

# **INSTITUTE AND FACULTY OF ACTUARIES**

## **EXAMINERS' REPORT**

September 2017

### **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.

Luke Hatter  
Chair of the Board of Examiners  
December 2017

**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 their relevance to the business environment behaviour. It provides grounding in the fundamental concepts of micro- and macroeconomics as they affect the operation of insurance and other financial systems, both for individuals and their requirements for financial security, and for 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.

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

The candidates generally performed well in this diet. Performance was stronger where the question was testing knowledge of relevant theories and principles. Where the application of the theory was concerned, the performance was more varied. Candidates were generally able to recall and list relevant factors in various contexts but often full explanation was not given which resulted in lost marks.

**C. Pass Mark**

The Pass Mark for this exam was 60.

*Subject CT7 (Business Economics Core Technical) – September 2017 – Examiners' Report*  
**Solutions**

<b>Q1</b>	A	[1½]
<b>Q2</b>	D	[1½]
<b>Q3</b>	B	[1½]
<b>Q4</b>	D	[1½]
<b>Q5</b>	B	[1½]
<b>Q6</b>	D	[1½]
<b>Q7</b>	A	[1½]
<b>Q8</b>	A	[1½]
<b>Q9</b>	C	[1½]
<b>Q10</b>	D	[1½]
<b>Q11</b>	C	[1½]
<b>Q12</b>	D	[1½]
<b>Q13</b>	B	[1½]
<b>Q14</b>	D	[1½]
<b>Q15</b>	D	[1½]
<b>Q16</b>	C	[1½]
<b>Q17</b>	B	[1½]
<b>Q18</b>	C	[1½]
<b>Q19</b>	D	[1½]
<b>Q20</b>	D	[1½]
<b>Q21</b>	A	[1½]
<b>Q22</b>	C	[1½]
<b>Q23</b>	B	[1½]
<b>Q24</b>	B	[1½]
<b>Q25</b>	B	[1½]
<b>Q26</b>	B	[1½]

**Q1–Q26:** Answers C or D were accepted for question 4. Candidates performed generally well in answering the multiple choice questions.

- (a) Factors of production are:

Human resources/labour, natural resources/land and raw materials and manufactured resources/capital. [1½]

- (b) Human resources can be scarce in terms of the number of people and/or the skills that they have.

Natural resources may be scarce as land is limited and the raw materials that come from the land may also be limited.

Manufactured resources may be scarce as there are a limited number of machines, equipment, transportation and factories. The productivity of the capital is also limited by the state of technology.

[1½]

[Total 3]

Part (a) of this question was answered well. However many candidates did not gain the full mark for part (b) since they provided generic answers whereas the answer needed to be provided in the context of the factors of production.

## **Q28**

### **Income**

If current or future income increases then demand for housing may rise (rightward shift). This increase in demand would ceteris paribus increase the price of housing in the market. The reverse is true if income were to (or were anticipated to) fall.

### **Desire for ownership**

If there is an increase in the desire to own a home (rather than rent) then the demand for housing would rise (rightward shift), increasing house prices. Factors that may influence this could be social/demographic patterns such as single parent families or migration and increased life expectancy.

### **Cost of mortgages**

As the cost of mortgages falls given a fall in interest rates, home ownership may become more affordable and accessible. Therefore an increase in demand (rightward

shift) would lead to an increase in price. Likewise as interest rates rise, this is likely to curb demand (leftward shift) and ceteris paribus, prices would fall.

#### The availability of mortgages

An increase in the number of providers who can grant mortgages would make it potentially easier for people to purchase a house. Alternatively providers may be willing to loan larger sums and this may increase the demand for more expensive housing (rightward shift).

#### Speculation

If house prices are expected to rise over time, then people may choose to purchase sooner (rightward shift in demand) and this may drive an increase in price. Equally those selling their homes will seek to hold onto their properties for longer to gain a higher selling price (leftward shift in supply). The reverse is true if prices are falling. In both cases, speculation about future prices may drive current prices in a particular direction.

#### Supply

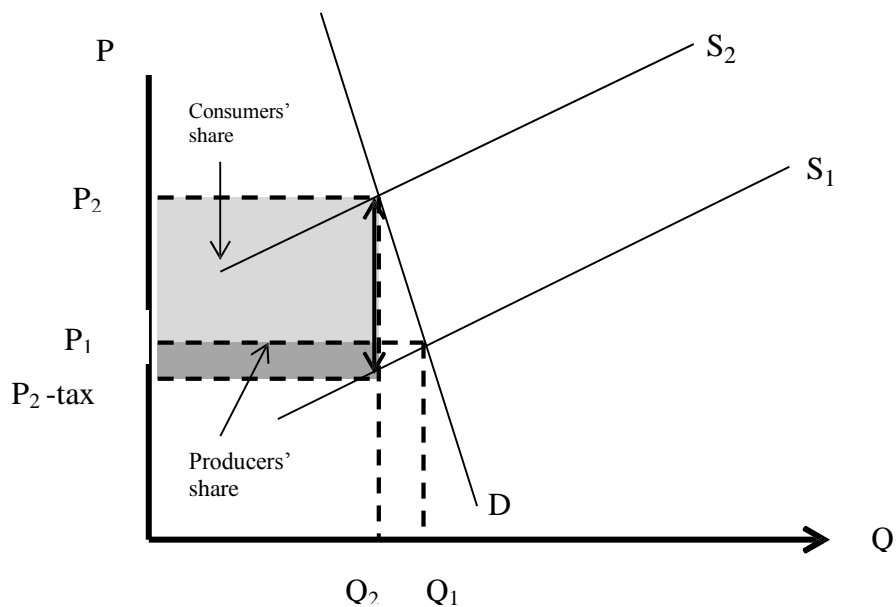
As the supply of housing rises due to new builds in the long run (rightward shift), ceteris paribus the price would fall.

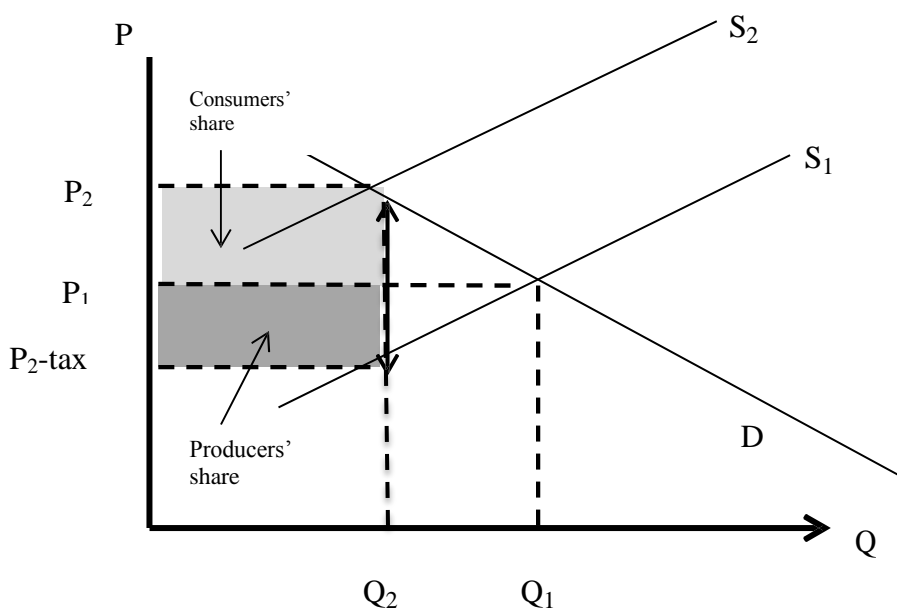
[5]

This question was generally answered well. A variety of factors affecting house prices were accepted where relevant.

## Q29

- (i) Inelastic demand is preferable as an increase in price (as a result of the imposition of tax) would not result in a substantial fall in quantity. Therefore government revenue would be higher in this case relative to a situation where the good was relatively price elastic where quantity would fall by a larger amount. In this case, consumer's share of the tax is larger than producers. [1]
- (ii)





[3]

[Total 4]

This question was generally answered well and most students provided the correct answer to part (i). For part (ii) some candidates considered consumers' and producers' surplus but to gain the marks for part (ii), candidates needed to focus on the tax burden rather than consumers' and producers' surplus.

### Q30

Utility for consumer durables is uncertain as whilst the initial cost is known, the future costs and benefits are uncertain. A refrigerator for example has a known original cost but there may be repair costs that are unknown and therefore the full price of the refrigerator over a lifetime of the good is uncertain. The benefits of the refrigerators are also uncertain. When the refrigerator is selected you may have liked it in the shop, from a brochure but over time it may become clear that the refrigerator is less energy efficient than you had anticipated, you may find the shelving is insufficient, it's difficult to defrost or not large enough for your needs. Therefore, there is uncertainty with such goods unlike goods and services that are consumed immediately such as a bar of chocolate or a packet of crisps.

[4]

Very few candidates gained the marks for this question. The important point to demonstrate was an understanding that the product is a durable good and as such its lifetime costs and benefits are uncertain.

### Q31

The marketing mix is made up of the 4 Ps, product, price, place and promotion.

Product – for a designer handbag the packaging and aftersales service may be quite important elements given it is a high end product. In the case of peanut butter, firms may be more concerned with the branding as there are many other manufacturers of peanut butter.

Price – designer handbags may consider the pricing of other similar designer bags but are unlikely to offer discounts for their product given it's exclusivity but may offer payment terms. Peanut butter is a low priced good and may be sold at a discount for bulk purchases.

Place – designer handbags will be sold in exclusive stores and specialist outlets. Peanut butter is likely to be distributed to a range of shops for purchasing in different areas.

Promotion – designer handbags may be advertised in high fashion magazines and unlikely to offer free gifts to customers. Peanut butter in contrast may be on regular promotion or have a trial discount/coupon.

[6]

Most candidates provided good answers to this question and scored well. Additional points made by candidates were given credit where relevant.

### Q32

(i)  $k = \Delta Y / \Delta E = 120 / 50 = 2.4$

[1]

(ii)(a) (b)  $mpc_d = \Delta C_d / \Delta Y = 85 / 106 = 0.8$

(ii)(b)  $k = 1 / (1 - mpc_c) = 1 / (1 - 0.8) = 5$

[3]

[Total 4]

This question was generally answered well.



**Q33**

Mobile phone companies may wish to merge for the following reasons:

- (a) Growth – internal expansion takes time, whereas firms that merge have immediate increased capacity and potential increased consumer demand. Mergers between two similar firms bring together different areas of expertise and development/technology.
- (b) Economies of scale – following a merger, parts of the organisation can be rationalised as there will be overlap between the two original firms. This may help to reduce costs such as one rather than two head offices, one marketing department and one HR department. Moreover, costs such as advertising can be shared and the newly formed firm may benefit from the different market segments or geographical advantages of each original firm.
- (c) Monopoly power – a larger firm reduces the potential competition from other providers, gaining market share and profit. With fewer competitors, consumers have fewer choices and will be more price inelastic, enabling the firm to raise prices for its services.
- (d) Increased market valuation – shareholders may benefit from an increase in the stock price of shares for the new firm.
- (e) Reduced uncertainty – the behaviour of rivals may be unpredictable but by reducing the number of rival firms, this form of uncertainty is also reduced. The economic environment is another source of uncertainty and in periods of rapid change firms may seek protection by merging with others.
- (f) Opportunity – sometimes firms merge as a result of unforeseen circumstances. An opportunity may arise to join complementary businesses together.

[5]

There were some good answers to this question. Additional points made by candidates were credited where relevant. The question was generally answered well by most candidates.

**Q34** Arguments in favour and against:

- (a) Greater competition, technology spreads faster, specialisation in products/processes to exploit comparative advantage, enhances political relationships, increased shared culture/experiences.
- (b) Increases inequality between the rich and poor, exploitation by MNCs in labour markets, domination by large businesses, dominance of Western culture.

[2]

This question was answered well by most candidates who gained the full mark for the question.

### Q35

- (i) The two official measures of unemployment are:
- (a) Claimant unemployment – this measure considers how many people are in receipt of out of work/unemployment benefits. In the UK this is job-seekers allowance.
  - (b) Standardised unemployment rate (via labour force surveys) – this measure defines the unemployed as those who are of working age who are without work, available to start work within two weeks and actively seeking work or waiting to start work.
- [2]
- (ii) The government may prefer the claimant count measure as only those who are receipt of such benefits would be counted in the statistics and is therefore likely to be lower than the other measure. Moreover, if claimants face more stringent rules for qualifying for unemployment benefits, the claimant count will be lower relative to the standardised unemployment rate.
- [2]

Most candidates correctly defined the claimant unemployment rate. However many did not mention the groups of workers that make up the standardised unemployment rate and so did not gain the full mark for this part.

### Q36

	£m		£m
Banks receive	150	Retain	22.50
		Lend	127.50
Second round deposits rise by	127.50	Retain	19.13
		Lend	108.38
Third round deposits rise by	108.38	Retain	16.26
		Lend	92.12
Fourth round deposits rise by	92.12	Retain	13.82
		Lend	78.30

- [4]
- (ii)  $£127.50 + 108.38 + 92.12 + 78.30 = £406.30\text{m}$  (initial deposit is not included as it is not

credit created)

[1]

(iii)  $150 * 1/0.15 = \text{£}1000\text{m}$

[1]

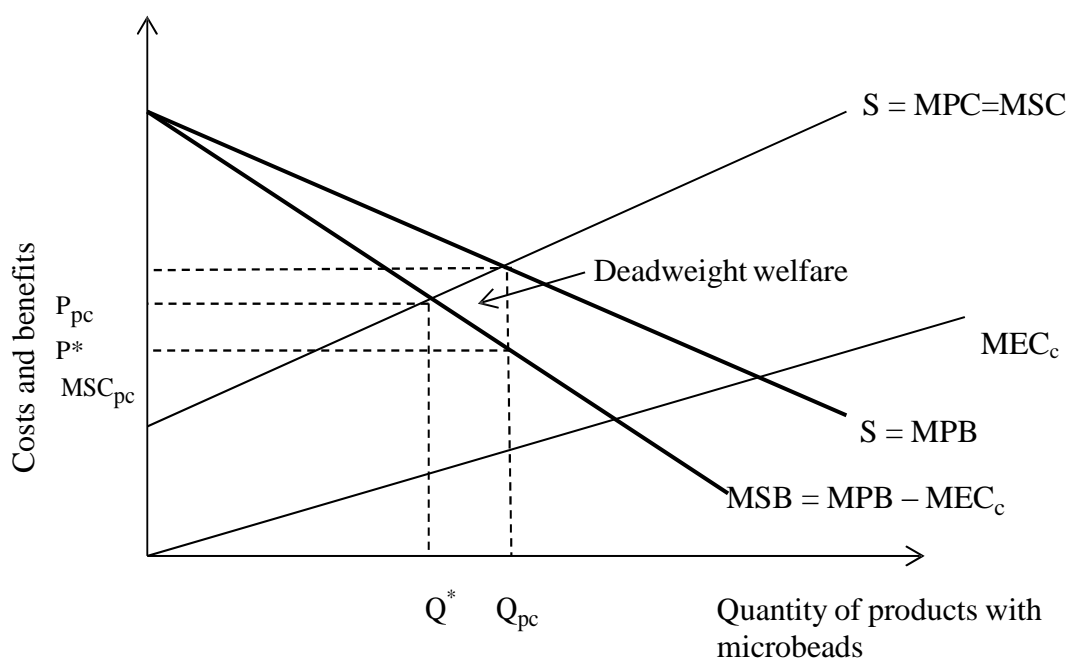
[Total 6]

This question was generally answered well. The full mark was awarded if all four rounds of credit creation were included.

### Q37

- (i) Microbeads are damaging to the environment and therefore represent a social cost. For the individual however, they may be desirable within beauty or cleaning products. The MSC differs from the MPC. The consumption externality is not taken into consideration by those directly using the products.

The additional consumption of products containing microbeads will lead to additional clean up costs of the ocean and protection of wildlife who may consume the microbeads once they enter into the water supply. These marginal external costs of consumption  $MEC_c$  result in the marginal social benefit of microbead consumption being lower than the marginal private benefit,  $MSB = MPB - MEC_c$ . This is represented in the diagram by the MSB curve being below the MPB curve. Market forces will result in an equilibrium output at point  $Q_{pc}$  whereas the socially optimal level is at  $Q^*$  where  $MSB = MSC$ . The external costs of consumption result in a level of output above the socially optimal level,  $Q_{pc} > Q^*$ . From society's point of view, too many products with microbeads are being produced and consumed. This results in a deadweight welfare loss caused by overconsumption and represented by the triangle labelled below.



[4]

(ii) Potential suitable forms of intervention: tax

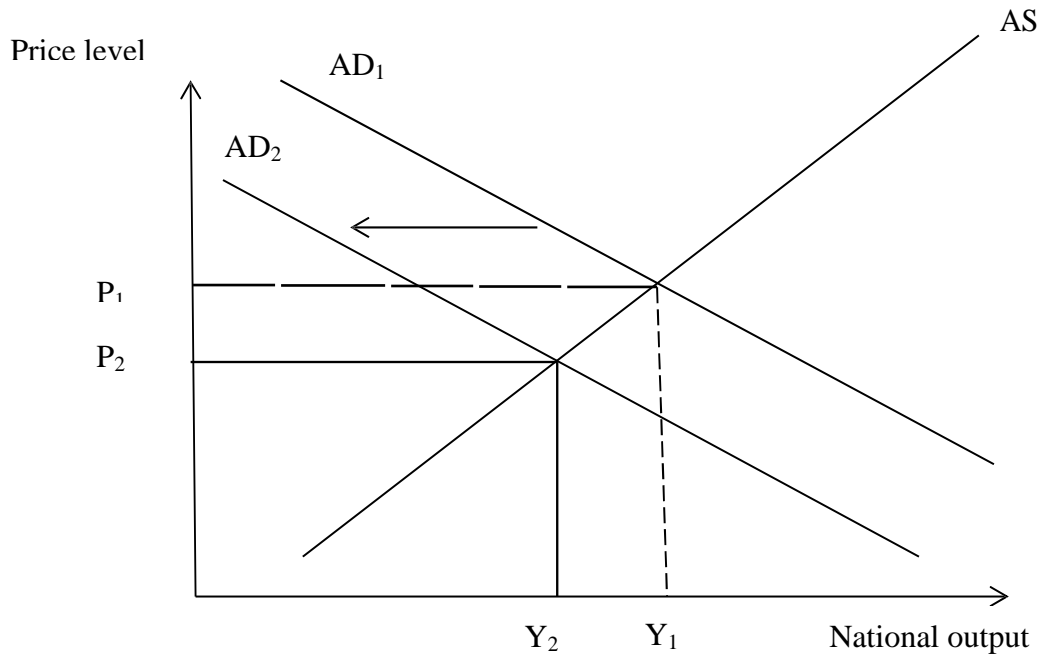
The government impose a tax equal to the marginal external cost. The advantage of using a tax is that the market will continue to operate. It is intended to ensure that firms/consumers take on the full social cost of their behaviour. It may also encourage firms to seek alternative/more environmentally friendly raw materials within their products. Consumers may also be encouraged not to use such products and seek out alternatives/reduce their consumption of such products.

One of the difficulties in imposing such a tax is valuing the marginal external costs appropriately – it is difficult to quantify the damage that such products may cause both in monetary terms and in the longevity of the damage that may be caused.

An alternative may be to use the law such as a ban or restriction on the amount of microbeads that can be used in products. Such measures are relatively straightforward to implement and in cases where the harm caused could be great, bans are more effective than taxes. The imposition of a ban is also usually fairly quick to implement. Given consumers may not have full information about the potential harm a product can cause and therefore continue to purchase products containing microbeads, banning firms from producing the product circumvents the problem. The main disadvantage of such action is that it may remove the incentive of firms to go above and beyond the restriction of a quota, taxes in contrast may provide an ongoing incentive to reduce environmental damage.

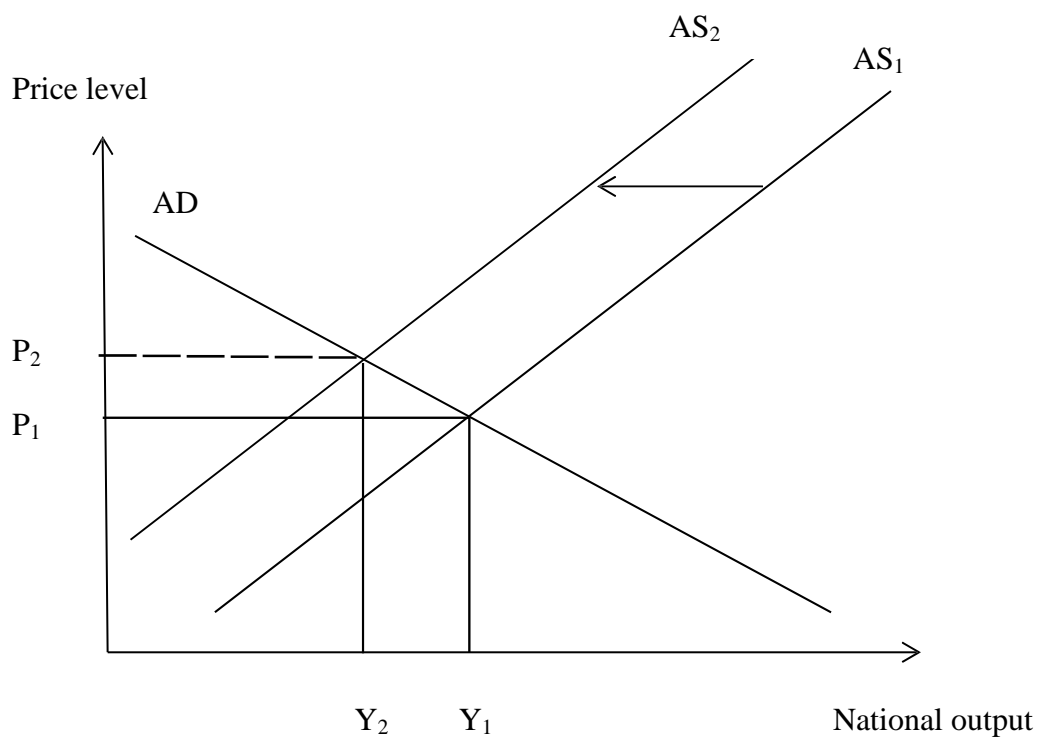
[6]

The answers to part (i) of this question varied. Some candidates did not draw the correct diagram and those who offered the correct diagram, often did not explain the private versus the social cost correctly. In part (ii) some candidates mentioned two methods of dealing with the externality but did not fully explain the methods and so lost marks.



A reduction in government spending on health care represents a fall in aggregate demand and the AD curve therefore shifts to the left. This leads to a fall in the price level in the short run as there will be excess supply at the original price level. Therefore, the price level will fall and lead to a fall in real GDP and employment. [8]

(b)



A rise in the price of oil is likely to lead to a decrease in aggregate supply. This would cause the AS curve to shift to the left. At the original price level, there will now be excess demand within the economy and this will put upward pressure on the price level and a decrease in GDP and employment.

Most candidates scored well in answering this question. Some candidate referred to a movement along the supply curve rather than a shift and lost marks.
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**END OF EXAMINERS' REPORT**