REPORT OF THE BOARD OF EXAMINERS

September 2003

Subject 107 — Economics

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.

J Curtis
Chairman of the Board of Examiners

11 November 2003

Faculty of Actuaries **Institute of Actuaries**

EXAMINATIONS

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General Comments

In several instances handwriting was virtually illegible. Diagrams were often drawn freehand. Clarity would have been enhanced through the simple use of a ruler.

Specific comments on individual questions appear after each solution listed below.

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

The overall performance of candidates for multiple choice questions was good. Some questions were answered incorrectly more frequently than others. These included questions 7, 21 and 25.

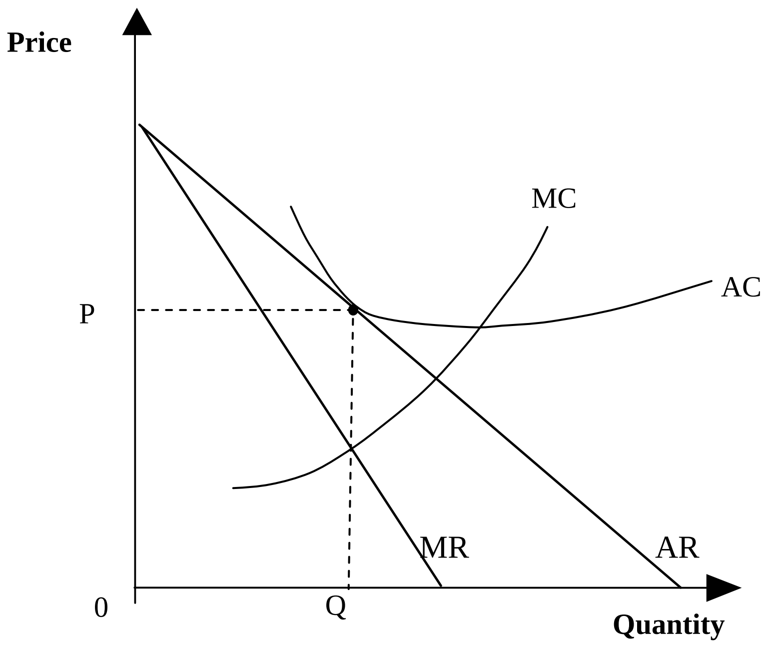
27 (i)

Output	**Total Cost (£)**	**Ave Total Cost (£)**	**Ave Rev (£)**	**Marg Cost (£)**	**Marg Rev (£)**
0	200	-	-	-	-
10	650	65	70	45	70
20	1000	50	65	35	60
30	1300	43	60	30	50
40	1600	40	55	30	40
50	2000	40	50	40	30
60	2500	42	45	50	20

(ii) Profit-maximising output level = 40 units

Generally well answered. Most candidates proved able to compute the figures accurately with only minor slips. For example the fact that output steps were expressed in units of 10 caused confusion in some cases.

28 (i)



(ii) In the short run the firms in the industry will make a supernormal profit. In the long run the entry of competitors will result in a return to normal profits.

Part (i) was well answered. In Part (ii) some were unsure of the distinction between the short and long run.

29 (i) Country A

(ii) Country B

(iii) Yes. B will trade shoes for A's computers. Explain in terms of opportunity cost and potential for mutually beneficial trade. The relative price must lie between 2 shoes per computer (the A opportunity cost) and 25 shoes per computer (the B opportunity cost).

A straightforward question. Part (iii) proved problematic for some with a limited understanding of opportunity cost.

30 (i) (a) % change in quantity demanded of Good X / % change in the price of Good X

(b) % change in quantity demanded of Good X / % change in the price of Good Y

(c) % change in quantity demanded of Good X / % change in income

(d) % change in quantity supplied of Good X / % change in the price of Good X

(ii) Explanations may include:

- the extent to which the good is preferred to possible alternatives
- how vital the good is to life support
- the proportion of consumers' income spent on the good

Extremely well answered. Candidates recognised that the question drew on standard material in the Core Reading.

31 The four main difficulties alluded to in the Core Reading are:

(i) Depreciation, i.e. capital consumption.
This is the true reduction in the value of assets due to wear and tear. In practice estimates are difficult to make and are likely to be inaccurate.

(ii) Inflation.
Use of the GNP deflator to convert nominal economic activity to real economic activity.

(iii) Exchange rates.
It is not clear which exchange rate should be used, e.g. an average exchange rate over the year or the end year exchange rate?

(iv) Net Economic Welfare.

We should allow for other factors which affect economic welfare, e.g. unreported market transactions, non-marketed goods and services, externalities, leisure time.

This question proved challenging. Many candidates did not get beyond a discussion of non-reported economic activities, i.e. non-traded / non-market goods etc. Some discussed measurement of national income in detail (alternative approaches) – risking irrelevance.

32 (i) Reduce the value of the currency, i.e. a devaluation. Reduces demand for imported goods and raises demand for exports.

(ii) Reduce aggregate demand. Again this will lower imports and increase exports. A fairly drastic way of eliminating a balance of payments deficit. The result of lower aggregate demand may be a prolonged period of mass unemployment.

(iii) Help exporters, e.g. export credit insurance, subsidies to exporters, help with marketing, improving infrastructure, encouragement (awards to exporters).

(iv) Discourage imports, e.g. tariffs, quotas and persuasion.

Very well answered. Again Core Reading material gave a good guide to what was required.

33 (i) $Y = 50 + 0.8(1 - 0.25)Y + 120 + 280 + 150 - 0.2Y$

$= £1000$ million

(ii) £50m/£1000m * 100 = 5%

(iii) £30m/£1000m * 100 = 3%

Well answered. Calculations were straightforward and many candidates showed their workings clearly. Some marks were lost due to careless work.

34 N.B Broad money = money multiplier x monetary base
Money multiplier = (1 + c)/(r + c)

(i) £300 million
(ii) £400 million
(iii) a rise of 10%
(iv) £500 million

Well answered. Calculations were straightforward. Some marks were lost due to careless work.

35 (i) A fixed exchange rate means that the government stands ready to intervene directly in the foreign exchange markets in order to maintain a fixed level of the domestic currency against a foreign currency or against an external standard of value. A floating exchange rate means that the government does not intervene directly in the foreign exchange markets. Under a floating exchange rate the foreign exchange value of the domestic currency is determined solely by supply and demand from current and capital account transactions.

(ii) Advantages of fixed exchange rates:

- interest rates must stay at the world level and hence "Keynesian Crowding Out" cannot occur
- greater certainty, hence encourage foreign trade, allowing potential gains from trade to be realised
- can lead to lower inflation
- as a step towards a single currency may (or may not!) promote economic, political and social harmonisation

Advantages of floating exchange rates:

- monetary policy can be conducted independently of other countries without the need for controls on the movement of capital
- a floating exchange rate will tend to move to automatically offset a balance of payments deficit or surplus (assuming that import and export demands are sufficiently elastic)
- there is no need for the central bank to hold large amounts of gold and foreign currencies
- monetary policy is more effective for controlling price rises

Well answered. Core Reading material was closely followed.

36 (i) Law of diminishing marginal returns.

A short run concept. One factor of production (often capital) is assumed fixed and another factor (often labour) is varied. Diminishing returns at the margin eventually occur as the input of the variable factor is increased. This implies that short run average and marginal cost curves will eventually slope upwards.

(ii) Diseconomies of scale.

A long run concept. All factors of production are assumed to be variable in the long run and in the presence of diseconomies of scale long run average costs rise. Even if both factors of production are increased in equal proportion output rises less than proportionately. Reasons offered for this phenomenon include, managerial diseconomies, dilution of ownership, quality of resources, and physical diseconomies of scale.

One of the most poorly answered questions on the paper. Once again it was clear that the difference between the short run and the long run was not understood by many candidates. A large number were unable to distinguish diminishing marginal returns from diminishing marginal utility and diseconomies of scale.

37 (i) The following five conditions are needed to ensure that each firm faces a horizontal demand curve:

(a) A very large number of firms.
If each firm has an infinitesimally small share of the market, an x% change in output by one firm will have (virtually) no effect on the overall level of industry output.

(b) Each firm produces exactly the same product.
A price raising firm could lose all its sales. Similarly, if it dropped its price fractionally large numbers of customers might want to buy the output from that firm.

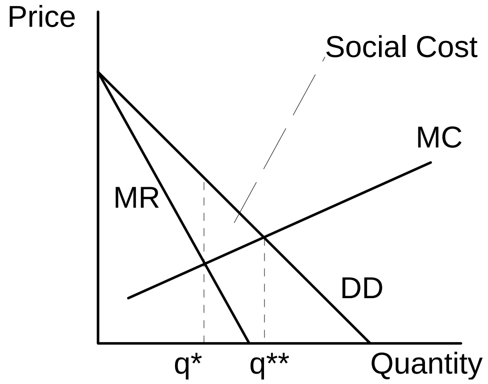
(c) Customers have perfect information.
If we assume that customers have perfect information concerning the price charged by different firms, and know that all firms are producing exactly the same product, then a price raising firm may well lose all its sales.

(d) Customers act rationally.
This means that, using their perfect information, customers will choose to purchase from the cheapest suppliers.

(e) Free entry and exit and firms.
By assuming that there is free entry and exit of firms, collusion between firms can be ruled out.

(ii) Under monopoly the output level is too low to maximise social welfare. So long as the demand curve (i.e. consumers' valuation of each extra unit of output) exceeds the monopolist's marginal cost curve (i.e. the marginal cost to society), social welfare can be increased by setting output at a higher level.

Diagram: Social Cost of Monopoly



There may be an additional loss if we are prepared to make value judgements about the effect of a monopoly's pricing policy on social welfare.

Because monopolies do not face any competition (actual or potential) they may be able to charge different prices to different groups of customers — i.e. price discriminate. If it is possible for a firm to employ price discrimination it will be profitable to do so as the monopoly will be able to expand its output and increase its profits.

Counterintuitively price discrimination allows the monopoly to produce the socially efficient level of output. However in the case where monopolies provide an essential service (e.g. gas, electricity, water) governments may establish regulatory agencies or fix rules to ensure that all sections of society have access to these goods or services at affordable prices. They thereby restrict the ability of monopolists to price discriminate on their own terms.

This was a straightforward question.

(i) *Most candidates managed simply to state the conditions needed for a perfectly competitive market to exist, but fewer demonstrated a clear understanding of each. Explanations varied quite widely in length and quality.*

(ii) *Most candidates offered an adequate explanation of the social cost of monopoly compared to perfect competition but few developed a well structured and reasoned argument as to whether or not monopolies are bad for society.*