



Institute  
and Faculty  
of Actuaries

# EXAMINERS' REPORT

CB2 - Business Economics

Core Principles

September 2022

## **Introduction**

The Examiners' Report is written by the Chief 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.

Sarah Hutchinson  
Chair of the Board of Examiners  
December 2022

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

The aim of the Business Economics subject is to introduce candidates to the core economic principles and their relevance to the business environment.

The subject provides a grounding in the fundamental concepts of micro- and macro-economics 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. The examination paper is designed to assess candidates' knowledge and understanding as well as application of economic concepts and exploration of the linkages within the wider economy, and the marking scheme duly reflects this aim.

**B. Comments on *candidate performance in this diet of the examination.***

Responses to short answer questions aimed at testing candidates' understanding of economic concepts within a chosen context were mixed; some answers were confined to a discussion of theory without adequate reference to the context. Longer answer questions, where a deeper analysis was required, proved to be more challenging. For this type of question a detailed discussion together with an analysis of the linkages and wider impact was required and where a list of bullet points was offered the full marks were not awarded.

**C. Pass Mark**

The Pass Mark for this exam was 60  
859 presented themselves and 627 passed

**Solutions for CB2 - September 2022**

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

For question 2 more than one answer could have been correct so 1½ marks was awarded to all candidates.

*The multiple-choice questions were generally answered well.*

**Q27**

(i)

The rate of inflation in 2020 = 7.0% (rounded) [1]

(ii)

£38,145.50

Alternative answer: £38,142.04 [1]

(iii)

No, he is not. The rate of interest is less than inflation calculated in part (i) so he is in fact worse off as the real interest rate is negative in this case and he will be worse off approximately by 1%

[2]

**[Total 4]**

*Parts (i) and (ii) were generally answered well.*

*In part (iii) most candidates realised that the answer was negative, but some were not able to correctly explain the reason.*

*Half a mark was awarded, where the answer and the reasoning were correct but based on an incorrect answer in part (i), half the mark was awarded.*

**Q28**

(i)

$$\text{US\$}69 = 25 + 20 + 14 + 10 \quad [1]$$

(ii)

$$5 \text{ units at US\$}8 = \text{US\$}40 \quad [1]$$

(iii)

$$\text{MU} = 14, \text{P} = 8 \text{ MU} \cdot \text{P} = \text{MCS} = 6 \quad [1]$$

(iv)

$$\text{TU} = 45 \text{ TE} = 16 \text{ TCS} = 29 \quad [1]$$

(v)

$$4 \text{ units where TU} = 69 \text{ and TE} = 32 \text{ TCS} = 37 \quad [2]$$

**[Total 6]**

*This question was generally answered well.*

*In part (iv) 1 mark was allocated for correct values of TU and TE, and 1 mark for correct calculation of TCS.*

*Top Tips: In numerical questions such as this, where several quantities need to be calculated before the final answer to the question is determined, even though you may use a calculator to arrive at the final answer, it is best to show all your workings as the mark is often distributed among different calculations and if the final answer is incorrect you may not lose all the marks. Here in (v) Tu, TE and TCS all allocated part of the mark.*

**Q29**

In the short run a firm can, in principle, increase its variable factor of production and increase labour. This can be achieved through hiring additional staff, extending the working day (overtime) or using more raw materials. In reality, additional raw materials may be difficult to source if there is unanticipated and unprecedented demand for the materials and there are supply chain problems. Extending the working day for existing workers may be feasible if there is already excess capacity that can be utilised. If a firm

was already working at full capacity i.e., 24-hour operations then it will be impossible to expand production. Finding additional workers will depend on the labour market conditions and in the case of a pandemic, restrictions prevailing at the time. If there are unemployed workers with the appropriate skills, then additional workers may be hired if they are willing to work at the prevailing wage. If, however, the labour market has very limited slack and/or many are self-isolating then this again will prove challenging. Assuming that it is possible to introduce additional labour, over time, diminishing returns would set in and total output would increase at a decreasing rate.

In the long run, if a firm wished to expand its productive capacity, it will need to grow its fixed factors of production such as premises and capital equipment (buildings and machinery). This is likely to require investment which the firm would need to secure, and they may not be in the financial position to acquire the necessary funds. It may also be that even with the funds, there is a significant lead time on acquiring the new premises and machinery which would limit growth in the medium term. [5]

*Most candidates made a fair attempt at answering this question. The discussion for the short run needed to include raw material and supply chain problems, lack of excess capacity, labour shortages, lack of suitably skilled labour and pressure on existing labour due, for example, to social distancing, all with direct reference to PPE rather than an abstract theoretical discussion. Other valid points were given credit. A total of 3 marks was allocated to a good discussion of the short run.*

*For the long run discussion limitations on expansion such as financial constraints and lead time to acquisition of machinery and premises and shortage of raw material of the required quality may be mentioned. Other long run scenarios were given credit. A good discussion of the long run was awarded 2 marks.*

*Top Tips: In application type of questions it is important to discuss the question always referring to the particular context. A purely theoretical discussion will not gain the marks.*

### Q30

A gymnasium is unlikely to be associated with perfect competition as they do not offer a homogeneous product. Whilst there may be many firms in the market, they tend to offer variations in the product. This is achieved through different branding of each gym as well as the selection of classes and facilities that they offer.

In terms of freedom of entry and exit, the market should have relatively low barriers to entry/exit. A gym could be large or set up in a very small premises provided they meet regulations relating to health and safety

Gyms are likely to have some degree of control over their price and not be price takers. Instead, they will face a downward sloping demand curve. Potentially, in localised areas, if the gym was large and part of a large chain, they may exhibit the characteristics of a monopoly or oligopoly. In particular, we may observe price discrimination, brand loyalty scheme and other aspects of non-price competition. At the very least a gym will operate

in a monopolistically competitive market and, depending on local conditions, could be an oligopoly or monopoly. Various membership tariffs and discounts are not transparent in gyms' case as they are in a perfectly competitive market. Information is not disseminated perfectly [5]

*This question was answered reasonably well, and candidates who discussed the market structure with direct reference to gymnasiums scored well. For each characteristic of monopolistic competition with reference to gyms, 1 mark was awarded with the total capped at 5 marks.*

*Top Tips: Where the question asks about the structure of a particular market, it is important to discuss all the characteristics of that market structure in relation to the particular market/industry.*

**Q31**

(i)  
A [1]

(ii)  
Q2 - this is where  $P = MC$  [1]

(iii)  
P2-P3 [1]

(iv)  
Q1 where  $P = MSC$  [1]

**[Total 4]**

*In general, this question was answered well, except part (iii).*

*For part (iii) if the answer given was P3-P4 based on the incorrect answer question 1 in part (ii), half a mark was given.*

**Q32**

(i)  
A sustained rise in the price of an input to production for a country importing energy is likely to lead to cost push inflation in the market. Firms may pass these increased production costs onto consumers in the form of increased prices in order to retain their profit margins and may need to reduce production resulting in unemployment. There would be a shift in aggregate supply with higher prices. Consumers, experiencing a rise in the cost of living, may seek to negotiate an increase in wages resulting in a wage price upward spiral. [3]

(ii)  
One potential long term policy solution is to look at alternative sources of energy to

address the supply side constraint. If a country were to be able to produce some of its own energy in a cost-effective way it would reduce import costs and alleviate some of the potential pressure on energy prices. This could be in the form of wind or solar power or nuclear energy. Building the infrastructure to address this constraint is likely to be very costly and also take some time to establish. Some measures such as fracking could have environmental issues. There may also be a drive to be more energy efficient on the part of households and firms encouraged by the government support. This may alleviate the pressure on energy prices to some extent. More energy efficient technologies could also be found and used in the long run. Governments may also choose to use subsidies as a long-term solution.

[2]

[Total 5]

*This question was answered less well.*

*In part (i) cost push inflation, shift in aggregate supply, secondary effect of wage rises and spiral were expected to be mentioned. Inflationary effect and secondary effects carried 1½ marks each.*

*In part (ii) 1 mark for policy responses and 1 mark for challenges were awarded.*

*Answers need to be focussed and address the issues raised by the question. E.g., in part (ii) of this question various measures to alleviate cost push inflation resulting from high energy prices, as indicated in part (i), needed to be discussed rather than simply how to curb inflation.*

### Q33

The type of tax is important. Personal income tax or an equivalent, where imposed on an individual's income will reduce their disposable income.

Someone who is experiencing a lower disposable income may choose to make fewer non-essential purchases which in themselves may also be taxed. As a result, consumption expenditure may fall.

Income tax is not levied on producers so they will not be directly affected by the imposition of such a tax. However, depending on the nature of their good/service, there may be a decline in demand for good/service. As a result, firms may seek to scale back production and consider a reduction in price, depending on the relative elasticity of their good/service.

Consumption expenditure is an important component of GDP and increased income tax is likely to result in lower aggregate demand and unemployment in certain sectors of the economy. The impact would depend on the amount of tax and the tax brackets on which it is imposed.

In the case of a non-income related tax such as a sales tax, usually imposed on certain goods/services, the impact on consumers will depend on whether the good/service is an essential purchase. If the tax is fairly broad and levied on all/a large proportion of

goods/services which are reasonably essential to most people, then the overall change in consumption could be relatively small but the price of the good/service is likely to rise. The tax can be an ad valorem tax (a percentage) or a specific (unit tax). The tax is likely to result in reduced output, lower profits, higher prices and lower aggregate demand.

Producers may seek to pass on the increased cost to consumers. However, depending on the elasticity of the supply and demand, the incidence of tax may fall more heavily on consumers rather than producers. If demand is more inelastic than supply, then consumers pay the greater proportion of tax. If supply is more inelastic than demand, the producer will pay a greater incidence of tax.

The impact of the tax would be mainly on the particular sector affected by the tax. [6]

*Only well prepared candidates covered both types of taxes in sufficient detail. Each type of tax carried 3 marks. For each type of tax the effect on consumers, the effect on producers and the effect on the economy carries 1 mark each.*

### Q34

The motives for holding money are the transactions, precautionary and speculative motive. Traditional notes and coins (cash) are regularly used to undertake trades between two or more parties. Cash is a relatively widely accepted means of payment to undertake transactions. In principle a cryptocurrency can be used in the same way. The main difference would be that given its use is not as widespread amongst the general public, the ability to undertake transactions in this manner would be more restricted there are relatively fewer parties who use cryptocurrency.

In terms of the precautionary motive there are no differences in principle. Holders of traditional cash or cryptocurrency could both hold funds for the purposes of preparing for a rainy day/unexpected event.

Both traditional cash and cryptocurrency can be held for speculative purposes and changed for other financial products. The overall acceptance of cash may be more widely spread but in principle both may be held and gain in value. Notably recent growth in cryptocurrency would indicate that it can be highly profitable and volatile and may represent a more attractive proposition for speculative purposes. Cryptocurrency may be a more risky financial product as it is not backed by a Central Bank as in the case of cash. As a result, the potential return from speculating in such a market may be much higher, given the increased associated risk. [6]

*The answers to this question were mixed. Most candidates focussed on describing a currency without comparison of the two. Comparing each of the motives for holding the two types of currency; transaction, speculative and precautionary carried 2 marks. Each needed to be well discussed to gain the 2 marks.*

### Q35

(i)

Agricultural produce can be highly variable in terms of supply due to fluctuations in weather that can affect crops. In the case of some agricultural products (fish for example) there may also be a finite resource which can be permanent/for a prolonged period where the resource needs recovery time from near depletion. Civil unrest in regions may also hinder the ability of crops/resources getting to market and presents an additional risk of supply shock.

Demand for agricultural products tends to be relatively inelastic. This is because they are often essential to other aspects of production. Given a relatively inelastic demand curve and potential supply shocks, prices can rise and fall quite significantly.

Manufactured goods tend to be relatively more elastic in supply. To increase production, firms can operate at a higher level of capacity, increasing labour/overtime, using more raw materials or increasing run time on machinery. This can be achieved more readily than expanding the productive capacity of a field for crops, due to the lead time on growing/harvest or needing new machinery to reach further into a mine.

In addition, manufactured goods may have many alternatives and a more elastic demand curve as a result. Agricultural products/mined may have much more limited alternatives. Whilst you can find alternatives for wheat or gold for example, they are not as plentiful in supply as manufactured goods, where they may be many brands of television for example.

These two factors combined, a relatively more elastic supply and demand, tend to mean that changes in price are less pronounced relative to agricultural/mined products. [5]

(ii)

Suitable interventions in the agricultural markets to reduce price volatility could be one of the following:

1 - Price ceilings. The government could introduce a price ceiling to ensure that the price of essential foodstuffs do not exceed what is deemed to be an appropriate level. One of the challenges of implementing such a strategy is setting the original price as it may be viewed as somewhat arbitrary. The price could be set to reflect local conditions rather than at a national level where they may be considerable variation in conditions. The problem with setting a maximum price is that there may be excess demand if the price is lower than what would prevail in the market. As a result, black markets may arise for underground trading and effectively cause a secondary market to become established.

2 - Direct provision. The government could decide to implement direct provision of certain agricultural products to particular groups of people at a reduced price or for free to protect the most vulnerable from price volatility. One of the challenges of this is confirming eligibility if it's a select group of people. To provide such provision for everyone could be financially prohibitive for a government.

3 - Buffer stocks. The government could invest in storage provisions to store goods which do not perish quickly that could be released into the market in times of hardship.

Increasing supply would put downward pressure on prices. The challenge of this is that there are storage related costs. In addition, the country may not produce enough to enable this system to be put in place and there may be reliance on overseas markets, which again may be exposed to fluctuating prices.

[5]

[Total 10]

*Most candidates made a fair attempt at describing some of the issues in this question although more detail was required to gain a high mark.*

*In part (i) 2½ marks were awarded each for a discussion of agricultural and manufacturing sectors. In each case the supply side, the demand side and some discussion of elasticity were required.*

*In part (ii) other policy responses such as government subsidies, trade deals and tariffs to protect agricultural products could be mentioned. For each well-argued point 2 marks were awarded and 1 for a partial answer, with a maximum of 5 marks where at least one point was fully discussed.*

### Q36

(i)

Reducing barriers to trade enables countries to benefit from relative comparative advantage. One country may be able to produce components or a piece of medical equipment in its entirety at a lower opportunity cost than another country. Such equipment is generally very expensive and would represent a significant cost for health departments across countries.

A country that has a lower opportunity cost will be more efficient at producing the equipment and trade will enable it to engage in research and development to enhance the equipment. This may enable medical advancement to take place at a faster pace which would contribute to enhanced welfare generally. There will also be economies of scale that arise as a result of specialisation, enabling output to increase and reduce the cost of production.

Open trade with one another may also enable countries to benefit from being able to access a variety of medical equipment, knowledge exchange with other countries and technology transfer faster than would be possible without cooperation. Finally, the socio-political gains from partnership and permitting of free trade could be significant and pay dividends in future relationships.

[5]

(ii)

Provision of free vaccines during a pandemic would result in a higher uptake of vaccines than would be the case if there was a charge. If a large proportion of the population is vaccinated, there would be lower transmission of the disease and a lower demand on the health system. To the extent that a highly stretched health system may not be able to respond to the demand, there would be welfare implications generally.

Vaccination would prevent/lighten government measures, such as lock downs, aimed at containing the pandemic and would enable the economy to function normally and certain industries such as hospitality and tourism to continue functioning at a more active level. The pandemic and the government measures would have a higher impact on lower income groups working in sectors most affected by the pandemic. Such groups may experience job losses, become deskilled increasing inequality. Providing free vaccination and equal access would prevent/alleviate such impact.

A pandemic and measures to contain it would also impact education. Closure/part closure of schools and higher education institutions would have a longer-term effect on the human resource element of the economy. Free vaccination would allow the flow of skilled workers into the economy to continue uninterrupted and for the economy to function normally.

[5]

**[Total 10]**

*Candidates did not perform well in this question, as most answers lacked sufficient detail.*

*In part (i) 2 marks were awarded for each well-argued benefit discussed within the context and 1 mark awarded for a brief discussion of a benefit, the total capped at 5 marks.*

*In part (i) a general discussion of the advantages of free trade will not gain the marks. The discussion needs to be around free trade in medical equipment. Answers to both parts need to draw on the theory and application to the context rather than common sense observations without reference to the theory.*

*In part (ii) the international perspective could also be discussed; benefits relating to supply chain, trade and vaccination in a global context. 2 marks were awarded for each good argument for global vaccination, 1 mark for a brief discussion, the total capped at 5 marks.*

**[Paper Total 100]**

**END OF EXAMINERS' REPORT**



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