Faculty of Actuaries **Institute of Actuaries**

REPORT OF THE BOARD OF EXAMINERS ON THE EXAMINATIONS HELD IN

April 2002

Subject 107 — Economics

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.

K Forman
Chairman of the Board of Examiners

11 June 2002

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

Comment

The multiple-choice section was well answered by most candidates. However, a large number of candidates answered question 1 incorrectly. Other questions that had a less than satisfactory proportion of correct responses were questions 2, 9, 14, 18, 19 and 23.

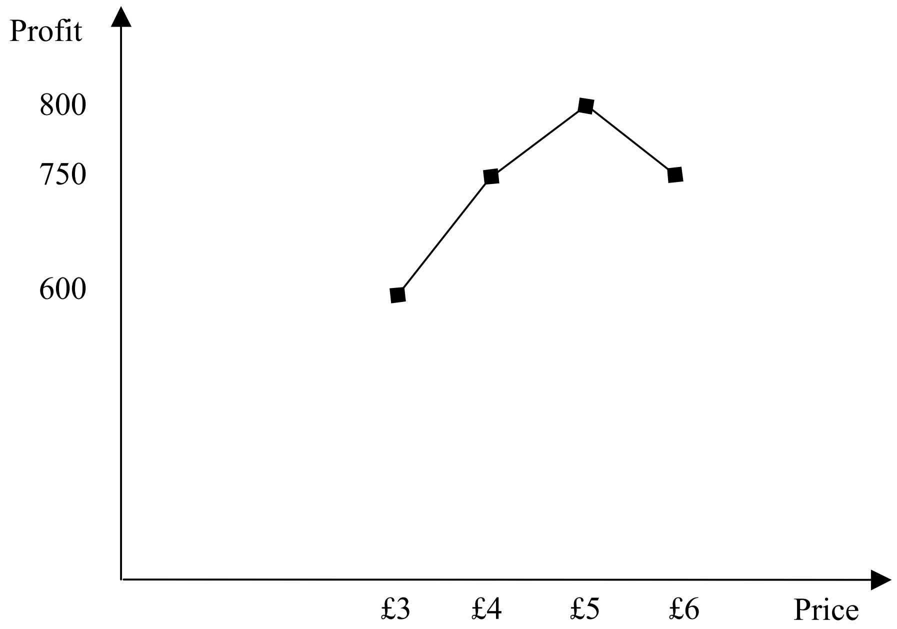
27 (i) 4X 3Y

(ii) 650

(iii) 4X 6Y

Comment
Generally well answered, though many candidates made numerical slips.

28 (i) Profit



(ii) The price elasticity of demand is given by:

% change in quantity demanded
% change in price

= –0.2/0.25 = –0.8

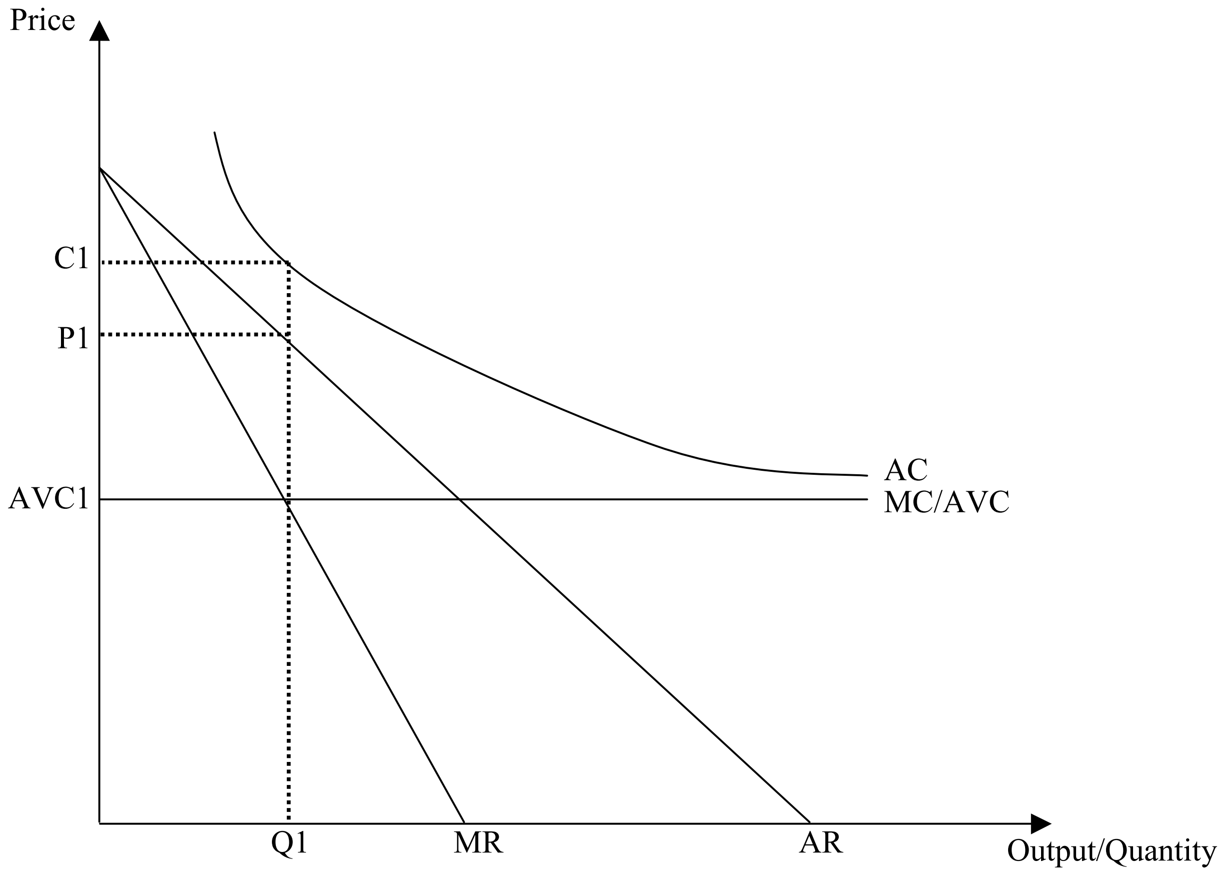
Answers of –1 (and 1) also allowed as no change in total revenue

(iii) Marginal revenue from £5 to £6 = -£–100/-50 = £2

Comment

Many diagrams were poorly drawn for part (i). Part (ii) was well answered, correct responses of –0.8 or –1 (and 0.8 and 1) were allowed. Few determined the answer to part (iii) correctly; most failed to divide the (negative) change in total revenue by the (negative) change in the number of items sold. Answers of -2 were also allowed in part (iii).

29



Comment

This question was very poorly answered with few candidates correctly deducing the shape of the AC and AVC curves from the 'constant MC' criteria. This was despite the fact that the word constant was written in italics on the exam paper. Most drew U shaped AC and AVC curves, and many MC lines were increasing.

30 (i) The "substitution effect" of a price change is the change in demand for a good caused by the change in relative prices, holding the consumer's level of utility (or real income) constant.

(ii) The "income effect" of a price change is the change in demand caused by a change in the real income of a consumer when a price changes.

Comment

Quite well answered, though some candidates described a graphical representation, often in complex detail, without a clear explanation of the terms requested. Maximum marks were obtainable without the use of diagrams.

31 (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.

Comment

Very well answered

32 (i) The true reduction in the value of assets due to wear and tear is depreciation. Depreciation must be deducted from GNP at factor cost in order to obtain the measure of economic activity known as national income (net national product at factor cost).

(ii) In order to take account of inflation it is necessary to convert nominal or money values of national income, calculated using current prices, into real values, calculated using constant prices, (prices which prevailed in some base year). This is achieved by using the "GNP deflator" The "GNP deflator" takes account of price changes in C, I, G, X and Z.

Comment

Well answered, though some candidates explained the microeconomic issues or the effects on the economy.

33 (i) The IS curve for a closed economy shows different combinations of the rate of interest and the level of national income for which the goods market is in equilibrium, that is injections (investment plus government expenditure) equal leakages (savings plus taxes).

(ii) The IS curve for a closed economy could shift to the right for a number of reasons.

(a) a rise in investment caused by a rise in business confidence

(b) a fall in savings/rise in consumption caused by an increase in consumer confidence

(c) an increase in government expenditure

(d) a decrease in taxes

Comment

Part (ii) was poorly answered with many candidates describing reasons for a movement along the IS curve, rather than a shift. Also the question specified a closed economy and so open economy effects on the IS curve were not valid answers.

34 (i) Monetarist

(ii) Keynesian

(iii) Keynesian

(iv) Keynesian

Comment

Most candidates answered (i) correctly but parts (ii)-(iv) were less well done.

35 (i) A direct tax is a tax on a payment made to a factor of production e.g. wages, rent dividend/interest/company profits. Examples are: income tax, national insurance payments, capital gains tax and corporation tax.

An indirect tax is a tax on expenditure. In other words, an indirect tax is a tax paid whenever a good is sold, or a service provided. Examples are: value added tax, excise duties on tobacco petrol and alcohol, licence fees for motor cars and television, customs duties on imports.

(ii) A tax is said to be progressive if it takes an increasing proportion of a person's income as income rises. Examples include income tax where the rate of tax increases with higher incomes and indirect taxes on goods and services on which the rich spend a much higher proportion of income than do the poor.

A tax is said to be regressive if it takes a decreasing proportion of a person's income as income rises. Examples include indirect taxes on goods and services on which the poor spend a much higher proportion of income than do the rich.

Comment

Very well answered, with clear definitions given. The examples were not always complete.

36 (i)

Quantity of Labour Input (per day)	Marginal Product of Labour	Marginal Revenue Product of Labour
1	5	100
2	9	180
3	16	320
4	8	160
5	4	80

(ii) 4

Comment

Very well answered.

37 (i) There are a number of categories of unemployment including:

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 demands 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. Many of the unemployed are from particular declining sectors of an economy. Structural unemployment is often associated with the decline of particular sector due to technological change. Such unemployment is referred to as technological unemployment.
Regional — occurs when 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/Keynesian — is due to a lack of aggregate demand in the economy as a whole. Affects all regions but some hit more than others. A sign of Demand Deficient Unemployment is that the unemployment rate is quite high across the whole country.

Real Wage Unemployment/Classical Unemployment — occurs because real wages are too high in relation to labour productivity. At the going real wage it does not pay 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.

Seasonal Unemployment refers to unemployment caused by seasonal fluctuations in the demand for labour. For example there is normally increased unemployment in the construction industry in winter.

Modern analysis also makes a distinction between voluntary and involuntary unemployment. Voluntarily unemployed are not willing to work at the going real wages while the involuntary would work at the going real wage 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.

(ii) The term "economic growth" refers to increases in the real Gross Domestic Product or real Gross National Product. The economic growth rate measure the percentage increase in the real Gross Domestic Product from one year to the next. Sometimes the term "economic growth" refers to the increase in the trend rate of real Gross Domestic Product rather than the actual increase in output.

The 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) the new capital is typically more productive than the old capital which it replaces.

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 economic growth rate.

Land and raw materials are also important inputs into the production process. Increases of the input of land come about mainly through the better use of land principally as a result of investment. Increased input of raw materials can improve a country's economic growth rate. To the extent that the price of imported commodity inputs falls then this boosts the economic growth rate of the importing country.

The state of technical knowledge is a vital determinant of economic growth. As the state of technical knowledge increases production will increase giving a higher rate of economic growth.

Another determinant of the economic growth rate is the degree of economic efficiency. An improvement in economic efficiency raises the output per unit of input and in so doing will inevitably raise the economic growth rate. Economic efficiency can be promoted by governments taking steps to: reduce bureaucracy; privatise state-owned monopolies; promote competition; invest in education and training; liberalise financial and labour markets; and generally allow a greater role for market forces.

Comment

Most candidates made a fair attempt at this question, though not many gave a very good answer to both parts.

Too many candidates simply described the various factors in both parts but they were also expected to incorporate some discussion as requested in the question. The term economic growth refers to increases in real GDP and quite a lot of candidates did not make this clear in that they failed to distinguish between real and nominal GDP. Part (i) was generally better answered than part (ii).