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

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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.

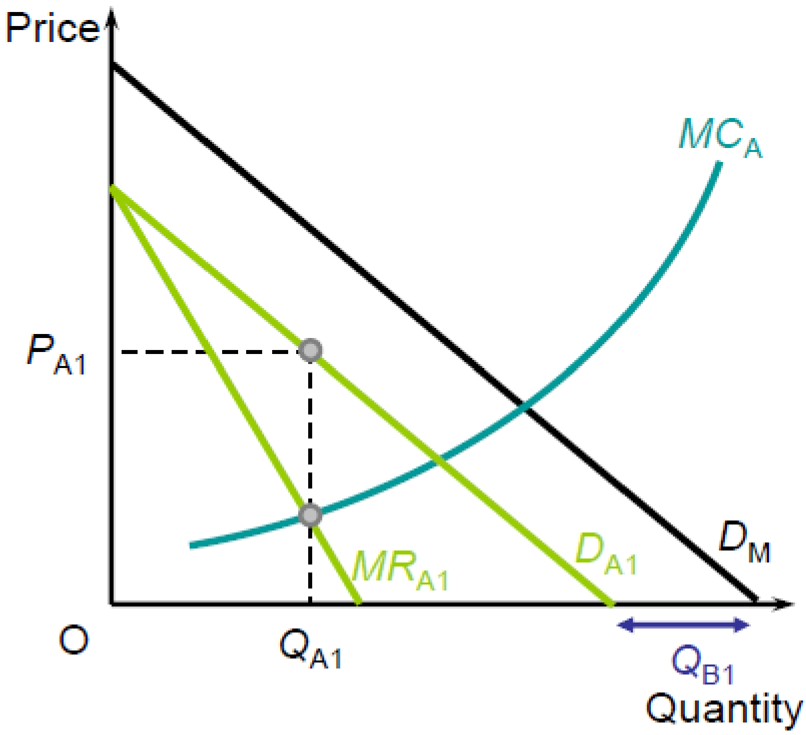
28 (i) A perfectly contestable market is one where the costs of entry and exit by potential rivals are zero and where such entry and exit can be made rapidly.

(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 QB1 and then will deduct this from the market demand curve DM. This gives it a demand curve DA1 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 QA1 and price level PA1.

(ii) The equilibrium price and will be lower in the Cournot model since in determining the output of a monopoly QB1 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
Injections (£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 = ¾ or **0.75**

(iii) £120 billion

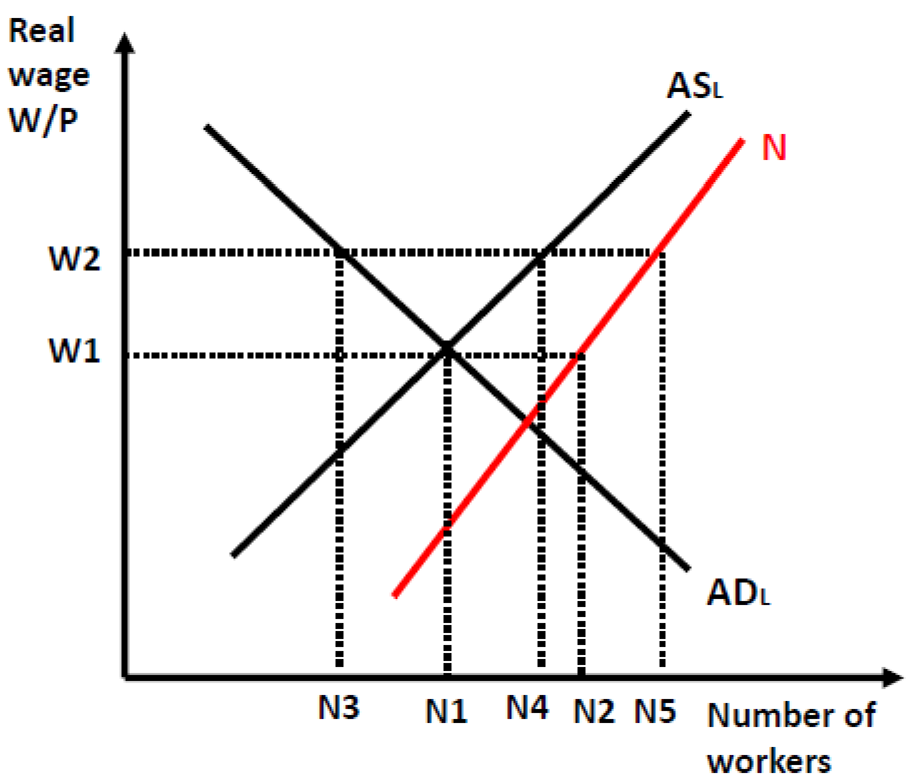
This question was generally well answered.

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 w1.

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