Diploma Programme
Programme du diplôme
Programa del Diploma

Markscheme

November 2020

Economics

Higher level

Paper 3

18 pages

Alternative approaches may be taken in responses to the [4] questions that use A02 command terms. If this is the case and the alternative approaches are valid, then full credit should be given.

Any part of an explanation or outline that is in brackets is not required for full marks, but may appear in a response as an alternative or additional explanation.

The requirement for answers being given to two decimal places only applies to non-terminating decimals. An accurate decimal answer is acceptable *eg* 2.0625 equals 33/16 exactly, so either 2.06 or 2.0625 should be rewarded.

Whenever relevant, carry over marks must be awarded. If a candidate makes an error in calculation, but then uses the incorrect figure appropriately and accurately in later question parts, then the candidate may be fully rewarded. This is the "own-figure rule" and you should put OFR on the script where you are rewarding this.

1. (a) Using information from **Figure 1**, calculate Firm A's total fixed costs. **[2]**

20 (29 – 10)

*Any valid working (from another output level e.g. 30 (24.67 – 12)) is sufficient for **[1].***

= $380

Allow +/- $10 i.e. from $370 to $390.

***NB** responses that lie outside the +/- $10 tolerance but indicate that, at a given quantity, the AVC and ATC are approximately accurate (eg 45 (31 – 23) = $360) may be fully rewarded.*

*An answer of $380 or 380 without workings is sufficient for **[1].***

*For full marks to be awarded, the response must provide valid working and include correct units. However, superfluous units (e.g.$380 **per kg**) may be ignored.*

(b) (i) The market price of almonds is $11 per kilogram. Using **Figure 1**, identify the quantity of almonds Firm A must produce in order to maximize profits. **[1]**

21kg ***OR*** 21 *is sufficient for **[1]***

(ii) Calculate the economic profit/loss when Firm A is producing at the output level identified in part (b)(i). **[2]**

21 (11 – 28)

*Any valid working is sufficient for **[1]**.*

= – $357 ***OR*** (economic) losses = $357

OFR applies if incorrect quantity is given for (b)(i).

*An answer of a loss of $357 or – 357 without workings is sufficient for **[1]**.*

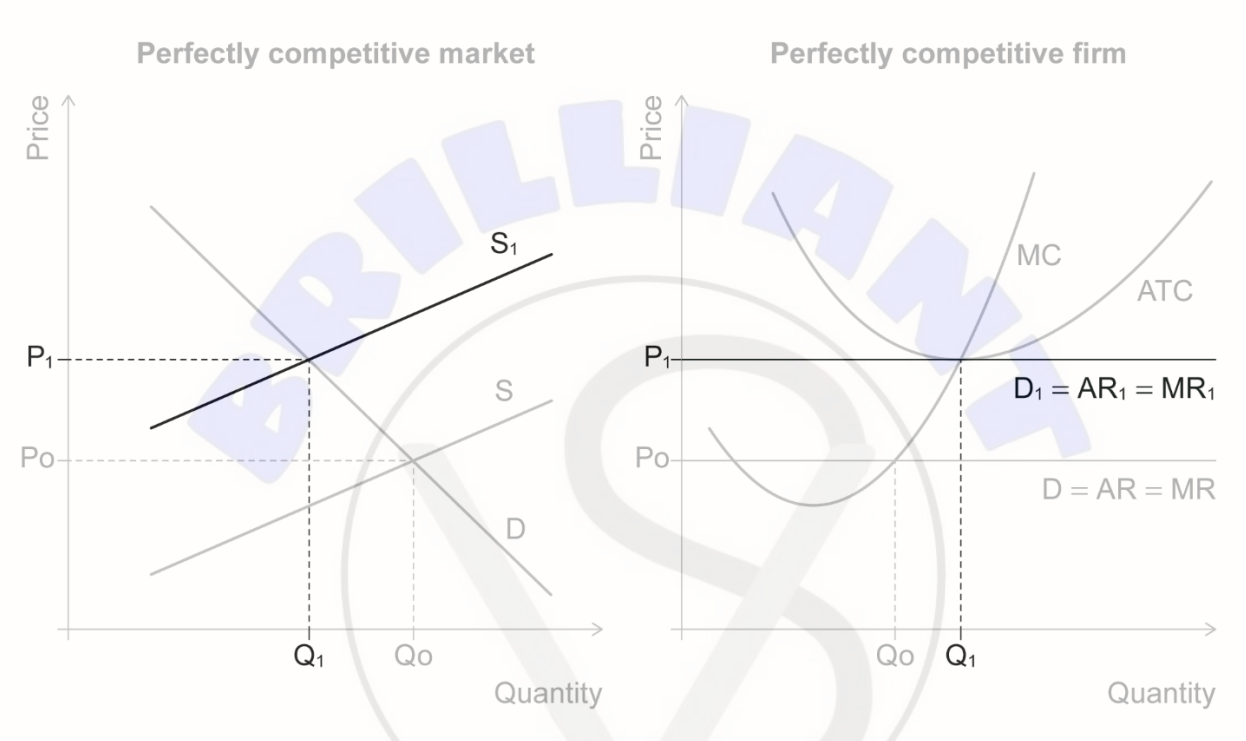
For full marks to be awarded, the response must provide valid working and include correct units. However, superfluous units may be ignored.

(c) (i) Based on the information in **Figure 2**, state whether the firms in this market are making normal profits, economic profits or economic losses. **[1]**

Economic losses ***OR*** losses

*is sufficient for **[1].***

(ii) On **Figure 2,** draw and label appropriate additional curves to show how a perfectly competitive market will move from short-run equilibrium to long-run equilibrium. **[2]**



***[1]** for **one** accurate, labelled diagram **OR two** diagrams without labels.*
***[2]** for **two** accurate, labelled diagrams.*

D_1 or AR_1 or MR_1 is sufficient for firm's model. P_1 is not required for firm's model. Titles are not required for the diagrams.

The firm's new Q need not be specified on the diagram.

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(iii) Using your answer to part (c)(ii), explain how the market adjustment takes place. **[2]**

Level		Marks
0	*The work does not meet a standard described by the descriptors below.*	0
1	*Vague explanation.*	1
	Firms will exit the market.	
2	*Accurate explanation.*	2
	For explaining that firms exit the market, which increases the price: • until it reaches minimum ATC ***OR*** • until the firm makes normal profits.	

(d) State **two** assumed characteristics of a monopoly. **[2]**

Award ***[1]*** for each valid characteristic:
- single or dominant firm in the market ***OR*** market power/price-setting power
- no close substitutes
- significant barriers to entry.

Any other valid characteristic.

(e) Explain **two** reasons why a monopoly may be considered desirable for an economy. **[4]**

Level		Marks
0	*The work does not meet a standard described by the descriptors below.*	0
1	*The written response is limited.*	1–2
	*For a limited explanation of **one** reason, award a maximum of **[1]**. For an accurate explanation of **one** reason (see Level 2) **OR** a limited explanation of **two** reasons award a maximum of **[2]**.* *Reasons **may** include:* • it may engage in research and development (R&D) • it may engage in innovation • it may enjoy economies of scale.	
2	*The written response is accurate*	3–4
	*For providing an accurate explanation of **one** reason **and** a limited explanation of a second reason award a maximum of **[3]**.* *For providing **two** accurate reasons, award a maximum of **[4]**.* *Accurate explanations **may** include:* • The ability to maintain abnormal profits permits it to invest in R&D which leads to new products and new technologies • It may be forced to innovate to maintain abnormal profit, ***OR*** the prospect of abnormal profit may encourage innovation ***AND*** these innovations eventually benefit the whole economy • If it grows in size or is a natural monopoly it may achieve economies of scale (which reduce average production costs), permitting price to be lower to the benefit of consumers. *Any other valid explanation.*	

(f) (i) Using **Figure 3**, calculate the economic profit when Firm B is maximizing its profits. **[2]**

20 (20 – 15)

*Any valid working is sufficient for **[1].***

= $100

*An answer of $100 or 100 without workings is sufficient for **[1].***

For full marks to be awarded, the response must provide valid working and include correct units.

***NB** Answers that include "per gram" may be accepted.*

(ii) Using **Figure 3**, calculate the total revenue when Firm B is maximizing its revenue. **[2]**

30 x 15

*Any valid working is sufficient for **[1].***

= $450

*An answer of $450 or 450 without workings is sufficient for **[1].***

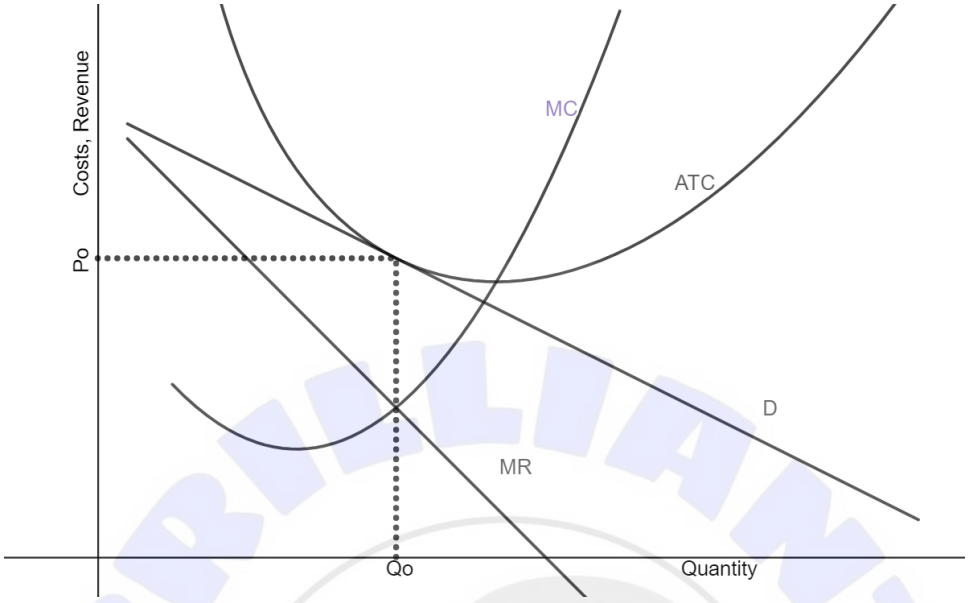
For full marks to be awarded, the response must provide valid working and include correct units.

***NB** Answers that include "per gram" may be accepted.*

(g) (i) A shampoo firm is earning economic profits. Outline, with a reason, what will happen to its demand curve in the long run. **[2]**

Level		Marks
0	*The work does not meet a standard described by the descriptors below.*	0
1	*Vague outline*	1
	Its demand curve shifts to the left. ***OR*** Its demand becomes more elastic. ***OR*** Firms will enter the market.	
2	*Accurate outline*	2
	Its demand curve will shift to the left **OR** demand becomes more elastic ***AND*** because firms enter the market ***OR*** more substitutes become available.	

(ii) Sketch and label a diagram to illustrate the long-run equilibrium for a firm in monopolistic competition. **[3]**



[1] *for D tangential to ATC (AC)*
[1] *which is vertically above intersection of MR and MC*
[1] *for correctly indicating Po and Qo, where MR = MC and D is tangential to ATC*

A response with missing or incorrect labels or without MC intersecting minimum ATC may be awarded a maximum of ***[2]****.*

Vertical axis may be labelled P or Price or Costs or Revenue. Horizontal axis may be labelled Quantity or Q or Output.

NB *Provided that the price and quantity have been labelled (eg Po, Qo) then it is not necessary to label the axes.*

2. (a) (i) Calculate the cost of the typical basket in 2016. [2]

5 x 2.5 + 10 x 1.5 + 2 x 10

Any valid working is sufficient for ***[1].***

= $47.50

An answer of $47.50 or 47.50 without workings is sufficient for ***[1].***

For full marks to be awarded, the response must provide valid working and include correct units.

(ii) The cost of the typical basket was $50 in 2017. Calculate the consumer price index (CPI) for 2017. **[1]**

50/45 x 100 =

111.11 *No units (eg $) permitted.*

NB *workings are not required.*

(iii) The consumer price index for 2014 was 101.23. Calculate the rate of inflation between 2014 and 2015 (the base year). **[1]**

(100 – 101.23)/101.23 x 100 = − 1.22 %

***NB** workings are not required.*

− 1.22 %

*An answer of −1.22 % or −1.22 or deflation of 1.22% is sufficient for **[1]**.*

(b) Explain **two** reasons why the calculation of the inflation rate may not be accurate. **[4]**

Level		Marks
0	*The work does not meet a standard described by the descriptors below.*	0
1	*The written response is limited.*	1–2
	*For a limited explanation of **one** reason, award a maximum of **[1]**.* *For an accurate explanation of **one** reason (see Level 2) **OR** a limited explanation of **two** reasons award a maximum of **[2]**.* *Limited reasons **may** include:* • quality bias • outlet bias • substitution bias • new goods bias • different groups have different expenditure patterns • different locations have different prices • households changing their expenditure.	
2	*The written response is accurate.*	3-4
	*For providing an accurate explanation of **one** reason **and** a limited explanation **one** other reason award a maximum of **[3]**.* *For providing **two** accurate reasons, award a maximum of **[4]**.* *Accurate explanations **may** include:* • although the price of a good (in the basket) has risen, its quality has also improved • consumers/households may now be buying their goods from cheaper outlets not sufficiently surveyed by the government statisticians • consumers/households may have substituted cheaper items when the price of one item increased, but their weights are fixed • new goods may have appeared in the market after the basket was constructed and are not included in it even though a typical consumer/household may consume them • different groups have different expenditure patterns and, therefore, the calculated inflation rate does not apply to all groups • prices may vary significantly between areas of a country and, therefore, the calculated inflation rate does not apply to all areas • households changing their expenditure patterns significantly because of tastes changing after the basket was constructed. *Any other valid explanation.*	

(c) Outline how monetary policy is used to lower the inflation rate in an economy. **[2]**

Level		Marks
0	*The work does not meet a standard described by the descriptors below.*	0
1	*Vague outline.*	1
	For a response that interest rates rise ***OR*** the money supply is reduced.	
2	*Clear outline.*	2
	For a response that interest rates rise ***OR*** the money supply is reduced. Higher interest rates reduce investment and/or consumption and/or net exports, so that AD falls (which will result in a lower inflation rate). *Any valid outline of how monetary policy can be used to lower inflation may be awarded.*	

(d) (i) In 2019, nominal GDP was $ 102 874.55 million. Using data from **Table 2**, identify whether Country A experienced inflation **or** deflation **or** disinflation in 2019. **[1]**

deflation ***OR*** inflation

*is sufficient for **[1].***

***NB** There has been deflation since the base year. In 2019, however, the presence of deflation can only be confirmed if the percentage change in nominal GDP is below 0.72%.*

(ii) Using data from **Table 2**, state the reason why there is a difference between the real GDP growth rate and the real GDP per capita growth rate between 2015 and 2019. **[1]**

because the population has been growing.

*is sufficient for **[1].***

(iii) An economist forecasts that the real GDP growth rate in 2020 will be 3.41 %. Using the data in **Table 2**, calculate the forecast for real GDP ($ million) in 2020. **[2]**

103 785.98 x 1.0341

*Any valid working is sufficient for **[1].***

= $ 107 325.08 million ***OR*** $107.33 billion

*An answer of 107 325.08 without workings is sufficient for **[1]**.*

***NB** Since ($ million) is in the question, units are not required.*

(e) (i) Calculate the estimated value of the multiplier used by the economist. **[2]**

828/207

*Any valid working is sufficient for **[1].***

= 4

*An answer of 4 without workings is sufficient for **[1]**.*

*For full marks to be awarded, the response must provide valid working with **NO** units.*

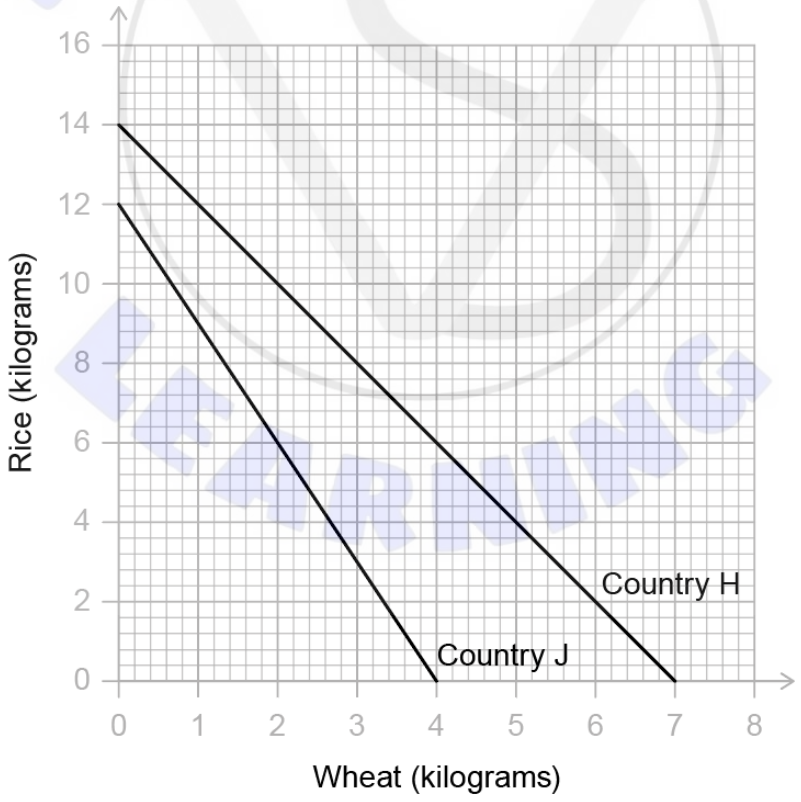
(ii) Calculate the estimated value of the marginal propensity to consume used by the economist. **[1]**

0.75

*is sufficient for **[1].***

OFR applies.

(f) (i) Plot and label the production possibility curves for Country J **and** for Country H, assuming constant opportunity costs, on **Figure 4**. **[2]**



[1] for **one** correctly drawn production possibility curve
[2] for **two** correctly drawn production possibility curves

*A response with missing or incorrect labels may be awarded a maximum of **[1]**.*
Kgs are not required on the axes.

(ii) Using the above data and the concept of opportunity costs to support your answer, determine which good Country H should specialize in. You **must** give a reason for your choice. **[2]**

Level		Marks
0	*The work does not meet a standard described by the descriptors below.*	0
1	*Vague understanding.*	1
	For a response that H should specialize in wheat.	
2	*Clear understanding.*	2
	For a response that H should specialize in wheat: • because its opportunity cost of producing wheat is lower than J's. ***OR*** • because 14/7 rice is less than 12/4 rice. ***OR*** • because 2 rice < 3 rice. *Alternative explanation based on the slopes should be fully rewarded.* *A response which does not mention opportunity costs and uses the data incorrectly may be awarded a maximum of **[1]**.*	

(g) Explain **two** gains from trade that arise when Country J and Country H specialize according to comparative advantage. **[4]**

Level		Marks
0	*The work does not meet a standard described by the descriptors below.*	0
1	*The written response is limited.*	1–2
	*For a limited explanation of **one** gain, award a maximum of **[1]**.* *For an accurate explanation of **one** gain (see Level 2) **OR** a limited explanation of **two** gains award a maximum of **[2]**.* *Limited explanations of gains **may** include:* • higher global/total output ***OR*** lower global opportunity costs ***OR*** increased productivity ***OR*** improved resource allocation • import price lower than if country had produced the good domestically • economies of scale when specializing • consuming beyond production possibility curve • economic growth accelerates • diffusion of technology • *any other valid gain.*	
2	*The written response is accurate.*	3–4
	*For providing an accurate explanation of **one** gain **and** a limited explanation of **one** other gain award a maximum of **[3]**.* *For providing **two** accurate gains, award a maximum of **[4]**.* *Accurate explanations of gains **may** include:* • higher global output because resources are used more efficiently • each country can purchase the imported good at a lower price than its domestic opportunity cost of making it • each country could benefit from economies of scale when specializing in goods with a comparative advantage resulting in increased productive efficiency • each country can consume beyond its production possibility curve • economic growth accelerates because resource allocation is improved/ productivity increases due to lower global opportunity costs • diffusion of technology because technology is often embodied in the traded goods. *Any other valid gain plus explanation should be fully rewarded.*	

3. (a) (i) Calculate the value of the Mexican peso (US$ per MX$) in 2015. Enter your result in **Table 3**. **[1]**

0.06

is sufficient for **[1]**

The answer may be either in the table or in the space provided below the question.

(ii) Using **Table 3**, state **one** possible effect on Mexican consumers **and one** possible effect on Mexican producers from the change in the value of the Mexican peso (US$ per MX$) between 2014 and 2016. **[2]**

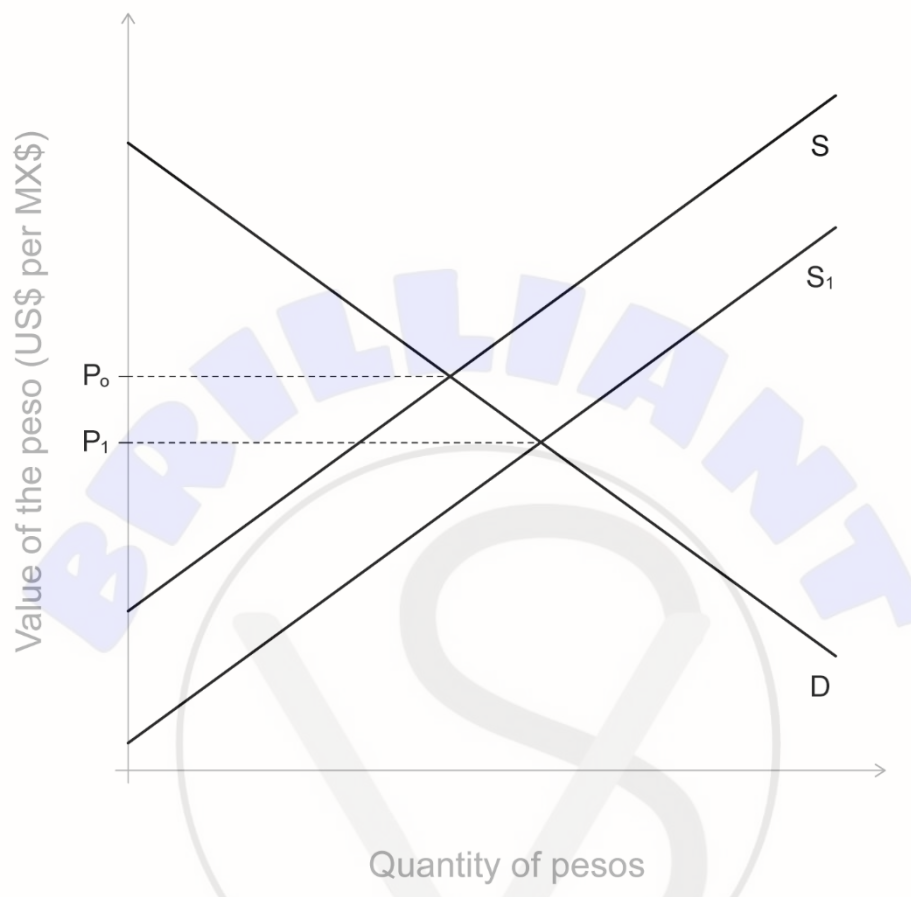
Level		Marks
0	*The work does not meet a standard described by the descriptors below.*	0
1	*Vague understanding.*	1
	For stating a correct effect on **either** consumers **or** producers (details in L2)	
2	*Clear understanding.*	2
	For stating a correct effect on consumers ***AND*** a correct effect on producers. Consumers: imported goods became more expensive ***OR*** lower consumption of imported goods ***OR*** lower consumer surplus ***OR*** higher inflation ***AND*** Producers: cheaper exports/exports increased ***OR*** higher profits for exporting firms ***OR*** imported inputs became more expensive ***OR*** cost of production increased ***OR*** lower profits for importing firms.	

(b) (i) Using **Figure 5**, state **two** likely causes for the change in Mexico's spending on imports of goods and services in 2009. **[2]**

*Award **[1]** for each valid reason up to a maximum of **[2]**:*

- fall in Mexican GDP or national income ***OR*** lower domestic inflation
- depreciation of the Mexican peso
- appreciation of the Mexican peso ***AND*** PED less than one
- increase in tariff or non-tariff barriers or quotas imposed on imports by Mexico ***OR*** subsidies to domestic Mexican producers
- lower consumer/business confidence
- *any other valid reason.*

(ii) Using information from **Figure 5**, sketch an exchange rate diagram to show how the change in Mexico's spending on imports in 2010 would have affected its exchange rate (US$ per MX$), *ceteris paribus*. **[2]**



[1] for labelled S and D curves with a shift of S to the right
[2] for labelled S and D curves with a shift of S to the right ***AND*** for showing the fall in the value of the peso.

(c) Explain **two** factors that may cause the Mexican peso to appreciate against the US dollar in the future without any official intervention. **[4]**

Level		Marks
0	*The work does not meet a standard described by the descriptors below.*	0
1	*The written response is limited.*	1–2
	*For a limited explanation of **one** factor, award a maximum of **[1]**.* *For an accurate explanation of **one** factor (see Level 2) **OR** a limited explanation of **two** factors award a maximum of **[2]**.* *Factors **may** include:* • higher demand for Mexico's exports • lower demand for imports in Mexico • increase in FDI into Mexico ***OR*** decrease in FDI from Mexico to overseas • relative increase in Mexican interest rates ***OR*** net inflow of portfolio (capital) investment • relatively lower inflation rates in Mexico • increased speculation in favour of Mexican peso • *any other valid factor.*	
2	*The written response is accurate.*	3–4
	*For providing an accurate explanation of **one** factor **and** a limited explanation of **one** other factor award a maximum of **[3]**.* *For providing an accurate explanation of **two** factors, award a maximum of **[4]**.* *Accurate explanations **may** include:* • an increase in the demand for Mexico's exports as a result of: higher incomes overseas ***OR*** an appreciation of currencies of trading partners (*eg* US$) ***OR*** signing an (enhanced) free trade agreement ***OR*** lower inflation in Mexico • lower demand for imports in Mexico as a result of: lower inflation in Mexico ***OR*** lower income growth (recession) in Mexico ***OR*** increased protection of Mexico markets • an increase in FDI inflows as a result of positive expectations about prospects of Mexico economy or lower wages, *etc* ***OR*** a decrease in FDI outflows as a result of negative expectations about prospects of US (*et al*) economy • an increase in portfolio (capital) inflows because of an increase in Mexican interest rates ***OR*** a decrease in portfolio (capital) outflows because of a decrease in overseas interest rates • increased speculation in favour of peso and against the dollar because of expectations that the Mexican peso will appreciate • *any other valid explanation.*	

(d) (i) Using **Figure 6**, identify the equilibrium price when Country B engages in free trade. **[1]**

$4 ***OR*** 4

*is sufficient for **[1]***

(ii) Using **Figure 6**, calculate the consumer surplus **and** the producer surplus when Country B engages in free trade. **[2]**

CS: 0.5 (12 – 4) x 8 = $32 million

OR

32

*is sufficient for **[1]**.*

***NB** Neither units nor workings are required.*

PS: 0.5 (4 – 1) x 2.5 = $3.75 million

OR

3.75

*is sufficient for **[1]**.*

***NB** Neither units nor workings are required.*

OFR applies, eg if answer to (i) is $7, then CS: $12.5 million PS: $15 million.

(e) (i) Using **Figure 7**, identify the equilibrium quantity being consumed following the imposition of the tariff. **[1]**

Quantity = 6.5 million kilograms (million kgs) ***OR*** 6.5 *is sufficient for **[1]**.*

***NB** Superfluous units may be ignored.*

(ii) Using **Figure 7**, calculate the revenue received by the government as a result of the imposition of the tariff in Country B. **[2]**

1.5 (6.5 – 3.75)

*Any valid working is sufficient for **[1]**.*

= $4.125 million ***OR*** $4.13 million

***NB** Either answer is acceptable for **[1]**.*

*An answer of 4.125 or 4.13 without workings is sufficient for **[1]**.*

For full marks to be awarded, the response must provide valid working with correct units. However, superfluous units may be ignored.

(iii) Using **Figure 7**, calculate the change in consumer surplus as a result of Country B imposing the tariff. **[2]**

– 0.5 (6.5 + 8) x 1.5 ***OR*** 21.125 – 32

An*y valid working is sufficient for **[1]***

= – $10.875 million

OR

– $10.88 million

NB *Either answer is acceptable.*

An answer of a decrease of 10.875 *or* 10.88 *without workings is sufficient for **[1]**.*

OFR applies. *If answer to (d)(i) is $7, then*
0.5 (6.5 + 5) x 1.5 = $8.625 million ***OR*** *21.125 - 12.5 = $8.625 million*

OFR also applies, if the initial CS is calculated incorrectly in (d)(ii).

For full marks to be awarded, the response must provide valid working with correct units. However, superfluous units may be ignored.

NB *If a candidate is penalized by **[1]** for missing units and missing negative sign, then they should not be penalized again in (e)(iv) for missing units.*

(iv) Using **Figure 7**, calculate the welfare loss as a result of Country B imposing the tariff. **[2]**

0.5 (1.5 X 1.25) + 0.5(1.5 X 1.5)

*Any valid working is sufficient for **[1]**.*

= $2.0625 million ***OR*** $2.06 million

NB *Either answer is acceptable.*

An answer of 2.0625 or 2.06 *without workings is sufficient for **[1].***

For full marks to be awarded, the response must provide valid working with correct units. However, superfluous units may be ignored.

OFR does not apply, since there would be a welfare gain if the answer to (d)(i) were $7.

(f) Explain **two** methods that a government could use to correct a persistent current account deficit. **[4]**

Level		Marks
0	*The work does not meet a standard described by the descriptors below.*	0
1	*The written response is limited.*	1–2
	*For a limited explanation of **one** method, award a maximum of **[1]**. For an accurate explanation of **one** method **OR** a limited explanation of **two** methods award a maximum of **[2]**.* *Methods **may** include:* • expenditure switching policies/discouraging imports/currency depreciation • expenditure reducing policies/contractionary macro policies • supply-side policies.	
2	*The written response is accurate.*	3–4
	*For providing an accurate explanation of **one** method **and** a limited explanation of **one** other method award a maximum of **[3]**. For providing **two** accurate methods, award a maximum of **[4]**.* *Accurate explanations **may** include:* • expenditure switching policies, such as tariffs and non-tariff barriers, which will make imports more expensive / discourage imports, and thus increase net exports OR subsidies which will make exports more competitive and imports less attractive • intervening in the foreign exchange market to weaken (depreciate) its own currency, which will make its imports more expensive and exports cheaper, which should increase net exports • expenditure reducing policies, such as contractionary fiscal or monetary policies to reduce income growth and prices and thus consumption of imports. Lowering prices should also assist exports, which will increase net exports • supply-side policies *eg* deregulation *etc*, to increase competitiveness of domestically produced goods (lower production costs and prices), such as by introducing new technologies and by nurturing a more skilled work force, which will increase net exports. *Any **two** methods which are well explained should be fully rewarded. These may be two separate supply-side policies or two separate expenditure switching policies (but not two types of trade protection) or two separate expenditure reducing policies.*	