption include benefits from painting the outside of one's house and the benefits to others when one takes inoculations which mean that one is less likely to get viruses that will be passed on to others.

This question was generally well answered.

- 32**
- (i) Adverse selection refers to the fact that people who know that they are particularly bad risks are more inclined to take out insurance than those who know that they are good risks. To try to reduce the problems of adverse selection insurance companies try and find out information about potential policyholders. Policyholders can then be put in small, reasonably homogeneous pools and charged appropriate premiums.
 - (ii) Moral hazard describes the fact that a policyholder may, because they have insurance, act in a way which makes the insured against event more likely to occur. Moral hazard makes insurance more expensive. It may even push the price of insurance above the maximum premium that a person is prepared to pay.

This question was generally well answered.

- 33**
- (i)

Income (Y) (£billions)	40	80	120	160	200	240	280
Consumption (C) (£billions)	40	70	100	130	160	190	220
Injects (£billions)	20	20	20	20	20	20	20
Withdrawals (W) (£billions)	0	10	20	30	40	50	60
Aggregate expenditure (E) (£billions)	60	90	120	150	180	210	240

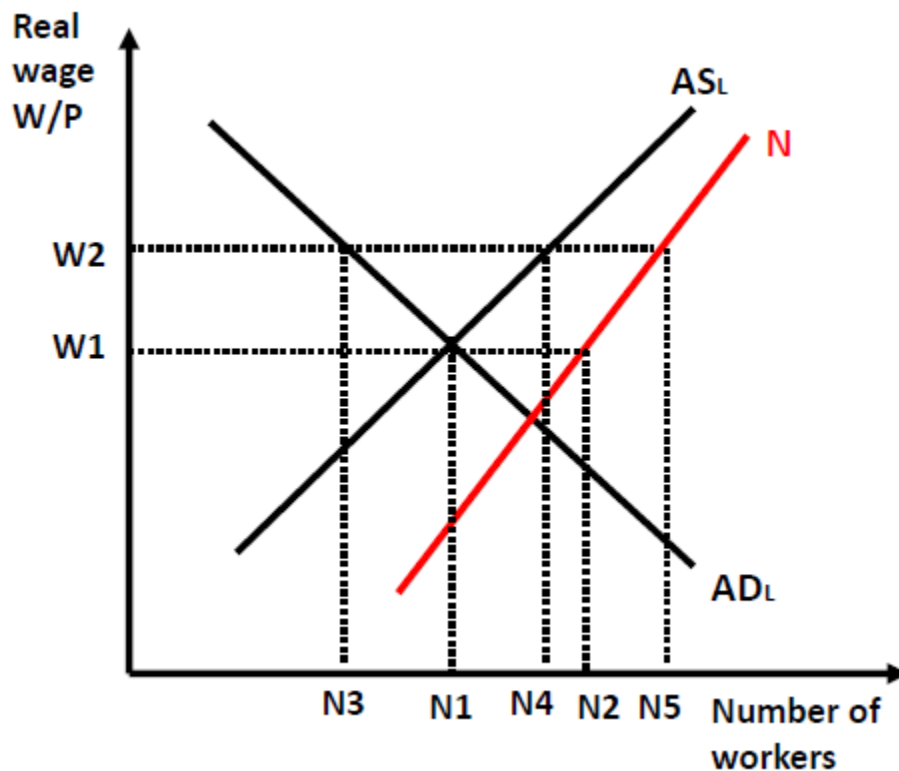
- (ii) $\Delta C / \Delta Y = £30bn / £40bn = \frac{3}{4}$ or **0.75**
- (iii) £120 billion

This question was generally well answered.

- 34** (i) The current account is made up of exports of goods and services plus other income such as wages, interest and profits received and unilateral receipts less imports of goods and services less income payments such as interest, profits and dividends paid and unilateral payments.
- (ii) The significance of the current account is that a surplus means that the country is earning more than it is spending from the rest of the world and hence is reducing its net debt or increasing its net claims on the rest of the world. Whereas a deficit means the country is spending more than it is earning from the rest of the world and is therefore increasing its net debt to or reducing its net claims on the rest of the world.

This question was generally well answered.

- 35** (i)



- (ii) Natural level of unemployment is $N1N2$.
- (iii) Labour supply is $N4$, labour demand is $N3$, disequilibrium unemployment is $N3N4$.
- (iv) According to some free market economists one cause of disequilibrium unemployment could be trade unions keeping the real wages $w2$ above the equilibrium real wage $w1$. The solution to such disequilibrium unemployment

is to weaken trade unions so that the real wage can be forced down to its equilibrium level w_1 .

This question was generally well answered. In part (iv) where demand deficiency and cyclical unemployment were discussed, credit was given.

- 36** (i) The authorities can try to stimulate the economy in the short run by pursuing a more expansionary monetary policy. This will involve expansionary open market operations whereby the central bank will purchase Treasury bills and bonds in exchange for money thus expanding the money supply and lowering the short term rate of interest. In theory this will increase private consumption and investment. Furthermore the lower interest rates and monetary expansion are likely to lead to a depreciation of the currency which should boost exports (and reduce imports) so boosting domestic employment. The precise degree to which the policy will expand the economy will be dependent upon both the size of the monetary expansion and the degree to which the lower interest rates encourage greater private sector expenditure and investment and boost exports and employment in the tradeables sector. There may also be a wealth effect on consumption and expenditure to the extent that the monetary expansion raises house prices and the stockmarket and other asset prices.
- (ii) There are, however, numerous problems that may hamper the effectiveness of the monetary expansion. The first is that the lower interest rates may not stimulate much increased expenditure and investment due to lack of confidence or the existence of a liquidity trap whereby interest rates are already at such a low level that further cuts are not practical.

Then there is the problem that the monetary expansion while it may be quite effective at lowering the short term interest rate may also raise fears of future inflation and this may in fact lead to higher long term interest rates due to higher inflation expectations and greater risk. This may lower rather than raise investment.

Another problem with monetary expansion is that it could lead to greater expenditure on imports thus worsening the balance of payments and undermining the value of the currency and possibly require the authorities to reverse the policy should the currency depreciation or balance of payments deficits become troublesome.

If the country has a fixed exchange rate regime, the monetary expansion, if it raises the inflation rate, will also have the effect of undermining the competitiveness of the country, reducing exports and raising imports which would then cause a fall in employment.

Another problem is that normally a monetary expansion encourages employers to take on more workers by lowering real wages as wage inflation tends to lag behind price inflation. However, if workers correctly anticipate higher inflation then this will be reflected in their wage demands and it is more likely that the monetary expansion will raise inflation rather than employment.

Central banks also have to be careful not to undermine their own credibility. A monetary expansion may be perceived as weakening their anti-inflation credibility and once lost it is hard to re-establish their anti-inflation credentials.

Candidates offered a variety of potential problems in part (ii) for which credit was given.

- 37** (i) The term actual economic growth refers to increases in the real Gross Domestic Product or real Gross National Product. The economic growth rate measures the percentage increase in the real Gross Domestic Product from one year to the next. Sometimes the term actual economic growth refers to the increase in the trend rate of real Gross Domestic Product rather than the actual increase in output. Potential economic growth refers to the speed at which the economy could grow and so it measures the percentage increase in an economy's capacity to produce.
- (ii) The actual economic growth rate can be raised by increases in the various inputs to the production process (capital, labour and raw materials/land) and also by the way that these inputs are utilised as measured by the state of technical knowledge and economic efficiency.

Capital is a vital part of the production process and if the country increases its capital stock through net new investment then this will tend to boost economic growth. The capital stock will increase if the annual investment in new capital is greater than the depreciation of the existing capital stock. Any net increase in investment aids economic growth in two ways (i) by expanding the productive base of the economy and (ii) by increasing productivity as the new capital is typically more productive than the old capital which it replaces. Clearly governments can encourage investment by undertaking some strategic investments in infrastructure such as motorways, railways that encourage private sector investment. They can also encourage increased investment through favourable tax treatment or direct subsidies for investment.

Labour is a vital part of the production process and increases in the quantity of labour and improvements in its quality will tend to raise the economic growth rate. The quantity of the labour force is determined by the size of the population, the proportion of the population employed and working hours. In addition improved education, training and health care improve the quality and productivity of the labour force and so raise the economic growth rate. The stock of human capital will rise with better education and training and so improve the economy's economic growth rate. Since governments have a large degree of control over education policy, they can boost a country's economic growth by investing in education.

Land and raw materials are also important inputs into the production process. Increases in the input of land come about mainly through the better use of land, principally as a result of encouraging investment and better methods of land use.

The state of technical knowledge is a vital determinant of economic growth. As the state of technical knowledge improves, production will increase, giving a higher rate of economic growth. Governments can influence the rate of technological progress through investment in research and development and investing in universities.

Some argue that governments can increase a country's economic growth rate through supply side measures such as reducing regulation and bureaucracy, privatizing inefficient state run industries and allowing the private sector and market forces to flourish.

This question was answered fairly well. In part (ii) credit was allowed where candidates offered a discussion of fiscal expansion and monetary expansion as factors to raise a country's growth.

END OF EXAMINERS' REPORT



Institute
and Faculty
of Actuaries

Subject CT7 – Business Economics Core Technical

30 September 2013 (pm)

Total Exam Time: Three hours

Part A - Multiple Choice Questions

Candidate Family Name:

Candidate Other Names:

Candidate Number:

				/		/				/			
--	--	--	--	---	--	---	--	--	--	---	--	--	--

Centre Number:

Exam Paper Code (e.g. CT1):

Actuarial Reference Number (ARN):

--	--	--	--	--	--	--

Date of Examination:

D	D	/	M	M	/	Y	Y

I have read, understood and agree to be bound by the examination Rules and Regulations and also the Actuaries' code, as in force from time to time.

(signature of candidate)

INSTRUCTIONS TO CANDIDATE

You will be guided by the supervisor on how to complete this form. Please do not start until instructed to do so.

Your script will be scanned electronically. Failure to comply with these instructions may lead to your paper not being marked. You **must**:

1. Complete the details on this page and in the booklet using black ball point pen. Do not use pencil or gel pen. Do not use correction fluid.
2. Write the information required in the spaces above. Complete in BLOCK CAPITALS and check that your details are correct and in full.
3. For questions 1-26 circle the letter of the answer that you believe to be correct. If you make an error cross out the answer that you do not want to be marked.

Example:

A
B
C
D

Graph Paper is NOT required for this paper

At the end of the examination hand in ALL your answer booklets and Part B question paper.

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



CT7A201309

CT7A



Circle the letter of the answer that you believe to be correct.

- 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 solution to the economic problem of deciding which goods to produce requires:
- A a choice between the production of consumer goods and the sacrifice of alternatives.
 - B the establishment of freedom of entry and exit.
 - C the establishment of a system of market prices.
 - D a decision to be made on the degree to which capital will be used in the production process rather than labour. [1½]
- 3** If rail travel is an inferior good, which one of the following will lead to a shift of its demand curve to the left?
- A An increase in incomes
 - B A rise in car prices
 - C An increase in petrol prices
 - D A rise in the price of rail travel [1½]
- 4** The demand equation for Good X is $Q_d = 15 - 0.5P$ and the supply equation for Good X is $Q_s = 3 + 2P$, where P is the price in pounds. When the price is £6 there will be a:
- A surplus of Good X and the price will rise.
 - B shortage of Good X and the price will fall.
 - C surplus of Good X and the price will fall.
 - D shortage of Good X and the price will rise. [1½]
- 5** Given a linear downward sloping demand curve, higher prices along the demand curve are associated with a:
- A higher absolute price elasticity.
 - B lower absolute price elasticity.
 - C constant price elasticity.
 - D unitary price elasticity. [1½]



- 6** The socially efficient output for a monopoly is at the point where the:
- A marginal cost curve cuts the marginal revenue curve.
 - B marginal cost curve cuts the demand curve.
 - C average cost curve cuts the marginal revenue curve.
 - D average cost curve cuts the demand curve. [1½]
- 7** Consumer A has a higher income than Consumer B but they have identical marginal utility functions and pay the same prices for the goods which they consume. If they both maximise utility then the marginal utility from each good consumed will be:
- A higher for A than for B and A will have a higher total utility.
 - B higher for A than for B and A will have a lower total utility.
 - C lower for A than for B and A will have a higher total utility.
 - D lower for A than for B and A will have a lower total utility. [1½]
- 8** 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]
- 9** Vertical product differentiation generally 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 reflecting different production costs.
 - D different varieties of products offered at the same price. [1½]



10 Consider the following table:

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

The price of labour is £100 per unit; the price of capital is £200 per unit.

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]

11 Which of the following statements regarding the productivity of labour is correct?

- A Average physical product is maximised when average physical product equals marginal physical product.
- B Average physical product is maximised when marginal physical product is maximised.
- C Marginal physical product increases when average physical product is above marginal physical product.
- D Average physical product increases when marginal physical product is below average physical product.

[1½]

12 A perfectly competitive firm is producing at a level of output for which short run marginal cost exceeds marginal revenue. What should the firm do to maximise its short run profits?

- A Raise its price
- B Reduce its price
- C Raise its output
- D Reduce its output

[1½]



- 13** Which of the following is NOT a prediction of the theory of monopolistic competition?
- A When the monopolistically competitive industry achieves a long run equilibrium, price is greater than marginal cost.
 - B Monopolistically competitive firms offer differentiated products and face a downward sloping demand curve.
 - C Under monopolistic competition, the price charged to the consumer is equal to the average revenue of the firm.
 - D Monopolistically competitive firms can earn supernormal profits in the long run. [1½]
- 14** The kinked demand curve model of oligopoly is based upon the assumption that:
- A a firm's competitors match both its price increases and price reductions.
 - B one firm in the industry sets the price for all other firms.
 - C a firm's competitors match its price reductions but not its price increases.
 - D the price charged by a firm can either rise or fall depending on what happens to its competitors' prices. [1½]
- 15** The short run aggregate supply curves tell 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]
- 16** Which one 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]
- 17** Money that is held because of possible unforeseen events is held because of the:
- A speculative motive for holding money.
 - B transactions motive for holding money.
 - C precautionary motive for holding money.
 - D asset motive for holding money. [1½]

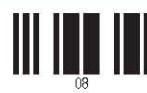


- 18** Which one of the following is NOT a cause of cost push inflation?
- A An increase in the price of raw materials
 - B An increase in wages above increases in labour productivity
 - C An increase in profit margins applied by firms
 - D An appreciation of the exchange rate
- [1½]
- 19** In the circular flow of income model of an economy with no government and no international trade, the flow of money is from:
- A firms to households in return for goods and services provided and from households to firms in return for the factor services provided.
 - B households to firms in return for the factor services provided.
 - C firms to households in return for the factor services provided and from households to firms in return for the goods and services provided.
 - D firms to households in return for goods and services provided.
- [1½]
- 20** In Country A the level of government expenditure is £275 billion, tax revenue is £310 billion, aggregate investment is £180 billion and aggregate savings is £150 billion. The level of net exports in Country A is a:
- A deficit of £5 billion.
 - B surplus of £5 billion.
 - C deficit of £35 billion.
 - D surplus of £35 billion.
- [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** With a floating exchange rate system, monetary policy is:
- A very effective.
 - B not effective.
 - C equally effective as fiscal policy.
 - D less effective than fiscal policy.
- [1½]



- 23** Other things being equal, an increase in the level of real output in an economy will result in:
- A an increase in the money supply.
 - B a decrease in the demand for money.
 - C a rise in the rate of interest.
 - D an increase in the speculative demand for money. [1½]
- 24** An increase in the money supply will have a bigger impact on real output the more:
- A interest elastic is the demand for money and the more interest elastic is the level of investment.
 - B interest inelastic is the demand for money and the less interest elastic is the level of investment.
 - C interest elastic is the demand for money and the less interest elastic is the level of investment.
 - D interest inelastic is the demand for money and the more interest elastic is the level of investment. [1½]
- 25** Which one of the following would count as investment in the national income accounts for Country X?
- A The purchase of a £1,000 Country X 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 Country X bank in a high interest account. [1½]
- 26** If the central bank has to intervene in the foreign exchange markets to prevent the home currency from appreciating, then its foreign exchange reserves will:
- A decrease and the domestic money supply will rise.
 - B decrease and the domestic money supply will fall.
 - C increase and the domestic money supply will rise.
 - D increase and the domestic money supply will fall. [1½]





INSTITUTE AND FACULTY OF ACTUARIES



EXAMINATION

30 September 2013 (pm)

Subject CT7 – Business Economics Core Technical

PART B

Total exam 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. *See front of answer booklet for further instructions.*
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 ALL answer booklets 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>

- 27** The owner of an orchard can choose to grow apples or pears on their land. Apples sell for £200 per tonne. Pears sell for £350 per tonne. The costs of seed, fertiliser, labour and storage costs are £140 per tonne for both goods. Calculate the owner's cost and profit per tonne if the orchard owner decides to grow pears instead of apples on their land. [2]
- 28** Describe how a firm that manufactures cars may experience economies of scale. [4]
- 29** (i) Draw a diagram to show a typical monopolistically competitive firm, such as a coffee shop, which is wishing to operate but is making a loss. Your diagram should show all the relevant cost and revenue curves and the area corresponding to the firm's losses. [3]
- (ii) Now assume that consumer demand for hot drinks increases. Show, with the use of a new diagram, the effect this will have on the market price and quantity traded in the short run, assuming that the firm now makes a profit. [2]
- [Total 5]
- 30** List four factors which favour collusion amongst oligopolistic firms. [2]
- 31** Describe two reasons why firms might wish to form strategic alliances. [2]
- 32** (i) Discuss, with the use of examples, two factors that influence the price elasticity of demand for a good. [2]
- (ii) Demonstrate, with the use of two separate diagrams, the effect of an increase in labour productivity on the price and quantity traded when demand is:
- (a) elastic.
- (b) inelastic. [2]
- [Total 4]
- 33** Outline two possible drawbacks of government intervention in the market. [4]

- 34** For a given amount of resources, the table below shows weekly production of either socks or shoes in Country A and Country B.

<i>Country</i>	<i>Socks</i>	<i>Shoes</i>
A	20	20
B	18	9

- (i) State:
- (a) which country has an absolute advantage in the production of each of the two goods.
 - (b) which country should specialise in the production of socks.
 - (c) which country should specialise in the production of shoes.
- [3]
- (ii) Now assume that each country wishes to produce equal amounts of socks and shoes.
- (a) Determine the production of each good in Country A.
 - (b) Determine the production of each good in Country B.
- [2]
- (iii) Determine the total gain in production of each good when countries specialise using all of the available resources in comparison to the case (ii) above. [1]
- [Total 6]

- 35** Use the aggregate demand and supply model to illustrate and explain the difference between demand pull and cost push inflation. [6]
- 36** Describe the main types of policies that governments can use to encourage competition. [6]
- 37** (i) Explain, using a diagram, the Phillips curve relationship. [3]
- (ii) Explain, with reference to a diagram, the expectations-augmented Phillips curve and the accelerationist theory of money and discuss the implications this has for government policy. [7]
[Total 10]
- 38** (i) Explain, using a diagram, the impact on aggregate expenditure and GDP in an economy with no public sector and no international trade, following each of the events below (treat the two events separately):
- (a) An increase in business confidence
- (b) An increase in the marginal propensity to consume [8]
- (ii) Show on your diagram from part (i)(b), an inflationary gap and a deflationary gap at the new level of aggregate expenditure. [2]
[Total 10]

END OF PAPER

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

September 2013 Examinations

Subject CT7 – Business Economics Core Technical

Introduction

The Examiners' Report is written by the Principal Examiner with the aim of helping candidates, both those who are sitting the examination for the first time and using past papers as a revision aid and also those who have previously failed the subject.

The Examiners are charged by Council with examining the published syllabus. The Examiners have access to the Core Reading, which is designed to interpret the syllabus, and will generally base questions around it but are not required to examine the content of Core Reading specifically or exclusively.

For numerical questions the Examiners' preferred approach to the solution is reproduced in this report; other valid approaches are given appropriate credit. For essay-style questions, particularly the open-ended questions in the later subjects, the report may contain more points than the Examiners will expect from a solution that scores full marks.

The report is written based on the legislative and regulatory context pertaining to the date that the examination was set. Candidates should take into account the possibility that circumstances may have changed if using these reports for revision.

D C Bowie
Chairman of the Board of Examiners

December 2013

General comments on Subject CT7

The Business Economics examination paper includes different types of questions requiring a variety of styles of answers in the degree of detail required. The questions clarify the amount of detail necessary in the answer.

For questions requiring calculations with workings, full mark would only be awarded if workings are shown. Similarly, in questions requiring explanation, full mark will be awarded for providing adequate explanation. For essay questions, candidates are expected to include the relevant facts and issues *as well as* the linkages so that a direct and coherent answer to the specific question is provided. Thus, mere statement of facts and a general discussion of issues around the specific question will not be sufficient to gain a high mark. Where a question requires drawing diagrams and showing particular points or areas on the diagram, the diagram needs to be clearly drawn and labelled and clear explanation offered.

Comments on the September 2013 paper

The paper was of a similar standard to the last three years' papers which test the new syllabus. The new syllabus, first introduced in 2010, includes a discussion of many new topics relevant to the world of business and to the economy as a whole. The syllabus places a greater emphasis on, and provides a greater scope for testing the candidate's discursive and analytical as well as technical skills.

The standard of the performance in this diet was similar to the previous diets. Candidates were generally able to provide correct answers to parts of the questions where these involved offering standard numerical solutions and diagrams, or listing of the relevant factors. In listing the relevant factor, a list of distinct factors is required and marks were not awarded for re-wording of the same, or stating similar factors. In answering questions such as question 29 that involve a diagrams or diagrams showing a base case and a new position for a different scenario, candidates need to be aware that both positions need to be clearly shown. It is important to make the changes explicit particularly if one diagram is used since the knowledge needs to be communicated reasonably well to the examiners in order to gain the credit. Question 32 required explanation with the use of examples. Here context related specific examples are expected as these show the real understanding of the case.

1	D
2	A
3	A
4	C
5	A
6	B
7	C
8	C
9	C
10	C
11	A
12	D
13	D
14	C
15	D
16	D
17	C
18	D
19	C
20	B
21	C
22	A,B,C,D
23	C
24	D
25	C
26	C

The multiple choice section was generally well answered. Marks for question 22 were awarded to all candidates as the question needed to provide more information for a specific answer to be valid.

- 27** By growing pears, the orchard owner is sacrificing the profit it could make from apples. The profit from apples is £60 (revenue from apples is £200 and costs are £140). Therefore, when calculating the cost of producing pears the foregone profit needs to be added.

Revenue per tonne of pears is £350 and the cost of producing pears is £140 PLUS £60 opportunity cost. The overall profit is therefore £150.

In answering this question, the important point to note is that economists calculate costs slightly differently. Many candidates did not account for the opportunity costs and so were not awarded the full marks.

- 28** Specialisation and division of labour. Cars are likely to be manufactured in large plants with employees doing specific jobs which are repetitive. Less training is required and people become very efficient at their job. Workers do not have to switch from one activity to another. The firm can employ people with specific skills for specific jobs i.e. welder, bodywork, tyres, electronics etc.

Indivisibilities. Cars are normally manufactured on a large scale, one person would not have sufficient demand for a car manufacturing plant. A car plant is only efficient to use when there are a sufficiently large number of cars being made.

Greater efficiency of large machines. Large machines are generally more efficient. Only one worker may be required to operate the large machines that take a car from one part of the plant to another.

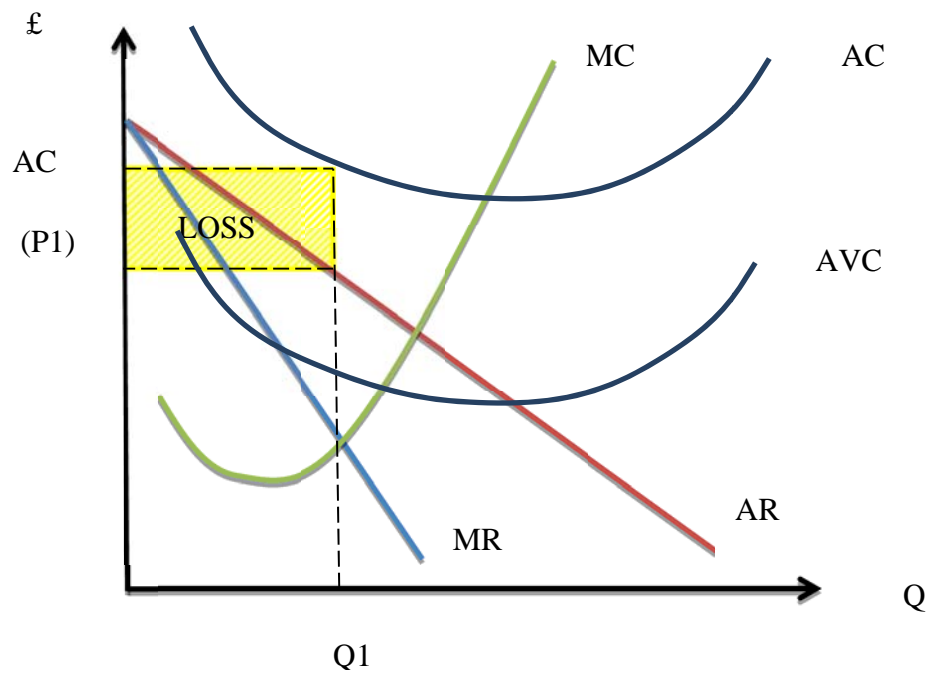
Multi-stage production. A large factory is able to provide a number of activities under one roof rather than moving production from one plant to another. For cars the cutting of the metal for the frame of the car, the addition of electrical components and the fabric for the seats may be manufactured within the same plant along a production line.

Organisational and financial economies. Large firms such as car manufacturers are likely to have centralised administration and other activities such as human resources, marketing and finance.

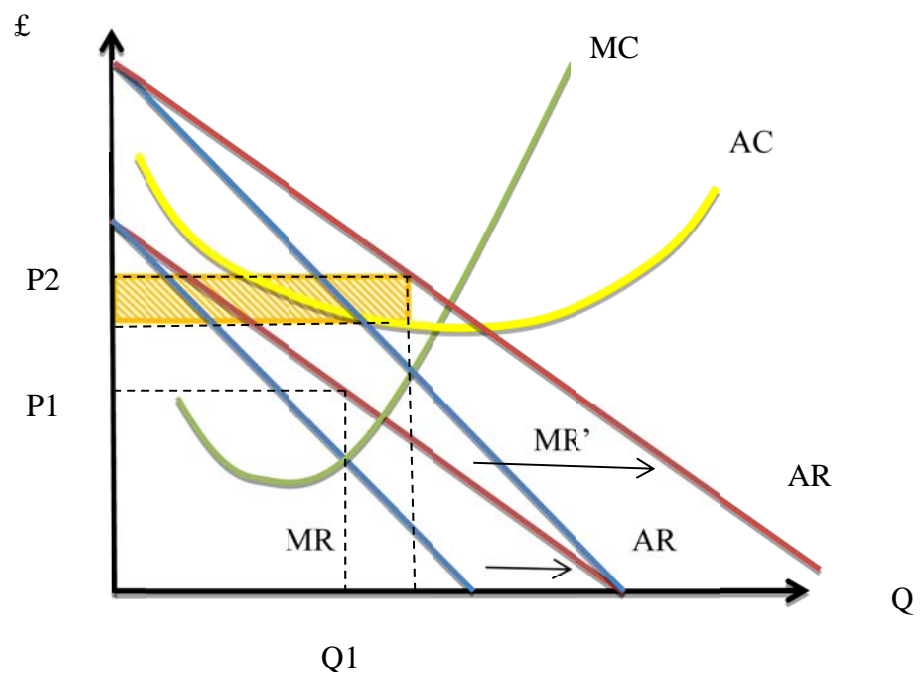
Economies of scope. Large firms such as car manufactures often produce a line of similar products but which use similar technology. For example the engines used in cars may be used in several different models, the paint colours are used for all the cars across the range etc. This allows the firm to buy some of the inputs in much larger quantities. There are also shared distribution costs as the firm can ship several different models of car in one order and can share the costs of marketing across different models.

In this question the answer needs to be specifically related to the car industry, a market that is familiar to most. Many applicants who provided a list of factors without relating the factor to the case did not gain the full marks. Additional relevant factors not listed above were allowed credit.

29 (i)



- (ii) An increase in consumer demand will shift the demand curve for the firm to the right. In the short run the firm will make profits (assuming a large enough increase in consumer demand). See shaded areas. The price and quantity traded will rise from P_1 to P_2 and Q_1 to Q_2 .



This question was answered well overall, although some candidates did not clearly show the two positions on their diagram.

30 Factors which will assist collusion include:
(FOUR to be listed.)

- Very few firms which are well known to each other.
- Firms which are open with one another about costs and production methods.
- Similar production methods and average costs. Hence they are likely to want to change prices at the same time and by the same percentage.
- Produce similar products and can more easily reach agreement on price.
- There is a dominant firm.
- Significant barriers to entry exist and there is little fear of disruption by new firms.
- The market is stable. When the industry demand or production costs change rapidly it is very difficult to make agreements – amendment and prediction issues.
- No government intervention to curb collusion

This question was answered well overall.

31 Firms may seek to form strategic alliances for the following reasons:
(TWO to be described.)

New markets: As firms grow they may seek to expand into international markets and join other firms which exist in the market. The advantage of this approach is that an existing firm may have knowledge of the local market, established supplier and distribution links/networks. Firms that are seeking to diversify into new markets will seek to make similar gains. Instead of developing new skills, knowledge and networks a firm can choose to build a relationship with an existing firm in the market.

Risk sharing: New ventures are often risky and for one firm to enter into a new activity on their own, the risk may be too great. Strategic alliances enable firms to seek to spread risk between them and create new opportunities. An example is the Channel Tunnel where a number of firms came together to build the link between the UK and France. The risk associated with building the tunnel was very high, too high for only one firm. Collectively the risk was spread between the firms with each firm specialising in their area of expertise.

Capital pooling: Some activities can have very high initial costs or high ongoing running costs which prevent an individual firm from embarking on an activity. By firms joining together, capital resources can be combined and can improve overall credibility for generating additional finance from investors.

This question was answered well overall.

32 (i) Price elasticity of demand can be influenced by the following:

- The number and closeness of substitutes

The more substitutes there are for a good and the closer the substitutes are, the more likely it is that people will switch to an alternative goods as the price of the good rises, hence the greater the PED.

- The proportion of income spent on the good

The greater the proportion of income that we spend on the good, the more we will change (reduce) our consumption following a price rise. The income effect will be large and demand is more elastic. Salt is a commonly used example as having a low PED. We don't tend to spend very much on salt as a proportion of our overall income. Therefore even a relatively large increase in the price of salt is unlikely to affect our demand for salt by very much. The effect will be larger if the item represents a relatively large proportion of our income.

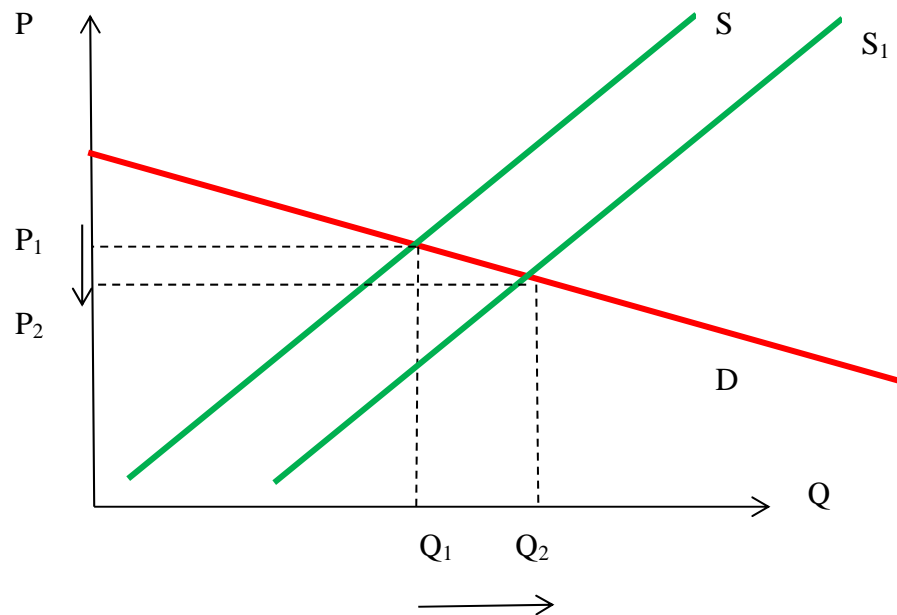
- The time period since price change

The greater the time period that has elapsed since the price change, the more elastic demand will be. Demand for a good tends to be inelastic in the short run as there may not be many alternatives.

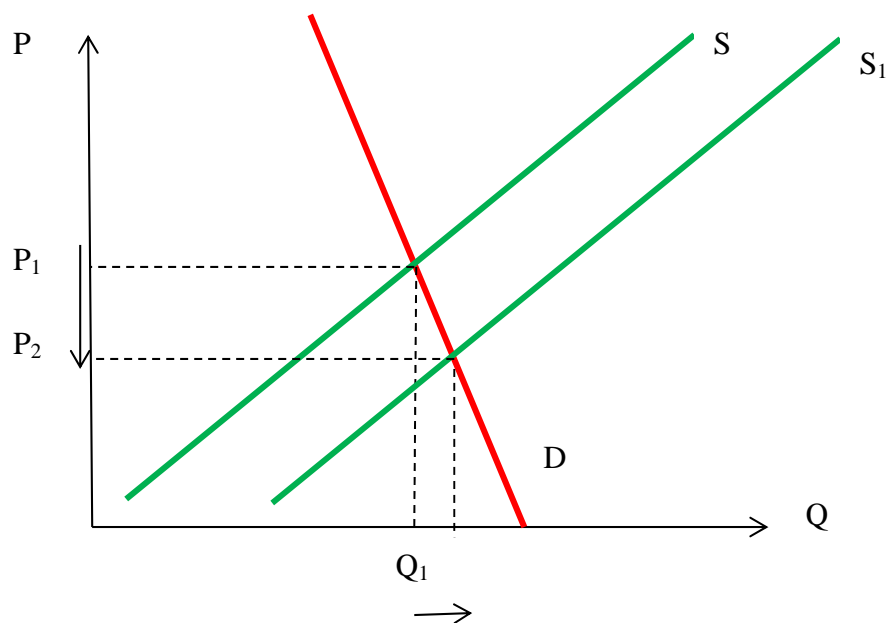
- Type of good – necessity or luxury

Necessity goods have a relatively inelastic demand whereas luxurious goods tend to be more elastic. Demand for basic goods is fairly constant regardless of changes in price. People tend to be more price-sensitive to a good which is not essential.

- (ii) (a) Elastic. Increase in supply shown by rightwards shift. Small fall in price and larger increase in quantity traded.



- (b) Inelastic. Increase in supply shown by rightwards shift. Large fall in price and smaller increase in quantity traded.



In part (i) of this question other relevant factors such as addiction to a good were given credit. In part (ii) one diagram for both parts were accepted provided that changes were clearly shown.

- 33** Drawbacks may be outlined with the use of an example or a diagram to illustrate. (TWO to be discussed.)

Shortages and surpluses. Shortages occur when the price is below the equilibrium. This can lead to waiting lists/queuing, rationing and preferential treatment to some individuals. This sort of problem can encourage underground or black market activity. If the price is above the equilibrium this can lead to people storing goods, destroying goods or dumping of goods in other markets. Suppliers may be forced to adhere to quotas.

Poor information. A government may not know the full costs and benefits of certain intervention activities. It may seek to assist one group at the cost of another and/or misinterpret behaviour.

Bureaucracy and inefficiency. Intervention requires administrative support. The more widespread the intervention, the greater this burden is likely to be in terms of both manpower and resources. These resources could be used more efficiently in other activities.

Lack of market incentives. If intervention removes market forces or cushions their effect (by the use of subsidies, welfare provisions, guaranteed prices etc) it may remove incentives which are provided by the market mechanism. Welfare payments may remove the incentive to look for a job or take a job. Whilst markets are not perfect, generally the market rewards those which seek to be more efficient.

Shifts in government policy. The overall efficiency of some industries may be affected negatively if government policy frequently changes. Frequent changes make it difficult for firms to plan if they are unable to predict, taxes, subsidies and price/wage controls.

Lack of freedom for the individual. Intervention by the government removes some of the freedom of choice that people have in making economic decisions. Individuals should be as free as possible to pursue their own interests with as little intervention as possible.

This question was answered well overall.

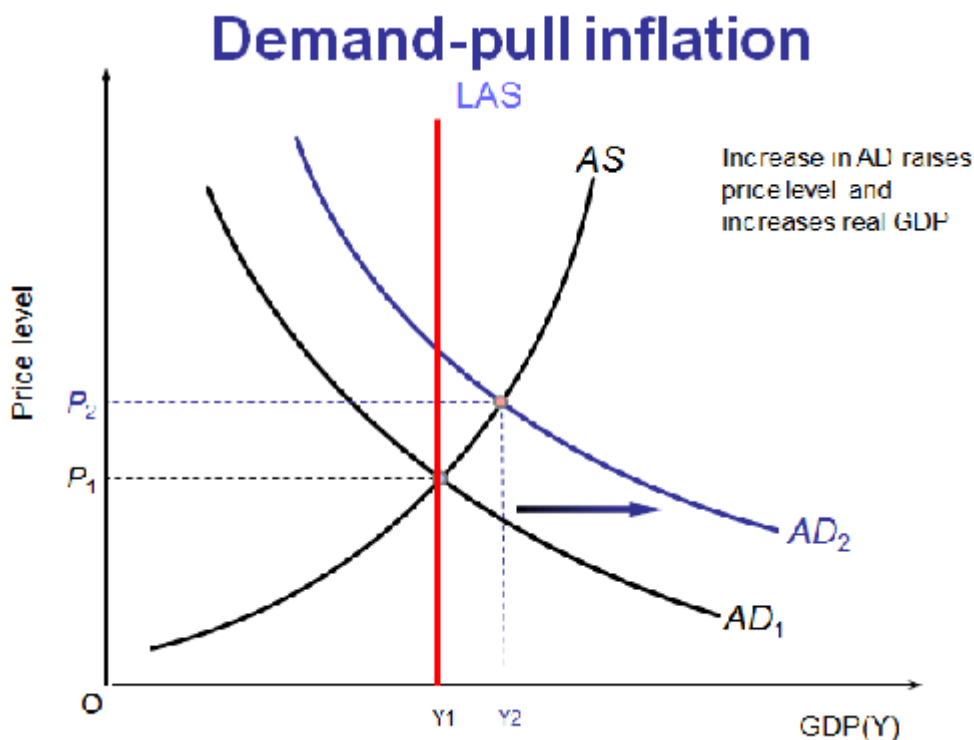
- 34**
- (i)
 - (a) Country A in both goods
 - (b) Country B
 - (c) Country A
 - (ii)
 - (a) Country A will devote half of its available resources to producing socks and half to producing shoes. Therefore Country A will produce 10 socks and 10 shoes.
 - (b) Country B will devote $\frac{1}{3}$ of its available resources to producing socks and $\frac{2}{3}$ of their resources producing shoes. Therefore Country B will produce 6 socks and 6 shoes.

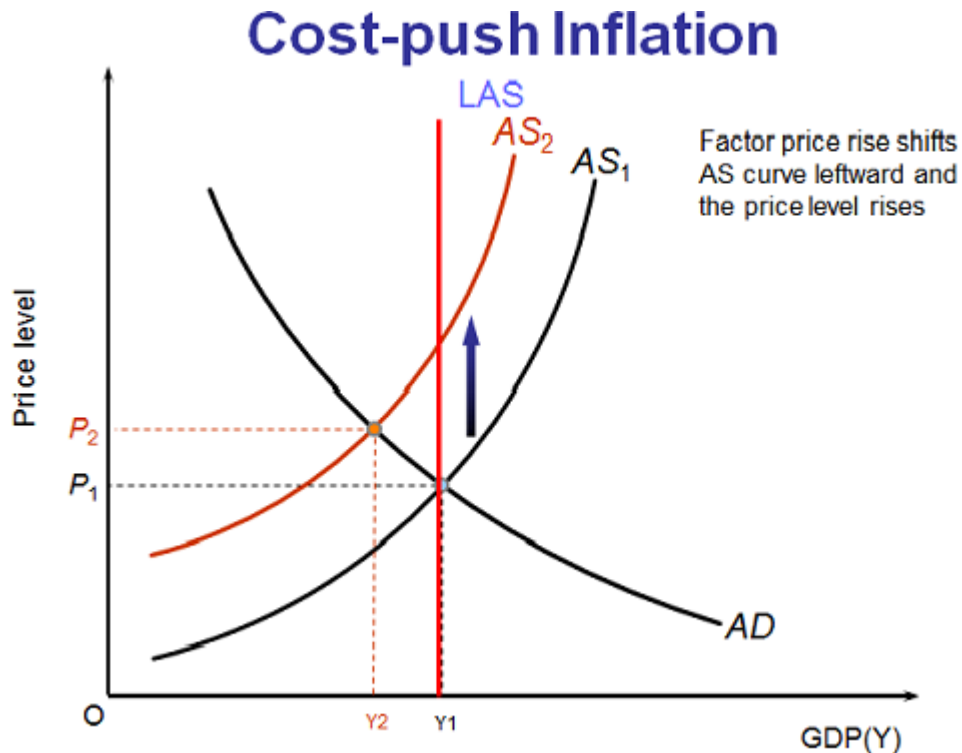
- (iii) With complete specialisation Country A will only produce shoes and Country B will only produce socks. Country A will produce 20 shoes and Country B will produce 18 socks. Comparing this to the situation in part (ii) where a total of 16 shoes and 16 socks were produced. Therefore the gain is 4 shoes and 2 socks.

Part (i) of this question was answered well. However quite a few candidates did not provide satisfactory answers to the subsequent parts.

- 35** Demand-pull inflation begins with an increase in aggregate demand – demand shock – AD curve shifts out to the right. The initial impact is to increase output, employment and prices.

Cost-push inflation begins with an increase in costs of production (e.g. wages, input prices; prices of raw materials, oil etc.) AS shifts to the left. The initial impact is to reduce output and employment and to increase prices.





This question was generally answered well.

36 Government can seek to encourage competition by undertaking the following activities.

- **Privatisation**

- Discussion may include reference to country specific cases and the relative success of the privatisation.
- In principle if privatisation only leads to the transfer of a firm from government to private hands then the scope for competition is very limited.
- Typical examples may include utilities such as water.
- Privatisation can lead to increased efficiency, greater consumer choice and lower prices. Privatisation could also include the introduction of privately provided services within state owned enterprises.

- **Deregulation**

- Removing monopoly rights, primarily in the public sector.

- **Introducing market relationships into the public sector**
 - An attempt by government to get different departments within one part of the public sector to trade with another to encourage competition and efficiency. To do this certain activities are devolved within an overall budget.
- **The Private Finance Initiative (PFI)**
 - A private firm following a tender process gains a contract with a government department or local authority to finance and build a project such as a road/prison.
 - The government then pays the firm to maintain the project or rents it from them. This leads to the government becoming a purchaser rather than a direct provider of the service.
 - This arrangement may also be referred to as a public-private partnership (PPP).

Competition is introduced by the tendering process and private sector expertise is introduced in the provision of the public service in question.
- **Free trade and capital movements**
 - Opening up trade and investment is a significant component of market-orientated supply-side policy.
 - Many countries have reduced the restrictions on the purchase and sale of currency which has encouraged the free flow of capital.
 - Trade has also been liberalised in many countries to remove barriers to trade, encouraging the movement of goods, services, capital and labour.

Most candidates made a reasonable attempt at this question but quite a few did not make distinct points. Other relevant points were awarded credit.

37 (i)

- The original Phillips Curve relationship examined the rate of change in money wages and unemployment.
- It showed the short run effect of a change in AD (relative to potential output) on output and price level; as AD increases, inflation rises and unemployment falls. Upward movement along the curve and vice versa.
- It bows out from the origin – initially as AD rises there is a lot of slack in the economy as surplus labour is available so employment increases without a need to increase wages. Over time more people become employed and so wages rise as labour becomes scarce. To attract workers

firms must offer higher wage rates as trade unions gain a stronger bargaining position.

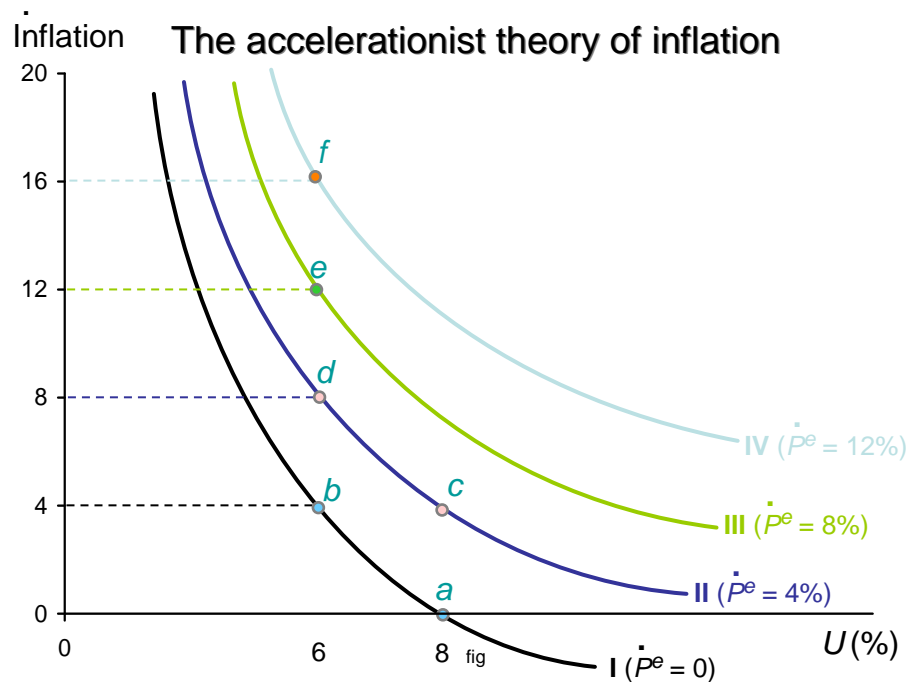
- It seemed to offer a trade-off; inflation versus unemployment. Lower unemployment was at the cost of higher inflation.
- The original relationship broke down in 1960's



(ii)

- Expectations Augmented Phillips Curve was developed following the breakdown – where inflation depends on the inverse of unemployment rate and the expected rate of inflation. The higher the expected rate of inflation, the higher will be the wage demands made.
- Accelerationist theory – starting from point *a* with no inflation and 8% unemployment, suppose the government expands AD to reduce unemployment. Unemployment falls to 6% and we move to point *b* (upward and left along the Phillips Curve). Inflation has risen to 4% but expectation of inflation has remained unchanged.
- In the following year, people revise their expectation of inflation and PC shifts upwards. If nominal AD rises at the same rate then higher prices would result with AD unchanged in real terms. The economy moves to point *c*.
- Government can expand AD again to cut unemployment but this would lead to the economy moving to point *d* with inflation at 8% and later further shift of the curve.

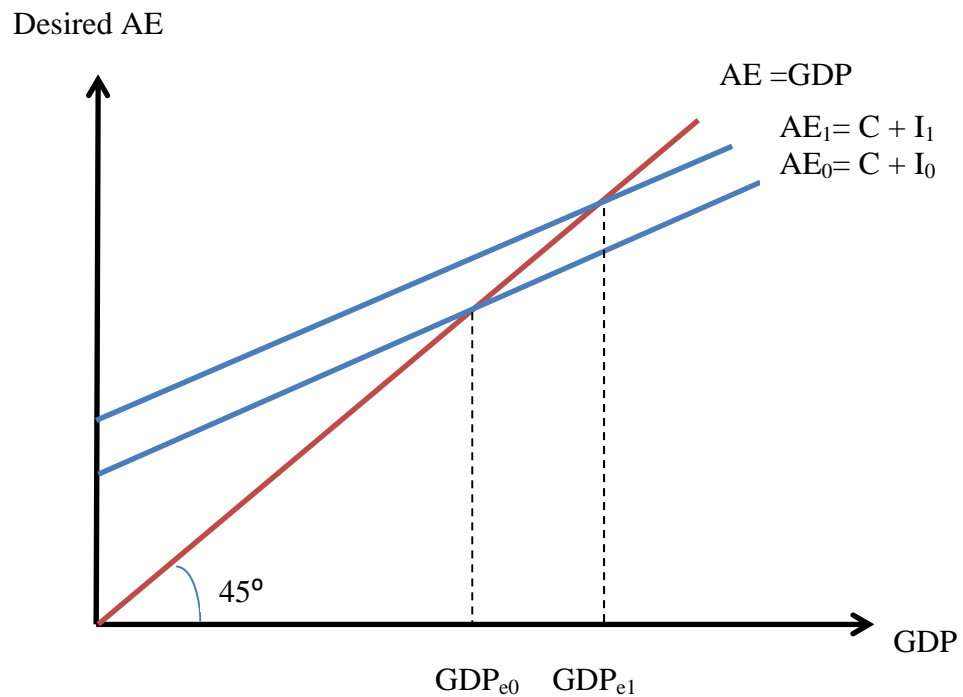
- The process continues. By reducing unemployment each time, inflationary expectations rise. Hence prices rise year on year.
- In the long run the Phillips Curve is vertical i.e. there is no trade-off.
- Implications – expanding AD can only reduce unemployment in the short run, the long run effect is higher prices. Expectations are important as is the credibility of the government in managing the target rate of inflation. (discussion)
- May go further and discuss rational expectations.



In part (i) many drew the original Philips curve without paying attention to its accuracy in term of its relation to the axes. For the second part, some very good answers were offered although there were also some very poor answers.

38

- (i) (a) An increase in business confidence would be associated with an increase in investment. **This would lead to an upward shift in the AE line as shown in the model below.** A discussion should be made regarding how we move from one equilibrium point to another.



An increase in expenditure to Where AE is above the 45 degree line $AE > GDP$ and when AE is below the 45 degree line $AE < GDP$. Where they intersect aggregate planned expenditure is equal to GDP.

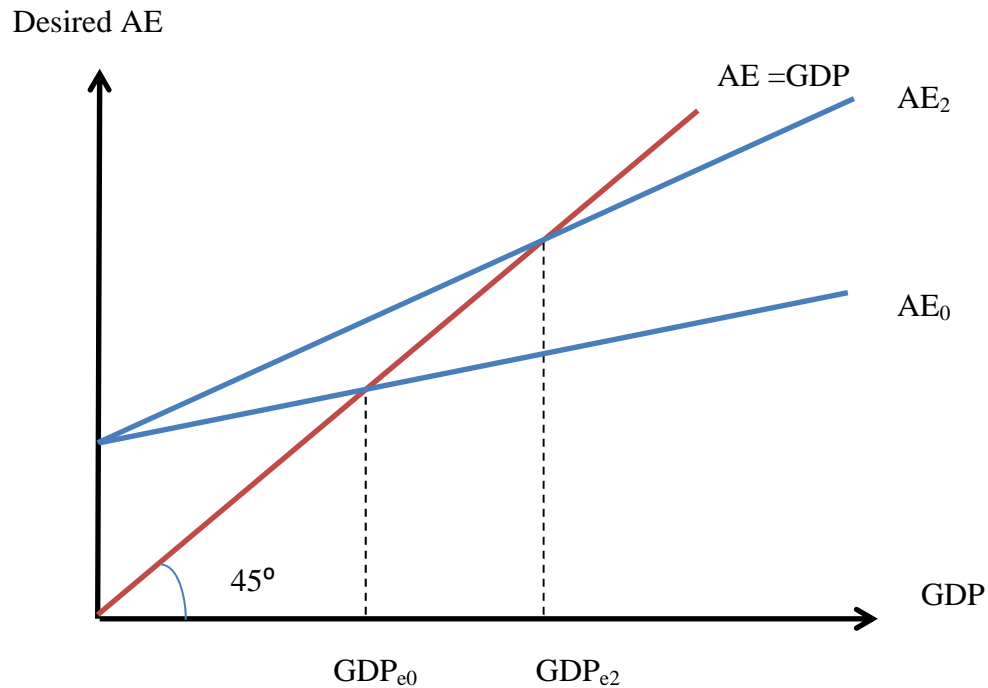
When AE is above GDP, firms stocks fall. Firms base their stock levels on expected sales so if stock levels are falling they will seek to restore stock levels by increasing production. They may hire additional labour to do this. This process continues until equilibrium is restored. In equilibrium unplanned stock changes are zero and firms do not change production.

The role of the multiplier should also be discussed.

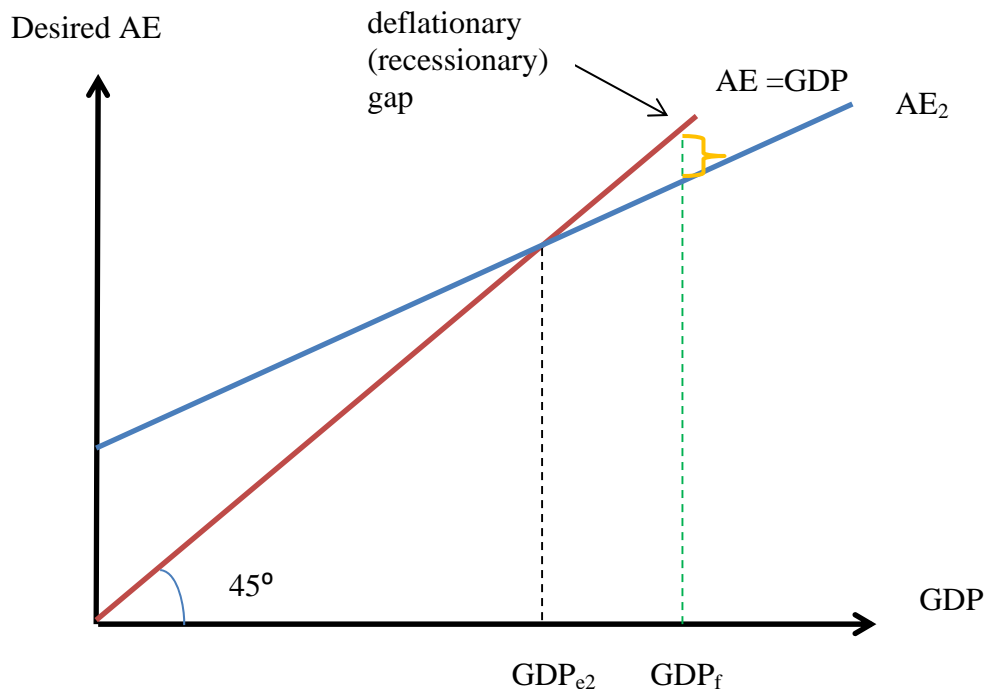
- (b) May discuss how an increase in the marginal propensity to consume would be reflected in the consumption function.

AE curve pivots upwards with no change in intercept.

A discussion of the effect of a change in the slope of the AE curve and the impact this has on the multiplier – the larger the mpc the steeper would be the AE curve and the greater the multiplier.



(ii)



In part (i), many candidates offered a relatively simple discussion without reference to the change in stocks which signals a change in demand, otherwise this part was answered reasonably well. In part (ii), to be able to show a deflationary gap, an assumption would have to be made about the equilibrium GDP in (i)(b) being below the full employment level. The assumption would be inconsistent with an inflationary gap so the 2 marks for this part were awarded to all candidates.

END OF EXAMINERS' REPORT

INSTITUTE AND FACULTY OF ACTUARIES



EXAMINATION

28 April 2014 (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 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.

<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>

- 1** Which of the following would the production of banking services be classified as?
- A Primary Production
 - B Secondary Production
 - C Tertiary Production
 - D Manufacturing Production
- [1½]
- 2** If an economy moves from producing 10 units of Good X and 5 units of Good Y to producing 8 units of Good X and 6 units of Good Y, the opportunity cost of the 6th unit of Good Y is:
- A 8 units of Good X.
 - B 10 units of Good X.
 - C 2 units of Good X.
 - D 1.25 units of Good X.
- [1½]
- 3** The demand curve for Good X, which is a normal good, will shift to the right if:
- A its price decreases.
 - B the price of a substitute rises.
 - C the price of a complement rises.
 - D consumers' incomes fall.
- [1½]
- 4** Which of the following best describes an annual supply curve?
- A The quantity that producers would like to sell annually.
 - B The quantity that producers are willing and able to sell at each income over the next year.
 - C The quantity that producers are willing and able to produce over the next year.
 - D The quantity that producers are willing and able to sell at each price annually.
- [1½]
- 5** If a maximum price for Good X is fixed above the market equilibrium price there will be:
- A an excess supply of Good X.
 - B an excess demand for Good X.
 - C no tendency for the market price of Good X to change.
 - D an upward pressure on the price of Good X.
- [1½]

- 6** A firm's total costs are £150 when 10 units are produced and the marginal cost of the 10th unit is £40. The marginal cost of the 11th unit is £15. Which of the following is TRUE?
- A The average cost for 11 units is greater than that for 10 units.
 - B The total fixed costs for 11 units are £165.
 - C The average fixed cost for 11 units is the same as the marginal cost of the 11th unit.
 - D The average fixed cost for 11 units is less than the marginal cost of the 11th unit.

[1½]

- 7** A maximum price is set for Good X at £30 which happens to coincide with the free market price. A downward shift in the supply of Good X keeping the maximum price fixed at £30 will lead to:
- A no change in price and a surplus.
 - B no change in price and a shortage.
 - C a fall in price and a fall in the quantity sold.
 - D a fall in price and a rise in the quantity sold.

[1½]

- 8** A welfare loss occurs in a monopoly industry because the price is greater than the:
- A marginal cost of production.
 - B marginal benefit to consumers.
 - C average revenue of the monopolist.
 - D average cost of the monopolist.

[1½]

- 9** The total output and the average physical product of the variable factor of production both always increase as long as the marginal physical product of the variable factor is:
- A positive.
 - B above its average physical product.
 - C negative.
 - D falling.

[1½]

- 10** Second degree price discrimination refers to a 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]

- 11** The profit payoffs to Firm X from combining the various strategies of X (1,2,3,4) and the presumed response of the other firm (S,P,Q,R) in a duopoly industry is given below:

		<i>Other Firm's Response</i>			
		<i>S</i>	<i>P</i>	<i>Q</i>	<i>R</i>
<i>Strategy of Firm X</i>	<i>1</i>	90	40	−10	100
	<i>2</i>	40	70	−20	−80
	<i>3</i>	25	50	120	130
	<i>4</i>	10	40	70	60

Which one of the following represents the maximin strategy of Firm X?

- A Strategy 1
 - B Strategy 2
 - C Strategy 3
 - D Strategy 4
- [1½]

- 12** Global Airways, which is a profit maximising firm, has to decide whether or not to run an extra daily flight between London and Edinburgh. The total daily fixed costs of the airline are £4,000, the total variable costs of the extra flight are £5,000 and the expected revenue from the extra flight is £5,500. In such circumstances Global Airways will:

- A not run the extra flight as it will expect to lose £4,500 from its profits.
 - B not run the extra flight as its expected profit of £500 is insufficient to cover its fixed costs.
 - C run the extra flight as it will add £500 to its profits or reduce losses by £500.
 - D run the extra flight as the expected revenue of £5,500 is more than its fixed costs.
- [1½]

13 If the own price elasticity of demand for Good X is -0.8 and the income elasticity of Good X is -0.3 , which of the following is correct?

- A Demand for Good X is price elastic.
- B A cut in the price of Good X will increase revenue for a firm producing Good X.
- C Good X is a luxury good.
- D Good X is an inferior good.

[1½]

14 In a simple closed economy, consumption is given by the relationship

$$C = 0.75 Y$$

where C is consumption expenditure and Y is Gross Domestic Product.

If government expenditure is £150 million and investment is £50 million, what will be the equilibrium value of the Gross Domestic Product of the economy?

- A £200 million
- B £312.5 million
- C £1,000 million
- D £800 million

[1½]

15 Which one of the following is likely to lead to cost push inflation?

- A A decrease in trade union powers.
- B An appreciation of the domestic currency's exchange rate.
- C A fall in labour productivity.
- D A decrease in the profit margins applied by firms.

[1½]

- 16** Other things remaining the same, the effect of an increase in the budget deficit is to:
- A lower short term interest rates because the aggregate demand curve shifts to the left.
 - B raise short term interest rates because the aggregate demand curve shifts to the left.
 - C lower short term interest rates because the aggregate demand curve shifts to the right.
 - D raise short term interest rates because the aggregate demand curve shifts to the right.

[1½]

- 17** Assume that the actual rate of unemployment is above the natural rate of unemployment because the expected rate of inflation is above the actual rate of inflation. If the expected rate of inflation falls to equal the actual rate of inflation then real wage growth will:
- A fall and real output will rise.
 - B fall and real output will fall.
 - C rise and real output will rise.
 - D rise and real output will fall.

[1½]

- 18** The US has been running a large current account deficit, and China has a large current account surplus. If their exchange rates were both flexible, how would such imbalances be eliminated?
- A The US dollar appreciates and the Chinese renminbi depreciates.
 - B The US dollar depreciates and the Chinese renminbi depreciates.
 - C The US dollar appreciates and the Chinese renminbi appreciates.
 - D The US dollar depreciates and the Chinese renminbi appreciates.

[1½]

- 19** Which of the following are the correct responses for the missing words (i) and (ii) in the following statement?

Automatic stabilisers act to ___(i)___ government expenditures and ___(ii)___ government revenues during an expansionary period.

- A (i) increase, (ii) decrease
- B (i) increase, (ii) increase
- C (i) decrease, (ii) increase
- D (i) decrease, (ii) decrease

[1½]

- 20** The budget deficit tends to decrease when:
- A national income falls.
 - B national income rises.
 - C governments decrease the personal income tax rate.
 - D government expenditure increases.
- [1½]
- 21** The equilibrium level of unemployment in an economy is the sum of:
- A frictional unemployment and structural unemployment.
 - B regional unemployment and seasonal unemployment.
 - C structural unemployment and regional unemployment.
 - D frictional unemployment and seasonal unemployment.
- [1½]
- 22** As a result of an economic policy change, interest rates and consumption rise but investment falls. The new policy was:
- A an expansionary fiscal policy.
 - B an expansionary monetary policy.
 - C a contractionary fiscal policy.
 - D a contractionary monetary policy.
- [1½]
- 23** According to the equation of exchange an increase in the money supply is most likely to lead to inflation if the:
- A velocity of circulation decreases.
 - B real national income increases.
 - C velocity of circulation and nominal national income are constant.
 - D velocity of circulation and the real national income are constant.
- [1½]
- 24** For a small open economy the imposition of a tariff on its imports of a good will normally:
- A reduce the domestic price of the imported good.
 - B increase domestic consumption of the imported good.
 - C increase domestic production of the imported good.
 - D increase the quantity imported of the good.
- [1½]

- 25** To prevent the value of the euro from depreciating against the US dollar, the European Central Bank might:
- A buy the euro in the foreign exchange market and increase its foreign exchange reserves.
 - B buy the euro in the foreign exchange market and decrease its foreign exchange reserves.
 - C sell the euro in the foreign exchange market and increase its foreign exchange reserves.
 - D sell the euro in the foreign exchange market and decrease its foreign exchange reserves.

[1½]

- 26** Which one of the following will result in an improvement in a country's terms of trade?

- A A fall in the price of its imports combined with a rise in the price of its exports.
- B A fall in the price of its imports combined with a fall in the price of its exports.
- C A rise in the price of its imports combined with a rise in the price of its exports.
- D A rise in the price of its imports combined with a fall in the price of its exports.

[1½]

- 27** You are given the following data concerning the average product of labour which along with 4 units of capital are the only two factors of production used in the short run production process.

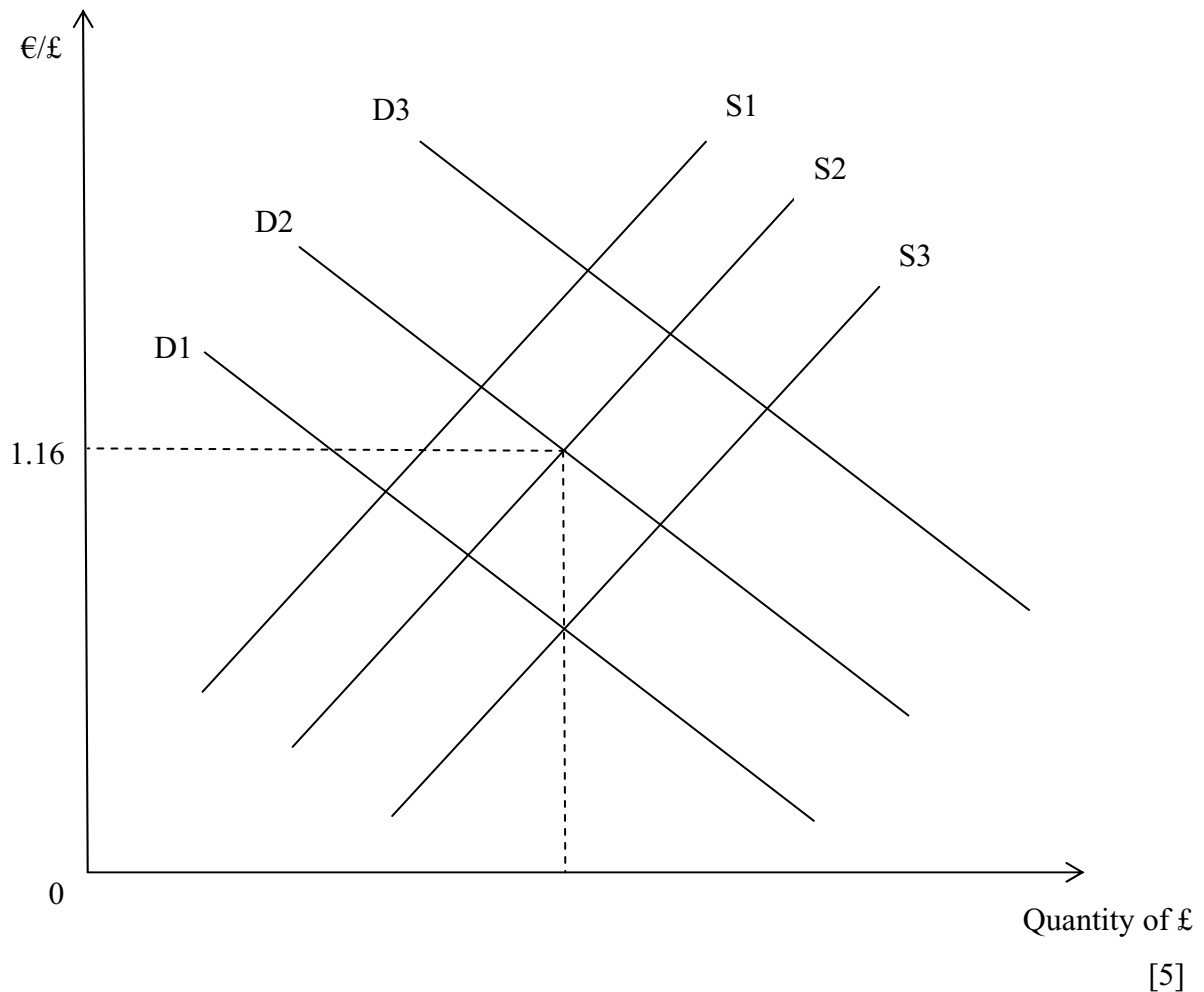
<i>Units of labour Employed</i>	<i>Average Product of labour in units of output</i>
0	—
1	70
2	80
3	90
4	100
5	90
6	80
7	70

Each unit of capital costs £100 and each unit of labour costs £75.

- (i) Calculate the marginal product of the 4th unit of labour. [1]
 - (ii) State whether the average product of labour in the above table is always greater than or equal to the marginal product of labour. [1]
 - (iii) Calculate the average cost of production if 4 units of labour are employed in the short run. [1]
 - (iv) Calculate the total cost of production when output is 490 units. [1]
- [Total 4]
- 28** Discuss with the aid of a diagram how a successful one-off advertising campaign is likely to affect sales of a product in the short, medium and long run. [4]
- 29** Explain the two main characteristics of a public good, giving an example for each. [4]
- 30** Explain with the aid of a diagram the four phases of the business cycle. In your diagram make clear the distinction between the full capacity output trend and the actual trend in economic output. [5]

31 The following diagram shows the initial supply and demand for sterling denoted by S2 and D2 respectively, and the Euro/Sterling exchange rate. With reference to the diagram, state the relevant supply and demand lines and comment on the movement of the exchange rate resulting from each of the following changes:

- (a) a rise in the UK interest rates.
- (b) higher inflation in the UK than abroad.
- (c) improvement in relative investment prospects abroad.
- (d) speculation that the exchange rate will fall.
- (e) a fall in UK incomes relative to incomes abroad.



32 Explain, with the use of a diagram, the circular flow of income in an open economy with a government, financial/banking and a foreign sector, making clear which are the withdrawals and which are the injections in the system. [5]

- 33** Workers in two countries A and B can produce either Good X or Good Y. The annual output of a worker in each country is given in units of each good in the table below.

<i>Country</i>	<i>Good X</i>	<i>Good Y</i>
<i>A</i>	5,000	10,000
<i>B</i>	200	5,000

- (i) State which country has a comparative advantage in the production of Good X. [1]
 - (ii) State if Country B has an absolute advantage in either of the goods. [1]
 - (iii) State whether trade would take place between the two countries if the terms of trade were 20 units of Good Y for 1 unit of Good X and explain how each country would benefit from trade on these terms. [2]
- [Total 4]

- 34** The government in a closed economy undertakes expenditure on goods and services of £200 million. Investment expenditure is £100 million and the rate of direct taxation is 25 per cent of all income. The consumption function is given by the equation:

$$C = 0.8 Yd$$

where C is planned consumption and Yd is disposable income (i.e. after deduction of income tax).

- (i) Calculate the level of national income at which the government has a balanced budget. [1]
 - (ii) Calculate the government budget deficit/surplus if national income were £600 million. [1]
 - (iii) Calculate the increase in the national income if government expenditure is increased from £200 million to £300 million. [1]
 - (iv) Calculate the level of government expenditure required to achieve the full-employment level of income of £900 million. [2]
- [Total 5]

- 35**
- (i) With the aid of aggregate supply and demand curves, explain the distinction between demand pull and cost push inflation. [3]
 - (ii) Give two examples of the factors that can cause each type of inflation. [2]
- [Total 5]

- 36** (i) Outline the main items that are recorded in the current account of the balance of payments and the macroeconomic significance of a large current account deficit. [4]
- (ii) Discuss the alternative macroeconomic measures that can be used by policy makers to reduce a large current account deficit. In your discussion, consider the relative merits of the alternative measures. [6]
[Total 10]
- 37** (i) Discuss why control of inflation has been a major policy objective of governments in the industrialised countries. [6]
- (ii) Discuss how a policy to control inflation may conflict with the attainment of other macroeconomic objectives. [4]
[Total 10]

END OF PAPER

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

April 2014 examinations

Subject CT7 – Business Economics Core Technical

Introduction

The Examiners' Report is written by the Principal Examiner with the aim of helping candidates, both those who are sitting the examination for the first time and using past papers as a revision aid and also those who have previously failed the subject.

The Examiners are charged by Council with examining the published syllabus. The Examiners have access to the Core Reading, which is designed to interpret the syllabus, and will generally base questions around it but are not required to examine the content of Core Reading specifically or exclusively.

For numerical questions the Examiners' preferred approach to the solution is reproduced in this report; other valid approaches are given appropriate credit. For essay-style questions, particularly the open-ended questions in the later subjects, the report may contain more points than the Examiners will expect from a solution that scores full marks.

The report is written based on the legislative and regulatory context pertaining to the date that the examination was set. Candidates should take into account the possibility that circumstances may have changed if using these reports for revision.

D C Bowie
Chairman of the Board of Examiners

June 2014

General comments on Subject CT7

The Business Economics examination paper includes different types of questions requiring a variety of styles of answers in the degree of detail required. The questions clarify the amount of detail necessary in the answer.

For Multiple Choice questions, it is not necessary to show workings or to offer explanation. For questions requiring calculations with workings, full mark would only be awarded if workings are shown. Similarly, in questions requiring explanation, full mark will be awarded for providing adequate explanation. For essay questions, candidates are expected to include the relevant facts and issues *as well as* the linkages so that a direct and coherent answer to the specific question is provided. Thus, mere statement of facts and a general discussion of issues around the specific question will not be sufficient to gain a high mark. Where a question requires drawing diagrams and showing particular points or areas on the diagram, the diagram needs to be clearly drawn and correctly labelled and clear explanation offered.

Comments on the April 2014 paper

The standard of the performance in most questions in this diet was similar to the previous diets. Candidates were generally able to provide correct answers to parts of the questions where these involved offering standard numerical solutions and diagrams, or listing of the relevant factors. However, too often diagrams were found not to be fully and accurately labelled, and also quite a few marks were lost by capable candidates not paying full attention to the wording of the question (for example questions 28, 31 and 32) or not being able to articulate adequately, their understanding of the answer.

Questions 36 and Question 37 offered more scope for a wider discussion of policy and proved more challenging. Examiners were looking for a reasoned discussion of the issues involved and not bullet point type of references to the possible issues. Several otherwise very good scripts were let down by relatively weak answers to questions 36 and 37, possibly due to lack of time. Candidates need to be aware of time management and allow sufficient time to be able to provide complete answers to these types of questions.

- 1** C
- 2** C
- 3** B
- 4** D
- 5** C
- 6** D
- 7** B or D
- 8** A
- 9** B
- 10** A
- 11** C
- 12** C
- 13** D
- 14** D
- 15** C
- 16** D
- 17** A
- 18** D
- 19** C
- 20** B
- 21** A
- 22** A
- 23** D
- 24** C
- 25** B
- 26** A

Some candidates provided quite detailed explanations to support their answers. Explanation of the answers to multiple choice questions is not required and uses valuable time.

In question 7 the “downward shift” could be interpreted as a shift of the supply curve or a reduction in the quantity supplied, so both B and D were accepted as correct answers.

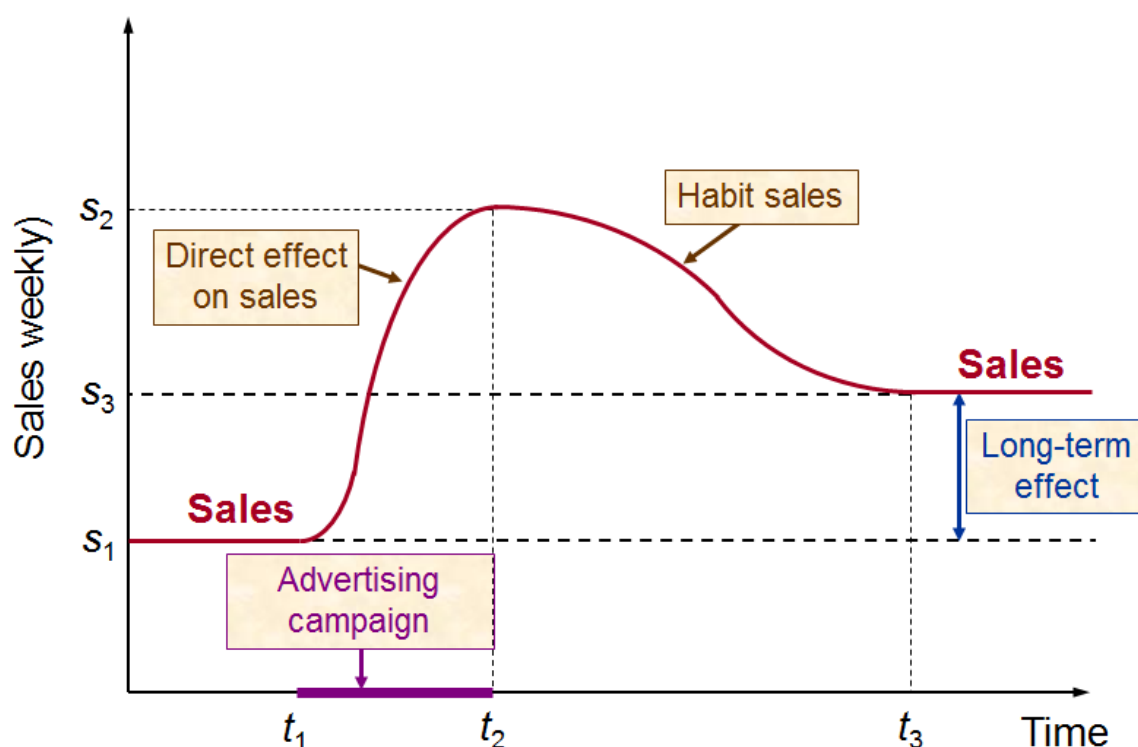
In question 21 equilibrium unemployment could occur due to any combination of the four types of unemployment listed under the answers so all answers were accepted as correct.

Questions 5, 17 and 22 seemed to prove more challenging to the candidates.

- 27** (i) 130 units
- (ii) No
- (iii) £1.75
- (iv) £925

Parts (i) and (ii) of this question were generally answered well. However in part (iii) many candidates divided the total cost by the 4 units of labour rather than the units of output.

28



A successful one-off advertising campaign is likely to lead to a significant increase in sales in the short run as the advertising campaign widens the market for a product and attracts sales from competitors with sales rising from S_1 to S_2 during the campaign. After the advertising campaign finishes, the sales will generally start to decline but not to the initial level; for example, it could be at S_3 as many of the new customers continue to buy the product out of habit. In the long run sales will tend to flatten but with a higher level than the initial sales level.

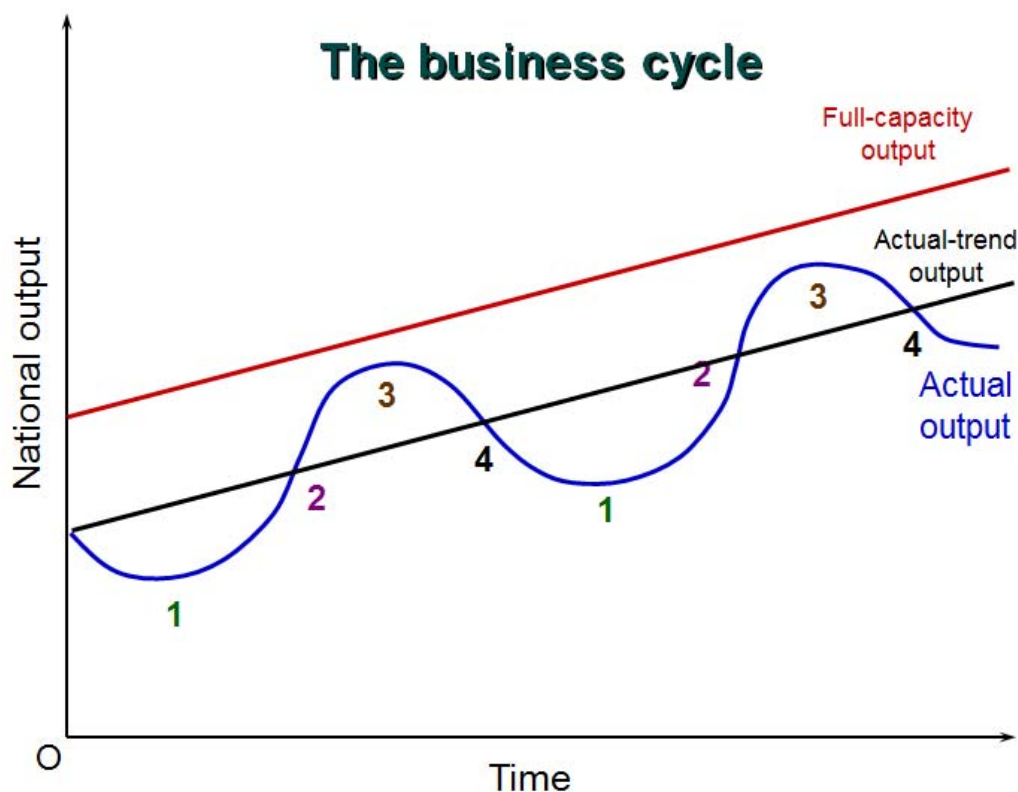
This question was answered well by most candidates.

29 Public goods have two important characteristics non-rivalry and non-excludability.

1. The non-rivalry element means that one person's consumption of the good does not prevent someone else consuming the good. An example would be street lighting. The consumption of street lighting by one person does not prevent someone else benefiting from it as well.
2. Non excludability means that once the good is produced then it is not possible to prevent others enjoying the benefits of the good. For example, if one person in a town is protected from flooding by a dam all the other houses in the town will also benefit from the protection of the dam. Another good example is defence expenditure; once money is spent on a country's defence, then all the people in the country benefit from the defence expenditure.

In answering this question “non-competing” was also accepted in place of non-rivalry. Most candidates understood what a public good was, although some could not recall the main characteristics.

30 The business cycle is illustrated below:



The full capacity output trend is the maximum level of output that an economy can produce if firms and organisations in the private and public sector are working at full capacity and there is full employment of resources in the economy. There tends to be a positive upward trend in this due to technological progress, the use of ever more efficient production processes as well as other factors such as population growth. The actual trend output shows the trend of the actual output of the economy over time; it averages out the trends of actual GDP during the course of the business cycle.

Phase 1 is the upturn – in this phase a stagnant economy begins to recover and growth in actual real output resumes after a period of low well below trend growth.

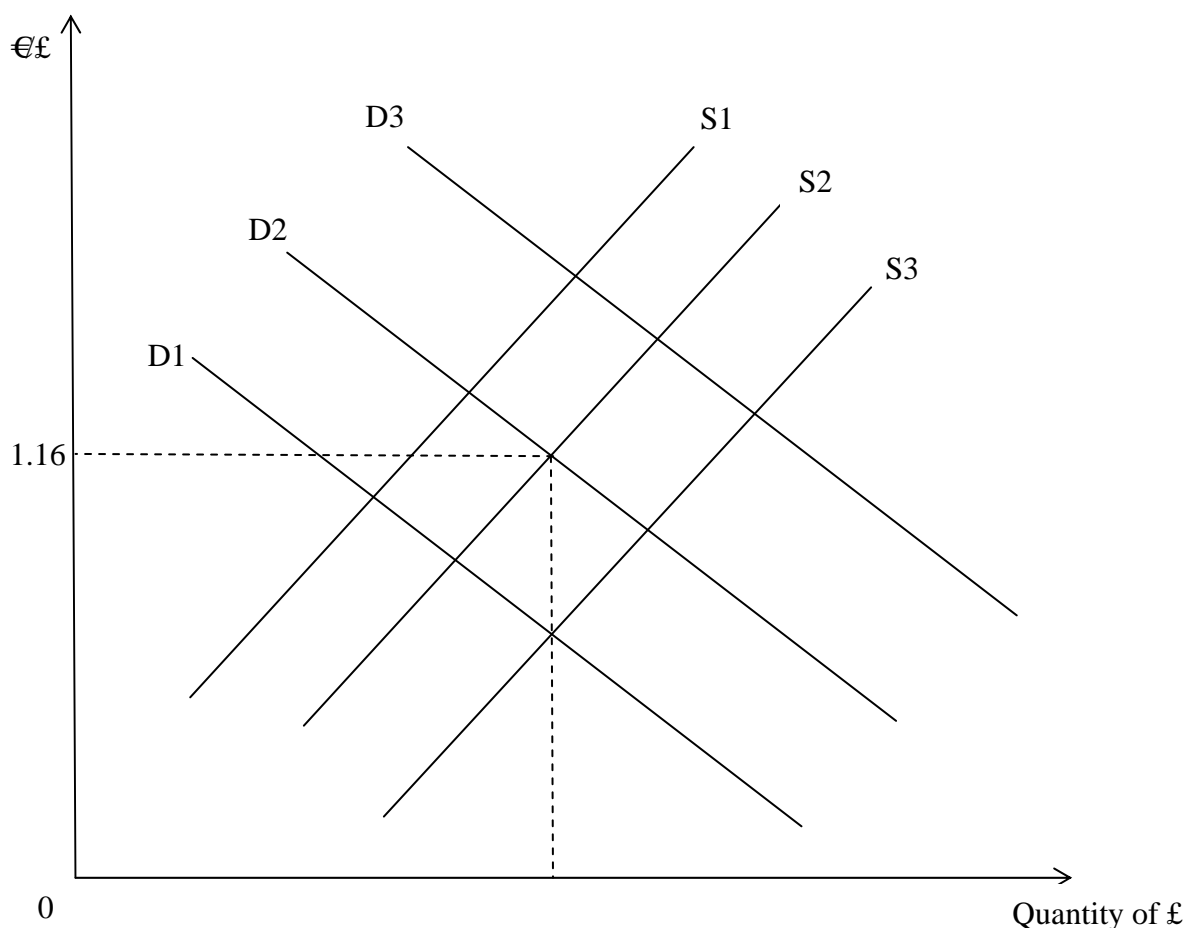
Phase 2 is the rapid expansion phase in which the GDP is rapidly growing and economic growth as measured by real GDP gains speed and the gap between actual and full capacity output markedly declines.

Phase 3 is the peaking-out or boom phase when economic growth rate starts to flatten out and real GDP is much closer to its full capacity output.

Phase 4 is the slowdown/recession phase during which the economic growth rate starts to slow down significantly and it can even become negative resulting in a larger gap between actual output and full capacity output.

This question was generally answered well, but with varying quality diagrams. Some candidates confused the business cycle with the product cycle.

31

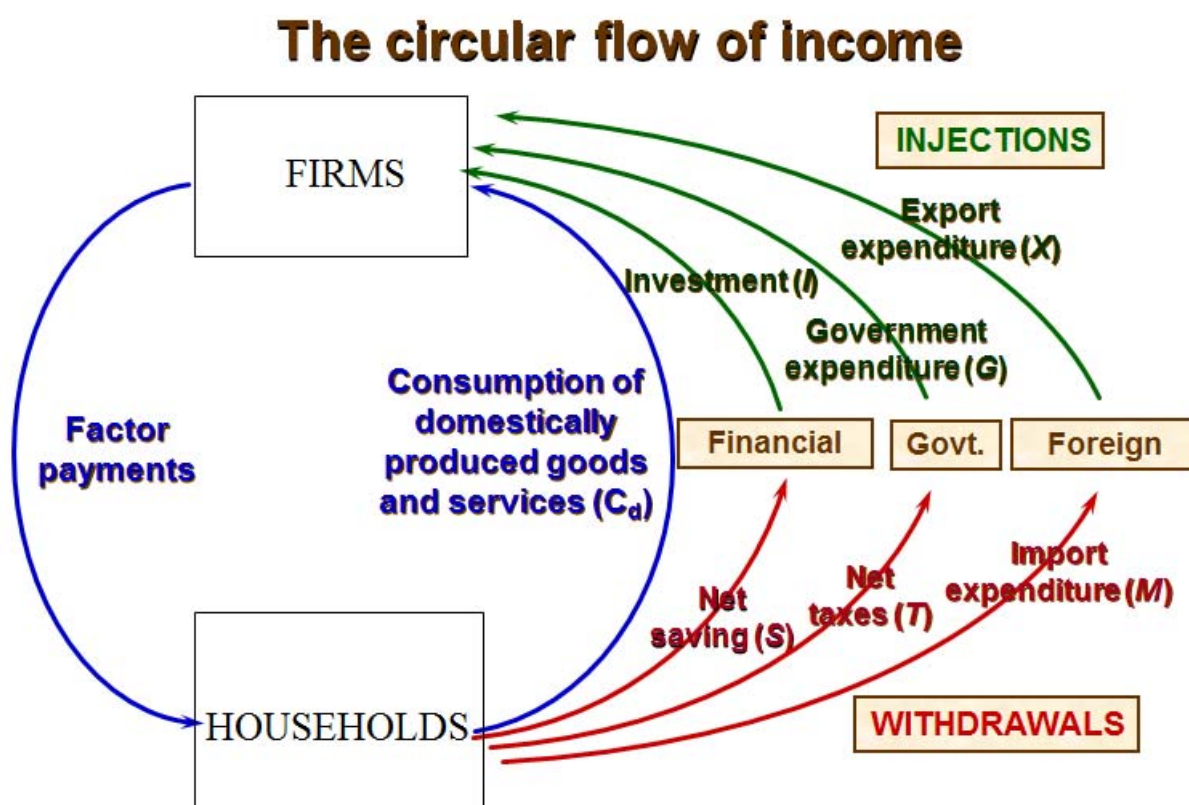


- (a) Savers abroad will deposit their money in the UK so demand for sterling goes up to D3. Fewer UK residents will want to save abroad so supply of Sterling will fall to S1. Sterling will appreciate.
- (b) UK exports become more expensive so demand for sterling will fall to D1 and UK imports from abroad become cheaper so supply of sterling will rise to S3. The exchange rate will depreciate.
- (c) More UK residents invest abroad so supply will rise and shift to S3 and more people abroad will want to invest abroad rather than in the UK so demand will fall and shift to D1. Sterling will depreciate.
- (d) Sterling will be sold expecting its value to fall. The supply will increase and shift to S3. Sterling will depreciate.

- (e) If UK incomes fall, the demand for imports and supply of sterling will fall and shift to S1. Incomes abroad will be higher relative to the UK so demand for UK exports and hence sterling will rise and shift to D3. Sterling will appreciate.

This question was often answered well. However, many candidates lost marks by providing the relevant supply and demand lines and did not provide comments on the exchange rate movement. Also there seemed to be confusion between whether it was the Euro or Sterling that was appreciating.

32



Households work for firms to produce goods and services in return for which they receive income in the form of wages, profits, rental and return on capital. This income is either spent on domestically produced goods, saved with financial institutions, paid in tax to the government or spent on foreign produced goods in the form of imports. Leakages in the form of savings, taxes and import expenditure ultimately get recycled into the economy through injections in the form of investment, government expenditure and exports.

This was a standard concept diagram. It was disappointing to see many candidates not being able to recall the full diagram accurately, while others providing a correct diagram but with no explanation to support it.

- 33**
- (i) Country A
 - (ii) No
 - (iii) Yes. Country A will export Good X to Country B in return for imports of Good Y. The terms of trade must lie between 2 units of Good Y per one unit of Good X (the Country A's opportunity cost) and 25 units of Good Y per one unit of Good X (Country B's opportunity cost). Trade on these terms will benefit Country B because it can import Good X at a cost of 20 which is cheaper than producing it at a cost of 25. It also benefits Country A since it sells Good X at 20, higher than the cost of producing it at 2.

The answers to this question were of mixed quality although parts (i) and (ii) of the question were standard concepts.

- 34**
- (i) We need taxes to be £200 million so national income must be $£200/0.25 = £800$ million to have a balanced budget.
 - (ii) The budget would be in deficit by £50 million

Tax would be $0.25 \times 600 = £150$ million

Less expenditure = £200 million

Deficit = £50 million
 - (iii) The multiplier = $1/[1 - c(1 - t)] = 1/[1 - 0.8(1 - 0.25)] = 2.5$

So increase in national income is $£100 \times 2.5 = £250$ million
 - (iv) $Y = 0.8(Y - tY) + G + 100$

Given $Y = £900$ million at full employment

 $900 = 0.8[900 - 0.25(900)] + G + 100$

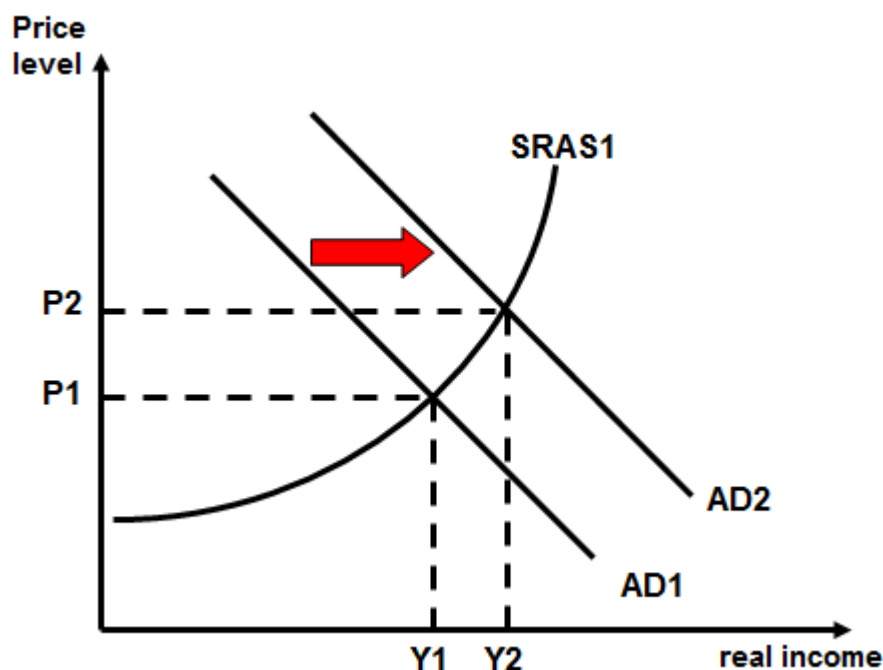
implies $G = 260$

Therefore government expenditure needs to be £260 million

This question was generally answered well. Part (i) of this question proved more challenging to the candidates.

35 Demand-pull inflation is a type of inflation that results from an initial increase in aggregate demand as shown in the diagram below. Demand-pull inflation may begin with any factor that increases aggregate demand:

1. Increase in the quantity of money and lower interest rates
2. An increase in government expenditures or tax cuts
3. Changes in consumer and investment demand
4. An increase in export demand due for example to global economic growth

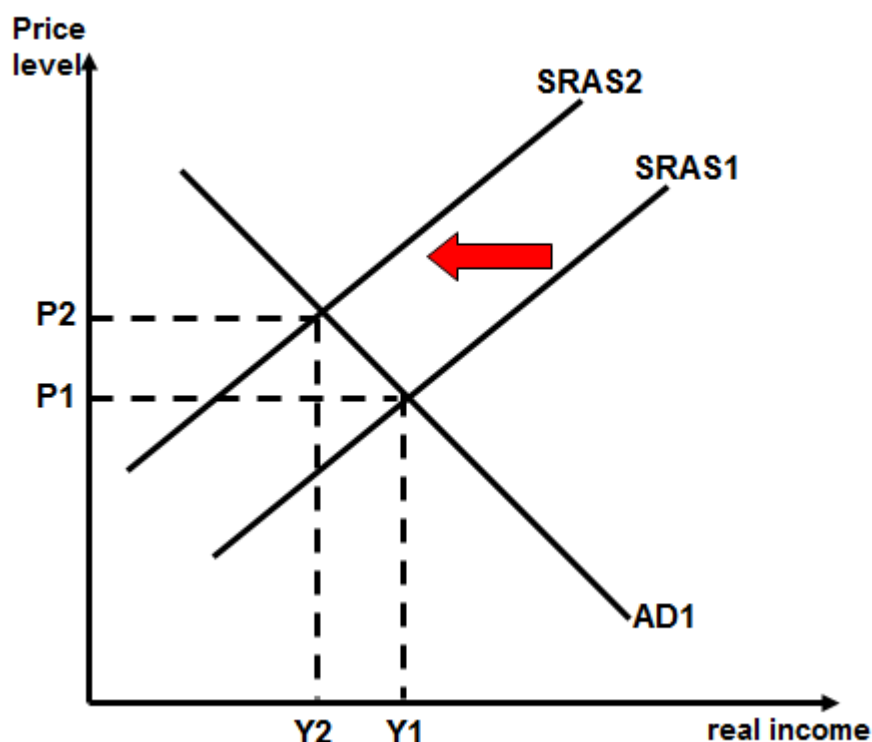


A shift to the right of the aggregate demand curve will lead to upward pressure on prices and some expansion of output. It is more likely to result in higher price rises closer to the full employment level of output than when there is a high level of unemployment.

Cost-push inflation is a type of inflation that results from an initial increase in costs.

There are three main sources of increased costs:

1. An increase in the money wage rate
2. An increase in the money price of raw materials, such as oil and commodities.
3. A depreciation of the exchange rate which raises import costs



A shift to the left of the aggregate supply curve will lead to upward pressure on prices and a fall in the level of output. The precise initial inflationary impact will depend upon the steepness of the aggregate demand curve. Cost push inflation is likely to be accompanied by a lower level of output rather than a higher output which is usually associated with demand pull inflation.

Many good answers were offered for this question. A few candidates discussed supply and demand in general terms ignoring the term “aggregate”, others labelled the horizontal axis as “Q”. The quality of explanations to support the diagrams varied significantly.

- 36** (i) The current account is made up of two accounts, the trade balance and the service balance. The trade balance is sometimes referred to as the visible balance because it represents the difference between receipts for exports of goods and expenditure on imports of goods which can be visibly seen crossing frontiers. The receipts for exports are recorded as a credit in the balance of payments, while the payment for imports is recorded as a debit.

The service balance is sometimes referred to as the invisible balance and shows the difference between revenue received for exports of services and payments made for imports of services such as shipping, tourism, insurance and banking. In addition, receipts and payments of interest, dividends and profits are recorded in the invisible balance because they represent the rewards

for investment in overseas companies, bonds and equity while payments reflect the rewards to foreign residents for their investment in the domestic economy. As such, they are receipts and payments for the services of capital that earn and cost the country income just as do exports and imports. There is an item referred to, as unilateral transfers included in the invisible balance. These are payments or receipts for which there is no corresponding *quid pro quo*. Examples of such transactions are migrant workers' remittances to their families back home and foreign aid. Such receipts and payments represent a redistribution of income between domestic and foreign residents. Unilateral payments can be viewed as a fall in domestic income due to payments to foreigners and so are recorded as a debit. While unilateral receipts can be viewed as an increase in income due to receipts from foreigners and consequently are recorded as a credit. Overall the current account measures the earnings less expenditure vis-à-vis the rest of the world.

A current account deficit indicates that the country as a whole is spending more than it is earning. A current account surplus indicates that the country as a whole is earning more than it is spending vis-à-vis the rest of the world.

- (ii) There is no easy way to tackle a current account deficit. A current account deficit means that a country's expenditure on goods/services vis-à-vis the rest of the world is greater than its revenue from exports of goods/services from the rest of the world. Devaluation is certainly a useful tool in the medium to long term in helping to correct a current account deficit. This is because devaluation makes exports more competitive as measured in the foreign currency and imports more expensive as measured in the domestic currency. In the short run, devaluation is less likely to be effective in correcting a current account deficit since the change in the quantity demanded for imports and exports are lower in the short run than in the long run. Imports cost more in the domestic currency while import volumes do not decline sufficiently and exports volumes may not rise sufficiently to compensate. As such, a deficit in the current account may worsen initially but it should improve over the medium terms as import volumes decline and export volumes rise.

One major problem with devaluation is that by making imports more expensive it could spark off wage and price pressures which to some extent will undermine the increased competitiveness one might otherwise have expected. In addition, the effectiveness of devaluation will be undermined if other trading competitors devalue their currencies so as maintain their international competitiveness.

There are means other than devaluation, that a government can use to correct a current account deficit. These include tighter fiscal and monetary policies. The current account which, ignoring transfers, is given by exports (X) minus imports (M) has its counterpart in either domestic investment (I) being greater than domestic savings (S) and/or government expenditure on goods and services (G) exceeding tax revenue (T) as given by the equation below:

$$(X - M) = (S - I) + (T - G)$$

A tighter monetary policy that raises the domestic interest rate, will discourage consumption (encourage savings) and reduce investment so helping to improve the first bracketed expression on the right hand side. Tighter fiscal policy in the form of a rise in taxes or cut in government expenditure will reduce national income and with it expenditure on imports also helping to improve the current account.

Devaluation is by no means the only mechanism for improving the current account and its relative effectiveness as compared to fiscal and monetary policies will depend upon the structural parameters of the particular economy under consideration. However, there can be little doubt that a combination of devaluation supported by tighter fiscal and monetary policies will be the most effective means of tackling a current account deficit although this may have adverse consequences for employment and output.

The answers to this question were generally weak. A disappointing number of candidates incorrectly offered fiscal/monetary expansion as a method to reduce a current account deficit.

- 37** (i) There a number of reasons as to why governments seek to control inflation. One of the most important is that it can result in an arbitrary redistribution of national income. In particular, it is especially harmful to those on fixed incomes as it erodes the real purchasing power of their income. Those that have borrowed at fixed rates of interest tend to gain at the expense of those that have lent at fixed rates of interest. Ultimately inflation will discourage saving. This is especially the case if inflation leads to the expectation of further price increases. Inflation also discourages investment since it adds greater uncertainty to business planning. Businesses find it hard to forecast their costs and revenue and face increased uncertainty about the interest rates that they will have to pay to finance investment.

Strikes and industrial disruption are generally higher in periods of inflation as workers seek compensation and differentials get distorted when some get pay rises above inflation while others have to settle for below inflation pay rises. Finally, inflation can undermine a country's international competitiveness, especially if it operates a fixed exchange rate. Inflation raises the cost of the country's exports resulting in fewer goods being sold abroad and more imports purchased by domestic residents, causing balance of payments problems. There are also sound reasons for governments to control inflation; a government that has a poor inflation record will have to pay an inflation premium in its borrowing costs. In analysing the costs of inflation economists tend to make a distinction between anticipated and unanticipated inflation.

Anticipated inflation, while being viewed as harmful, is generally considered to be less disruptive to an economy than unanticipated inflation. Economic agents can learn to live with stable and predictable inflation but the very high costs of inflation are imposed when it is volatile and unpredictable taking economic agents by surprise.

- (ii) Once inflation is deeply rooted in the economic system, bringing it under control through tighter monetary policies and or fiscal policies can be a painful process conflicting with objectives such as full employment and economic growth. This is because tighter monetary policies, when implemented, may lack credibility with workers requiring evidence that inflation is under control before moderating their wage demands. To the extent that wage inflation is slow to respond to lower monetary growth and lower inflation, then real wages will be rising, implying a rise in unemployment. Only once workers start to observe a lower inflation and higher levels of unemployment will wage inflation start to converge towards lower inflation. During the transition period, lower inflation policies can lead to significant job losses and lower economic growth.

In addition, controlling inflation may mean the central bank raises short term interest rates. This may lead to an appreciation of the domestic currency in the foreign exchange market as it may attract capital inflows. The appreciation of the exchange rate can result in a reduction in exports and a rise in imports leading to deterioration in the country's trade position with a reduced surplus or larger deficit. In addition, the appreciation of the exchange rate reduces export volumes while raising import volumes and so could mean job losses and slower economic growth.

The answers to this question were generally disappointing. In part (i) many answers focussed on issues such as menu costs rather than on higher level issues appropriate to industrialised countries. In part (ii), many recalled the other macroeconomic objectives but only superficially dealt with how a policy of controlling inflation conflicts with those objectives.

END OF EXAMINERS' REPORT

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.

<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>

- 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

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

September 2014 examinations

Subject CT7 – Business Economics Core Technical

Introduction

The Examiners' Report is written by the Principal Examiner with the aim of helping candidates, both those who are sitting the examination for the first time and using past papers as a revision aid and also those who have previously failed the subject.

The Examiners are charged by Council with examining the published syllabus. The Examiners have access to the Core Reading, which is designed to interpret the syllabus, and will generally base questions around it but are not required to examine the content of Core Reading specifically or exclusively.

For numerical questions the Examiners' preferred approach to the solution is reproduced in this report; other valid approaches are given appropriate credit. For essay-style questions, particularly the open-ended questions in the later subjects, the report may contain more points than the Examiners will expect from a solution that scores full marks.

The report is written based on the legislative and regulatory context at the date the examination was set. Candidates should take into account the possibility that circumstances may have changed if using these reports for revision.

F Layton
Chairman of the Board of Examiners

November 2014

General comments on Subject CT7

The Business Economics examination paper includes different types of questions requiring a variety of styles of answers in the degree of detail required. The questions clarify the amount of detail necessary in the answer.

For Multiple Choice questions, it is not necessary to show workings or to offer explanation. For questions requiring calculations with workings, full mark would only be awarded if workings are shown. Similarly, in questions requiring explanation, full mark will be awarded for providing adequate explanation. For essay questions, candidates are expected to include the relevant facts and issues *as well as* the linkages so that a direct and coherent answer to the specific question is provided. Thus, mere statement of facts and a general discussion of issues around the specific question will not be sufficient to gain a high mark. Where a question requires drawing diagrams and showing particular points or areas on the diagram, the diagram needs to be clearly drawn and correctly labelled and clear explanation offered.

Comments on the September 2014 paper

The paper was of a similar standard to the more recent years' papers which test the new syllabus. The new syllabus, first introduced in 2010, includes a discussion of many new topics relevant to the world of business and to the economy as a whole. The syllabus places a greater emphasis on, and provides a greater scope for testing the candidate's discursive and analytical as well as technical skills.

The standard of the performance in most questions in this diet was similar to the previous diets. Candidates were generally able to provide correct answers to parts of the questions where these involved offering standard numerical solutions and diagrams, or listing of the relevant factors (For example, question 34, 35 and 36 involved numerical calculations and performance on these questions was of a good standard). However, too often diagrams were found not to be fully and accurately labelled. Diagrams offered in part (iii) of question 37 were frequently incorrect.

Question 38 offered more scope for a wider discussion of policy and proved more challenging. Examiners were looking for a reasoned discussion of the need for the policy and a more extensive discussion of how it is implemented. Such discursive questions, especially where these relate to policy, tend to probe candidates' deeper understanding of the relevant issues and the linkages between these. A good mark could be obtained where an appreciation of the key issues, the linkages and the impact through the domestic but also possibly on aspects of the global economic system is demonstrated.

1	D	[1½]
2	D	[1½]
3	A	[1½]
4	A	[1½]
5	C	[1½]
6	C	[1½]
7	C	[1½]
8	C	[1½]
9	D	[1½]
10	C	[1½]
11	C	[1½]
12	D	[1½]
13	B	[1½]
14	D	[1½]
15	B	[1½]
16	B	[1½]
17	B	[1½]
18	D	[1½]
19	Mark awarded to all answers	[1½]
20	B (A also accepted)	[1½]
21	C	[1½]
22	D	[1½]
23	C	[1½]
24	D	[1½]
25	D	[1½]
26	D	[1½]

In question 19, under some circumstances all answers could be correct, so where any of the answers were offered, the candidate was awarded the mark.

In question 20, in some cases, answer A could also be correct, so the mark was awarded to candidates offering answers A or B.

The multiple choice questions were generally answered well.

- 27** Rational choice refers to the weighing up of costs and benefits of each alternative choice. For a consumer, the most rational choice is the option which gives the consumer the greatest benefit relative to cost. An example may be given in which a consumer has two choices of food. They will weigh up the costs and benefits of these two alternative products. For example, one may be highly enjoyable but is expensive and this is weighed up against a cheaper alternative which may not be as enjoyable. The answer may include a discussion of maximising utility/consumer surplus given constraints such as income. [3]

Many candidates did not provide an adequate explanation of what is meant by rational choice and few could explain how it applies to consumer decision making.

- 28** Laptops represent a normal good. Therefore, as income rises the demand for laptops will also increase. This is represented by a rightward shift in the demand curve; higher quantity traded and an increase in price. A fall in income, on the other hand, is expected to trigger changes in the opposite direction.

If consumers believe that the price of laptops will rise in future they will be induced to purchase laptops now rather than in the future. As a result of this, the demand curve will shift to the right as above. If however consumers believe that prices of laptops will fall in future (such as due to a sale) then consumers would postpone their purchases. In such a case, demand would shift left in the short term, representing a fall in price and quantity traded. [3]

This question was generally answered well.

- 29** Arguments for advertising: It provides consumers with information about goods and services, enables firms to enter into new markets where there are established brands and therefore effectively breaks down a potential barrier to entry (lower barriers to entry and therefore potential lower costs and increased consumer welfare), emphasises special features of the product to consumers and so aids product development, encourages price competition if price is a prominent feature of the advertising campaign, if sales increase, then there may be potential economies of scale to be gained in future.

Points which refer to subsidising other goods can be made. For example a company producing vitamins that advertises the benefits of a regular intake of its own brand of vitamins, will encourage consumers to buy vitamins in this and other brands. This free advertising for other vitamin producers results in an external benefit due to a healthier population. Advantages to the firm such as increased market share and more inelastic demand could also be considered.

Arguments against advertising: It aims to persuade people to buy the good but people may still not be fully informed and could be misled, advertising creates wants in a scarce resource world and therefore can fuel human wants/materialism, resources directed towards advertising could be used elsewhere such as producing more goods, costs of advertising may be passed onto the consumer, can create a barrier to entry for

new firms and thus reduce competition. Advertising may pose external costs to society. For example, advertising using billboards may spoil the landscape. [5]

Performance on this question was of variable quality; some candidates provided a reasonable list of points and others very few.

- 30** In both perfect competition and monopolistic competition firms tend to be characterised as small with little market power. Economies of scale is associated with falling costs per unit of production as production increases, which is generally associated with large scale firms. Under perfect and monopolistic competition, firms may find it very difficult to experience such cost advantages as specialisation and/or division of labour, by products, financial economies, efficiency of large machines and so forth. [3]

This question was generally answered well.

- 31** (a) Airline travel is potentially contestable for particular routes due to the existing firms in the market. In the industry, airlines often hold particular routes. The existing airlines would have already foregone the sunk costs of entry (planes) and therefore may experience relatively low entry costs to other routes. As a result of this, airline travel is potentially a contestable market. New firms entering the airline industry would experience high sunk costs and find it difficult to transfer capital outlays to another use. However, if an existing airline enters a particular route and it proves to be unsuccessful, they can withdraw from that route at a relatively low cost.
- (b) Savings accounts will be operated by banks and building societies and represent a market which will have high barriers to entry. Firms investing in systems to operate savings accounts will not be able to switch the capital to other uses. Firms offering financial services may be able to offer savings accounts in addition to other financial products but, such a market will be relatively difficult to enter and is therefore weakly contestable.
- (c) A firm providing all meals within a hospital may have a monopoly in the local area and be the sole provider of meals within the hospital. However, if the firm provides a poor service and/or uncompetitive pricing, then the hospital trust can seek out a new supplier. This market will be strongly contestable as others may enter the market with relative ease.

[6]

There were many good answers to this question although some candidates did not communicate an understanding of a contestable market, whilst others focussed on stating factors that would make a market contestable generally, without discussing the contestability of the case in hand.

- 32** Increasing economic growth may be associated with firms being able to make greater investment in plant and machinery, R&D and skills development and training. Such investments may lead to greater efficiency, greater productivity and increased profitability (due to reduced costs). In turn such improvements can lead to greater future potential growth. Moreover, in periods of economic downturn, firms are more likely to reduce their levels of investment. Firms will not be willing to make investments and produce more output if there is insufficient demand for it. Consequently, reductions in current investment will reduce potential growth. [3]

The answers to this question were disappointing with many candidates not offering higher investment in times of strong economic growth as a factor leading to future growth.

- 33** Unemployment benefits which are paid for by taxpayers, coupled with additional spending on public services to assist the unemployed.

Actual output is below potential output and therefore firms may not utilise all their resources to their full potential. This could represent a loss of profits.

Individuals experience a loss of earnings; this can be compensated partially by benefits. Individuals may also experience a decline in their health, loss of self-esteem and strained relationships with others. These represent loss of skills to the economy in long term and so loss of human capital.

The government experiences a fall in tax revenue as the unemployed do not pay income tax and buy fewer goods and services resulting in a decline in indirect taxes.

[3]

This question was generally answered well.

- 34** (i)

<i>No of workers</i>	<i>Total production</i>	<i>MPL</i>	<i>MRPL)</i>
0	–	–	–
1	25	25	5000
2	75	50	10000
3	127	52	10400
4	179	52	10400
5	212	33	6600
6	225	13	2600

[3]

- (ii) $TR = P * Q (200 * 179) = 35,800$
 $TC = TFC + TVC$
 $TC = 10000 + (5000 * 4)$
 $TC = 30,000$
 $Profit/Loss = TR - TC$
 $5,800 = 35,800 - 30,000 (PROFIT)$

[3]

[Total 6]

This question was answered particularly well with most candidates gaining a high mark. In part (i)(b) the marginal revenue product of labour was asked for. As this term is not covered in the syllabus, the relevant portion of the mark was awarded to all candidates.

- 35** (a) $25 + 20 + 16 = 61$
(b) $5 * £10 = £50$
(c) $£2 = MU - P = £12 - £10$
(d) $£25 = TU - TE = £45 - £20$
(e) 4 units
(f) TCS is maximised when $MU = P$

[5]

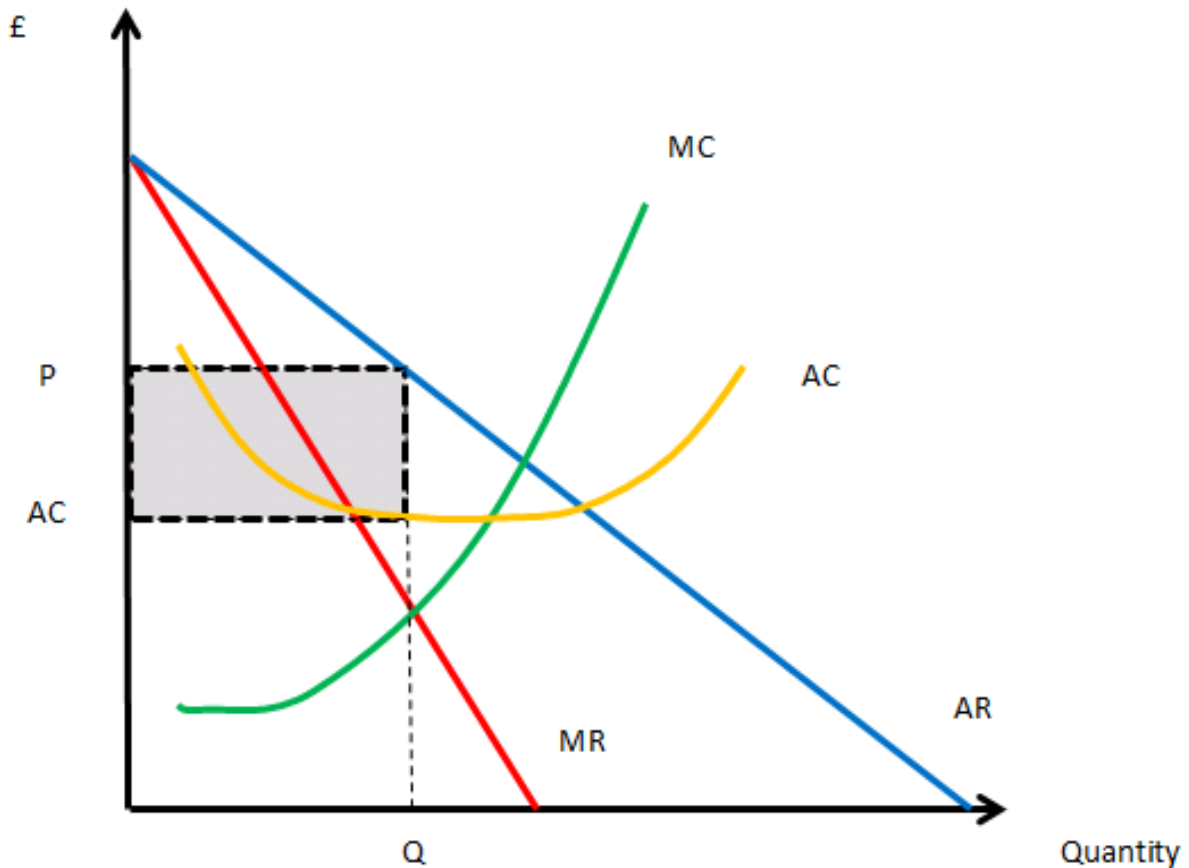
Most candidates provided a good answer to this question.

- 36** (a) $Y = C + I + G$
 $Y = 10 + 0.75Y + 20 + 40$
 $0.25Y = 70$
 $Y = 280$
(b) $Y_d = C + S$
 $Y_d = (1 - 0.1)(280) = 252$
 $C = 0.75Y + 10 = 220$
 $S = Y_d - C = 252 - 220 = 32$
(c) $Withdrawals = S + T = 32 + 0.1(280) = 60$
(d) $Y = C + I + G$
 $Y = 10 + 0.75Y + 20 + 50$
 $0.25Y = 80$
 $Y = 320$

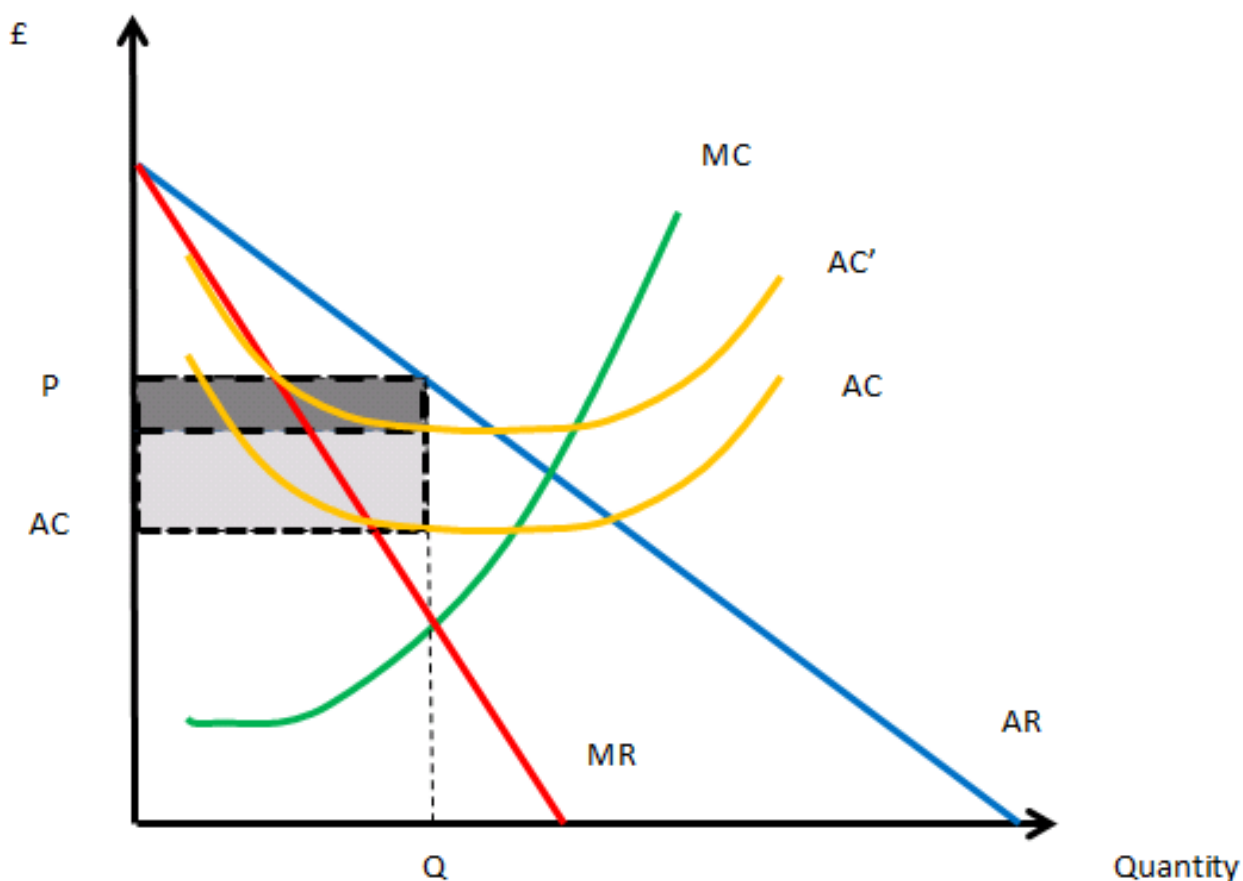
[4]

The performance on this question was encouraging. Most candidates succeeded in offering a good answer.

- 37** (i) As it is clearly one firm, a monopoly is the correct market structure. Monopoly Characteristics: one firm is the industry, unique product, no close substitutes for the good or service, there are considerable barriers to entry which could be the control of a resource, legal barriers or natural barriers, firm has considerable influence over price and maximises profits where $MC = MR$, Output Q and Price P as shown below and total profit shown by the shaded area.

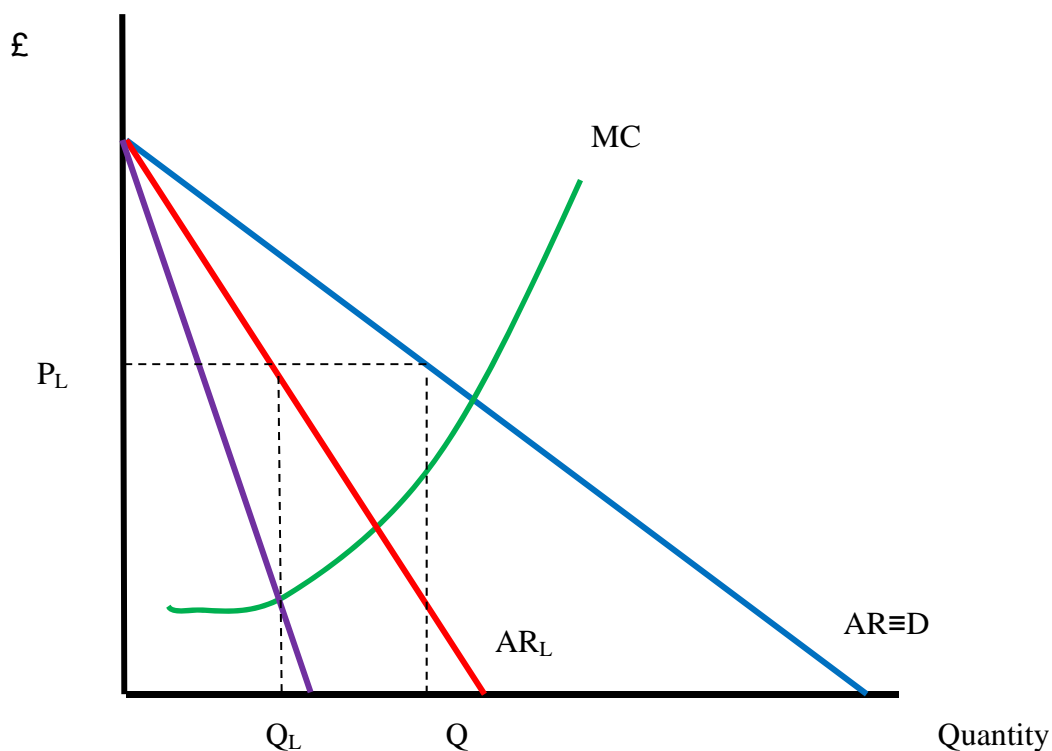


- (ii) This licence fee would represent a fixed cost to Cititravel –impact on fixed costs and therefore total costs and profit . AC curve shifts up. No change in output Q and price P but reduced level of profits shown in the diagram in the darker shaded box. [3]



[4]

- (iii) With Cititravel being the dominant firm leader and the assumption that it will have a 50% market share, it will produce at Q_L which is half of the new total quantity traded Q . At quantity Q_L , Cititravel will charge a price of P_L which other firms also charge. The quantity traded by Cititravel under an oligopoly price leadership structure will be half the quantity now traded as the market demand is split between Cititravel and the new entrants and at a lower price than under monopoly.



[3]

[Total 10]

Part (i) of this question was answered well by most candidates. Answers to part (ii) and (iii) were of variable standard. In part (iii) a common error made was not drawing the industry and firm's demand lines to meet at the same point on the vertical axis.

- 38** (a) Frequent changes in the currency value could adversely affect trade and investment by creating uncertainty and undermining business confidence. Governments, therefore, may wish to prevent such fluctuations in the currency value. The measures available to the central bank in this regard would depend on whether the aim is to curtail the day-to-day or longer term changes in the exchange rate.

If the government aims to maintain the value of the currency close to a long term equilibrium value, it could buy/sell the domestic currency in the foreign exchange market to prevent it from falling too far below/above the desired level. If factors causing the downward pressure on the currency cause the demand curve to shift left or the supply curve to shift right, for example, the central bank's intervention will result in reverse shifts in the demand and supply curves and the desired exchange rate will be restored.

To alleviate the downward pressure on the currency, a government could alternatively borrow foreign currency from other countries or international agencies such as IMF. It could use the loan to buy the domestic currency in

the foreign exchange market. This will result in returning the demand and supply curves to the original positions and the currency value to resume its original level.

Yet another measure for governments is to raise interest rates temporarily. This will encourage those abroad to deposit their money in the domestic country and the domestic residents to keep their money in their own country. Raising interest rates will result in an increase in the demand for, and decrease in supply of, the currency.

The above measures, though they can be implemented to control day-to-day fluctuations, will not be sustainable in longer term. (Explanation of the reasons in terms of depletion of foreign reserves, high cost of foreign debt, uncertainty about interest rate movements needs to be provided.)

Governments can use fiscal and monetary policies to maintain the value of the currency for longer periods such as months or years.

Contractionary fiscal and monetary policies, for example, could be used to dampen aggregate demand. A contractionary fiscal policy would involve raising taxes and /or reducing government expenditure. A contractionary monetary policy would involve raising interest rates to reduce borrowing and hence reduce aggregate demand.

A dampening of aggregate demand will reduce consumer spending including expenditure on imported goods, thereby reducing the supply of the currency in the foreign exchange market. A reduction in aggregate demand will also reduce inflation. With lower prices in the domestic economy, exports will be cheaper and more attractive to consumers abroad who will increase their demand for the domestic currency. There will also be less demand for more expensive foreign goods leading to lower imports and lower supply of the domestic currency. Both effects will result in supporting the value of the currency.

Perhaps the most sustainable measure, for example, to support a currency is for the government to implement supply side policies. This would involve improving the long term competitiveness of the domestic industry by encouraging improvements in the quality of the goods produced and/or reducing production costs. These are achieved by improving the quality of training and/or research and development.

- (b) Governments can restrict access to foreign exchanges which will restrict the outflow of the currency, thereby reducing the supply of the currency to support its value. However, to the extent that long term use of this measure would restrict international trade and free movement of capital, benefits from trade will be foregone. Loss of advantages from international trade are gains from cost differences between countries, decreasing costs resulting from economies of scale, differences in demand conditions in countries, increased competition, growth in exports in line with growth in world demand and other

advantages related to social, political and cultural factors that are foregone. Restricting foreign exchange trading will restrict free movement of capital and inhibits foreign investment in the country. Import restrictions could provoke retaliation by other countries, restricting trade further. [10]

In this question, few fully explained answers were offered for both parts. Common areas of deficiency in answers were a focus on why governments would want a stable exchange rate but little on how to achieve it, and also no distinction between the short and long term measures.

END OF EXAMINERS' REPORT