INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

September 2015

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.

F Layton
Chairman of the Board of Examiners
December 2015

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A. General comments on the *aims of this subject and how it is marked*

1. The aim of the Business Economics subject is to introduce students to the core economic principles and how these can be used in a business environment to help decision making and behaviour. It provides a grounding in the fundamental concepts of micro and macro economics as they affect the operation of insurance and other financial systems, both from the point of view of individuals and their requirements for financial security, and from the point of view of financial institutions and their ability to provide products that meet individual and institutional clients' needs.

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

    2.1 For Multiple Choice questions, it is *not* necessary to show workings or to offer explanation.

    2.2 For questions requiring calculations with workings, full mark would be awarded if the correct answer is given and workings are shown. Where due to a calculation error, the final answer is incorrect, marks are awarded for the method and workings.

    2.3 Where the question asks for a list of items, full marks will be gained by providing the specific list. As explaining each item does not gain additional marks, valuable time is best spent on other questions.

    2.4 In discursive types of question the model answers shown below are indicative of the correct answers that could be provided. However, answers other than those indicated are accepted if relevant, and are awarded marks.

    2.5 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.

    2.5 Diagrams should be clear and labelled correctly to gain full marks. Using a ruler helps in producing straight lines and a useful framework for curves and other components of a diagram.

B. General comments on *student performance in this diet of the examination*

1. The examination paper was of a similar standard to the previous years' papers with similar standard of performance overall.

2. The multiple choice questions were generally answered well.

3. For discursive type of questions the performance was varied.

4. Candidates were generally able to provide correct answers to parts of the questions where these involved offering standard theoretical concepts or numerical solutions and diagrams, or listing of the relevant factors.

5. Where candidates lost marks, this was due to one or a combination of the following factors:

   5.1 insufficient explanation

   5.2 repetition of the narrative

   5.3 broad discussion, lack of focus on the context and an inability to apply economic principles to the case in question

6. Where a question such as question 37 required critical thinking in evaluation of method/policy, only some candidates were able to provide an adequate answer.

C. Comparative pass rates for the past 3 years for this diet of examination

Year	*%*
September 2015	70
April 2015	70
September 2014	72
April 2014	66
September 2013	67
April 2013	72

Reasons for any significant change in pass rates in current diet to those in the past:

Variation in the pass rate between sessions is expected as different cohorts of students sit the examination.

Solutions

Q1 B
Q2 D
Q3 C
Q4 C
Q5 C
Q6 C
Q7 D
Q8 C
Q9 C
Q10 C
Q11 B
Q12 D
Q13 D
Q14 C
Q15 C
Q16 C
Q17 C
Q18 A
Q19 A
Q20 A
Q21 B
Q22 D
Q23 D
Q24 C
Q25 C
Q26 C

Q1–Q26: The answers to the multiple choice questions were generally good with the majority of the candidates selecting correct answers to most of the questions.

Q27 Macroeconomics examines the economy as a whole and considers aggregate supply and demand. This means that it is concerned with total spending in the economy by all groups; consumers, government, investors, exporters and importers.

Microeconomics considers individual parts/units of the economy. It is concerned with the factors that influence the supply and demand for specific/particular goods, services and resources.

Almost all candidates demonstrated a reasonable grasp of the two areas of the subject. The question was generally answered well.

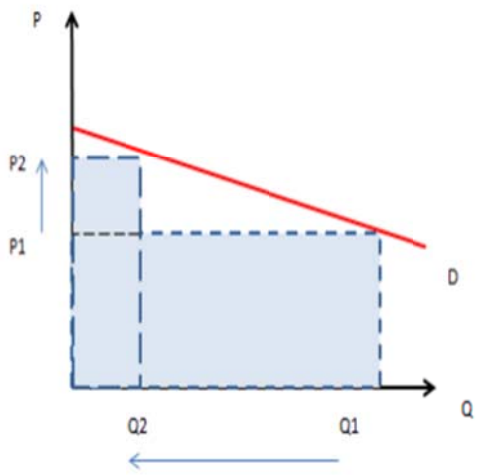
Q28 When demand is elastic, total revenue changes in the same direction as quantity. Whereas when demand is inelastic, total revenue changes in the same direction as price.

When demand is inelastic:

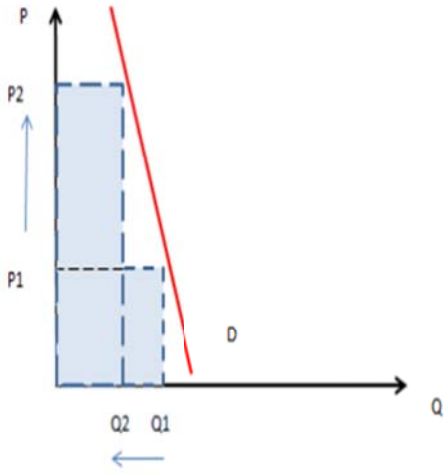
P rises; *Q* falls proportionately less and therefore TR increases.

Therefore, a firm which is raising its prices will prefer demand to be inelastic since this will raise total revenue.

The diagrams below illustrate the changes in total revenue.



Elastic demand



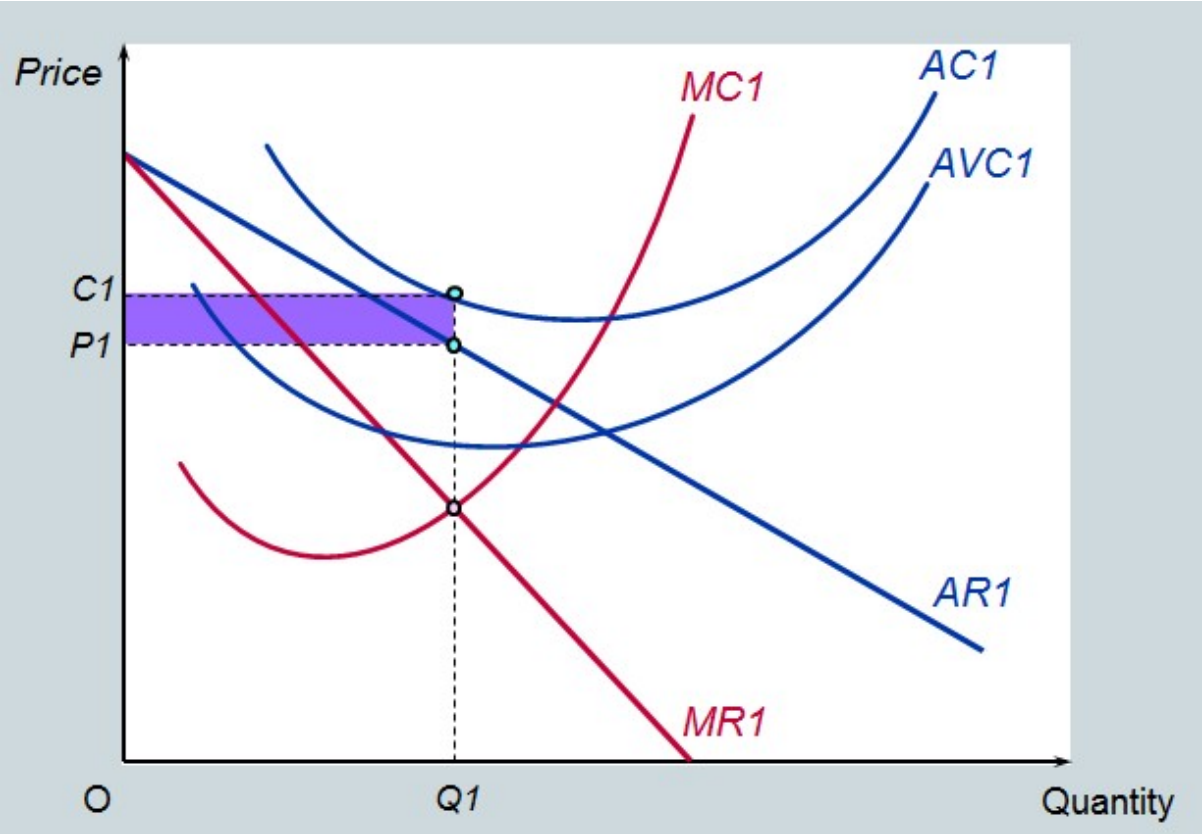
Inelastic demand

In this question, candidates were not required to provide diagrams. However, some candidates produced diagrams which proved useful in aiding clear and adequate explanation.

Q29 (a) market development
(b) market penetration
(c) product development

For this question, the relevant quadrant of the growth vector matrix was expected to be given in each case. The performance on this question was variable. Some candidates scored full marks, whereas some lost marks by only referring to the quadrant.

Q30



Loss is given by the shaded area.

The answers to this question were generally satisfactory but some of the diagrams were untidy and unclear. Candidates need to pay attention to the correct positioning of a curve in relation to other curves. For example MC1 should intersect AVC1 roughly at the latter's lowest point.

Q31 (i) *Economies of scale:* If average costs fall significantly as output increases, then new entrants would find it very difficult to enter, as the existing firm will be able to charge a lower price.

(ii) *Economies of scope:* Firms which produce a larger range of products also tend to experience lower average costs. This is because they can pool some of their activities such as research, marketing, storage and transport across a range of products. Again this makes it very difficult for new entrants to enter the market.

(iii) *Product differentiation and brand loyalty:* In cases where a firm produces a differentiated product which consumers associate with the brand, it is very difficult to enter into such a market. The brand and the product are one-and - the same thing.

(iv) *Lower costs for an established firm:* Compared to new firms, established monopolies are more likely to have specialised production and marketing skills and may be better placed in terms of selecting the most efficient means of production and the most reliable (and cheapest) suppliers. They may also have better access to cheaper sources of finance and therefore operate on a lower cost curve.

(v) *Ownership of, or control over key inputs or outlets:* A firm that has a high degree of control over inputs and/or outlets will be able to prevent others from using them.

(vi) *Legal protection:* A firm's position may be protected by patent, copyright or licensing laws or by the use of tariffs or other trading restrictions.

(vii) *Mergers and takeovers:* An existing monopolist may seek to takeover a potential rival and such a threat may prevent new entrants.

(viii) *Aggressive tactics:* An existing firm is more likely to be able to sustain losses for a longer period than a new entrant. Hence they may choose to/threaten a price war, advertising campaigns or after sales packages that would deter new entrants.

Candidates could gain full marks by providing any five from the list of eight types of barriers to entry. The question was generally answered well.

Q32 First degree price discrimination refers to the case where firms charge the maximum amount that each consumer is willing to pay. This maximises producer surplus. This form of price discrimination can occur in any market where it is possible to bargain over price; effectively each person values the good/service differently and the firm seeks to charge the highest price it can, based on the individual's willingness to pay. Professional services, car markets and any market where one can barter over price exhibit this type of price discrimination.

Second degree price discrimination differs in that consumers are charged based on how much of the good or service they buy. A higher price for the initial units is charged and then a lower price for the subsequent units. This may commonly present itself in marketing strategies of firms in the use of offers such as "buy 2 get third free" or discounts being applied if more units are purchased. This encourages consumers to buy more units than they planned, as the average cost per unit falls. This technique is also common within the electricity market.

The candidates who scored full marks on this question, demonstrated a good grasp of the topic. However many candidates lost marks due to answers lacking sufficient explanation.

Q33 Free trade and competition benefits consumers who would have access to global markets and lower prices. Firms gain as technology spreads faster and are therefore able to specialise in activities (products and processes). Policy makers may also find that there is improved political closeness which may help some countries to become more stable and/or bring countries together to resolve differences.

The poor may experience increased inequality and further poverty. This may be because globalisation enables multinational corporations (MNCs) which are primarily from wealthy countries to exploit their position in overseas markets. Without local competition, they can pursue profitable activities which may be at the cost of wider social aims. Firms may also use their power to exert pressure on their own governments to develop relations with overseas governments. Hence, it may be viewed as the rich exerting their power upon poorer nations. Moreover, although globalisation promotes the sharing of cultural experience, as MNCs spread further and further, the associated cultural influences may become skewed.

This question was answered generally well with many candidates scoring good marks.

Q34 (i) *Redistribution:* Inflation redistributes income away from those on fixed income or in a weak bargaining position who may struggle to exercise any economic power. Furthermore, it redistributes wealth to those with assets such as property that tend to rise in value (somewhat rapidly) in times of inflationary pressure and diverts it from those with savings who are paid a rate of interest below the rate of inflation. The value of such savings is hence eroded by inflation

(ii) *Uncertainty and lack of investment:* Inflation tends to create uncertainty for firms, particularly when rates are fluctuating and are high. As firms struggle to predict their costs and revenues during such periods, they may not wish to invest. A reduction in investment reduces economic growth. Furthermore, as policies may be put in place to reduce inflation, they too may reduce investment even further.

(iii) *Balance of payments:* Inflation tends to worsen the balance of payments as high inflation rates cause exports to become less competitive on global markets and imports become relatively cheaper than home produced goods. Therefore as exports fall and imports rise, the balance of payments will deteriorate and/or exchange rates will fall or interest rates may rise which will have further knock on effects.

(iv) *Resources:* Additional resources may be necessary to cope with the effects of inflation. This may be in the form of accountants and others engaged in financial activities to assist with the uncertainty which has arisen. In cases of mild inflation such costs may be relatively low but can be substantial in cases of hyperinflation.

Performance on this question was varied. Where candidates lost marks it was often due to offering a general discussion of inflation rather than issues specifically relevant to unanticipated inflation. Where candidates offered relevant points other than those in the solution, these were given credit.

Q35 (i) 5

(ii) Total deposits = £925m
Initial deposits * bank multiplier
Bank multiplier is inverse of the liquidity ratio $1/L = 1/02 = 5$
£185 * 5 = £925m

Credit created = £740m
Total deposits – initial deposits
£925 – £185 = £740

(iii) Complications encountered in practice include banks selecting different liquidity ratios at different points in time. For example at Christmas or during summer holidays banks may wish to hold higher proportions of liquid assets as people are more likely to make more withdrawals. Equally, banks may witness an increase in consumer credit demand and lower their liquidity ratio even without holding additional assets.

Banks may also hold a mixture of different assets with differing levels of liquidity. As such a simple liquidity ratio may be hard to determine and will therefore lead to a less certain banking deposits multiplier.

Some cash may be withdrawn from the banking system. The public may choose to hold cash outside of the banks (it effectively leaks out). The money multiplier will therefore be smaller than that indicated by the bank deposits multiplier.

In answering this question, other factors such as the public being reluctant to

borrow and a change in reserve requirements could also be mentioned and be given credit.

The first part of this question was generally answered well. But many candidates did not make a good attempt at the second part. Part (iii) proved most challenging for many candidates.

Q36 **(a)** A rise in the UK interest rates will increase the demand for sterling in order to take advantage of higher interest rates offered to cash balances held in sterling and also decrease the supply of pounds in the foreign exchange market.

Lower inflation in the UK economy than abroad will increase the demand for UK goods from abroad, leading to increased demand for pounds and a decrease in the supply of pounds.

If the UK economy improves its competitiveness relative to foreign economies, this will lead to an increased demand for pounds (to invest in the UK) and a decrease in the supply of pounds.

If there is a fall in UK incomes due for example to tighter fiscal or monetary policy, there will be less demand for imports and therefore less supply of pounds in the foreign exchange market.

(b) An appreciation of the pound in the foreign exchange market will make UK exports more expensive measured in dollars so decreasing UK export volumes. The appreciation will also make US imports cheaper measured in pounds so increasing UK import volumes.

An appreciation of the pound in the foreign exchange market will make UK imports cheaper and since inflation records the change in prices of both domestically produced goods and imported goods and services, it will reduce the recorded UK inflation rate.

Most candidates provided the correct answer to part (i) of this question, but answers to part (ii) were more varied.

Q37 **(**i) Possible forms of intervention that the government may use to influence the market equilibrium and encourage people to eat foods which are considered to be conducive to good health are as follows:

Taxes and subsidies: Taxes can be used to raise the price of foods which are considered to be unhealthy. An increase in price will reduce the quantity demanded. Equally, foods which are considered to be healthy, the consumption of which the state wishes to encourage, may be subsidised to reduce the price of such foods. This may be undertaken at consumer level

or at the supplier/producer level to influence their behaviour which is in turn passed onto consumers. Food coupons may be used to be redeemed directly against certain types of food. The state may impose laws prohibiting the production/consumption of particular goods.

Price controls: These can be used to raise prices above or below the market clearing level. Reducing prices below the equilibrium level will help consumers to purchase foods which are considered to be healthy and which they may otherwise ill afford. Equally raising prices above the market equilibrium will discourage some consumers from purchasing foods which may be considered to be unhealthy.

Provision of information: One reason why markets fail is because people are not well informed and/or do not have all the information they need. By directly providing information about the types of food one should and should not eat, consumer behaviour may be influenced.

Direct provision of goods and services: In some cases it may be appropriate to directly provide certain goods to consumers for reasons such as social justice, large positive externalities, protecting dependents and to counteract ignorance.

(ii) *Implementation:* One of the main advantages of using taxes and subsidies is that the market still operates to some degree, but the incentives to do or not to do something is what has changed. By raising the price of certain foods and reducing the prices of others, consumers may make different decisions to what they would have done in the absence of such interventions. Firms may also choose to produce different types of goods given incentives from subsidies or discouragement from taxes. One of the problems with undertaking such interventions is that it can be difficult to decide on the "right" level of tax or subsidy.

Uncertainty of results: Furthermore, altering prices can often lead to shortages and surpluses in the market. Shortages can lead to queues and rationing which is not desirable and possibly the development of black/underground markets. If firms do not reduce their production, then there will be surpluses on the market which are also undesirable.

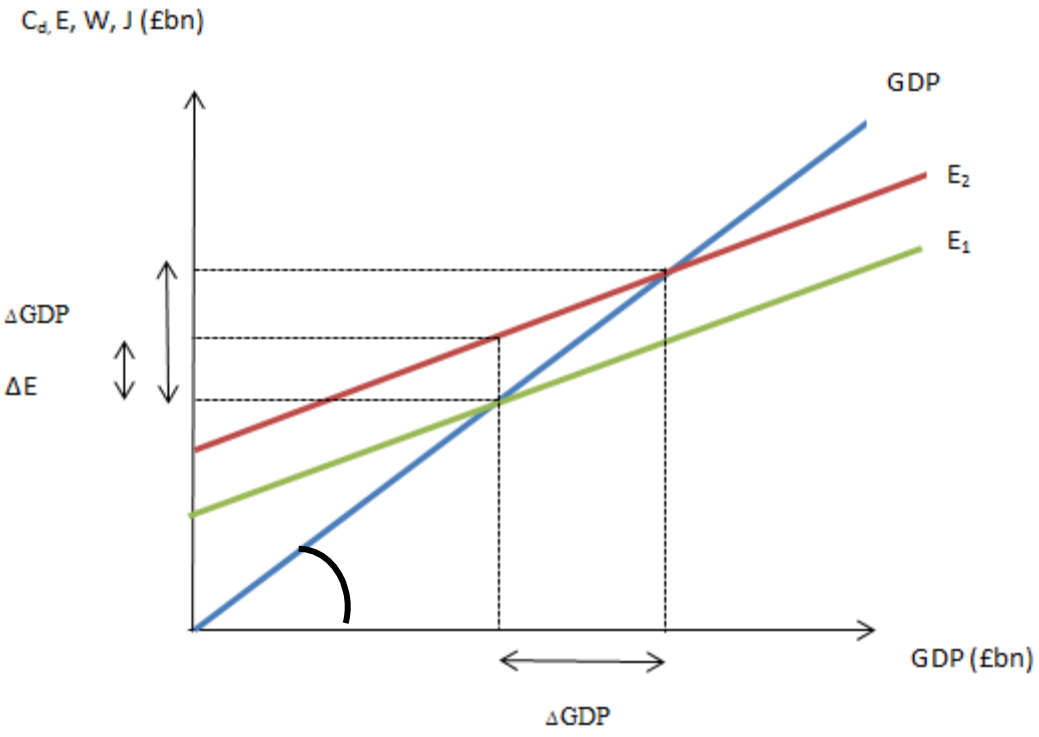
Freedom of choice: There is no reason to suggest that the government is best placed to make decisions for people. They may use a policy which they believe is in the best interests of individuals but policies that alter prices remove/may limit an individual's freedom of choice. The public and firms will also need to be convinced that such policies are not going to be changed frequently.

Secondary markets: You can provide consumers with information but there is no guarantee that they will respond to such incentives. Large scale public information programs are costly and even when provided with information, people may not act as expected. Moreover, the direct provision of certain foodstuff is also likely to be costly and the intended recipients of such

assistance may not benefit if secondary markets develop which finance the purchase of "unhealthy" foods.

Part (i) of this question was generally answered well. Part (ii) answers were not as strong; many candidates did not offer a good evaluation of the effectiveness of the government intervention measures.

Q38 (i) The multiplier is the number of times larger the rise in national income/GDP is, than an initial increase in autonomous expenditure. This increase may be brought about by an increase in government, investment or export expenditure or a fall in withdrawals such as tax, savings or imports. The multiplier is given by the formula $k = \Delta GDP/\Delta E$. The size of the multiplier depends on the marginal propensity to consume domestically produced goods – the part that is not withdrawn from the circular flow of income in the form of taxes, savings or imports.



(ii) The greater the marginal propensity to consume (mpc), the greater will be the multiplier $k = 1/(1 - \text{mpc}_d)$.

Therefore countries which have higher levels of savings, taxation or consume proportionately more imports relative to home produced goods will have a lower marginal propensity to consume and thus a smaller multiplier. Countries that have low levels of savings, lower levels of taxation and consume relatively more home produced goods, will have a higher marginal propensity to consume and a larger multiplier.

In answering this question, detailed discussion may be offered on why savings, tax or imports may be higher or lower and the impact this has on the marginal propensity to consume. Numerical example and diagrams were credited but are not required for full marks.

The performance was generally good for part (i) of the question and there were some good answers to part (ii) from stronger candidates.

END OF EXAMINERS' REPORT