

Markscheme

November 2021

Economics

Higher level

Paper 3

14 pages

© International Baccalaureate Organization 2021

All rights reserved. No part of this product may be reproduced in any form or by any electronic or mechanical means, including information storage and retrieval systems, without the prior written permission from the IB. Additionally, the license tied with this product prohibits use of any selected files or extracts from this product. Use by third parties, including but not limited to publishers, private teachers, tutoring or study services, preparatory schools, vendors operating curriculum mapping services or teacher resource digital platforms and app developers, whether fee-covered or not, is prohibited and is a criminal offense.

More information on how to request written permission in the form of a license can be obtained from <https://ibo.org/become-an-ib-school/ib-publishing/licensing/applying-for-a-license/>.

© Organisation du Baccalauréat International 2021

Tous droits réservés. Aucune partie de ce produit ne peut être reproduite sous quelque forme ni par quelque moyen que ce soit, électronique ou mécanique, y compris des systèmes de stockage et de récupération d'informations, sans l'autorisation écrite préalable de l'IB. De plus, la licence associée à ce produit interdit toute utilisation de tout fichier ou extrait sélectionné dans ce produit. L'utilisation par des tiers, y compris, sans toutefois s'y limiter, des éditeurs, des professeurs particuliers, des services de tutorat ou d'aide aux études, des établissements de préparation à l'enseignement supérieur, des fournisseurs de services de planification des programmes d'études, des gestionnaires de plateformes pédagogiques en ligne, et des développeurs d'applications, moyennant paiement ou non, est interdite et constitue une infraction pénale.

Pour plus d'informations sur la procédure à suivre pour obtenir une autorisation écrite sous la forme d'une licence, rendez-vous à l'adresse <https://ibo.org/become-an-ib-school/ib-publishing/licensing/applying-for-a-license/>.

© Organización del Bachillerato Internacional, 2021

Todos los derechos reservados. No se podrá reproducir ninguna parte de este producto de ninguna forma ni por ningún medio electrónico o mecánico, incluidos los sistemas de almacenamiento y recuperación de información, sin la previa autorización por escrito del IB. Además, la licencia vinculada a este producto prohíbe el uso de todo archivo o fragmento seleccionado de este producto. El uso por parte de terceros —lo que incluye, a título enunciativo, editoriales, profesores particulares, servicios de apoyo académico o ayuda para el estudio, colegios preparatorios, desarrolladores de aplicaciones y entidades que presten servicios de planificación curricular u ofrezcan recursos para docentes mediante plataformas digitales—, ya sea incluido en tasas o no, está prohibido y constituye un delito.

En este enlace encontrará más información sobre cómo solicitar una autorización por escrito en forma de licencia: <https://ibo.org/become-an-ib-school/ib-publishing/licensing/applying-for-a-license/>.

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.

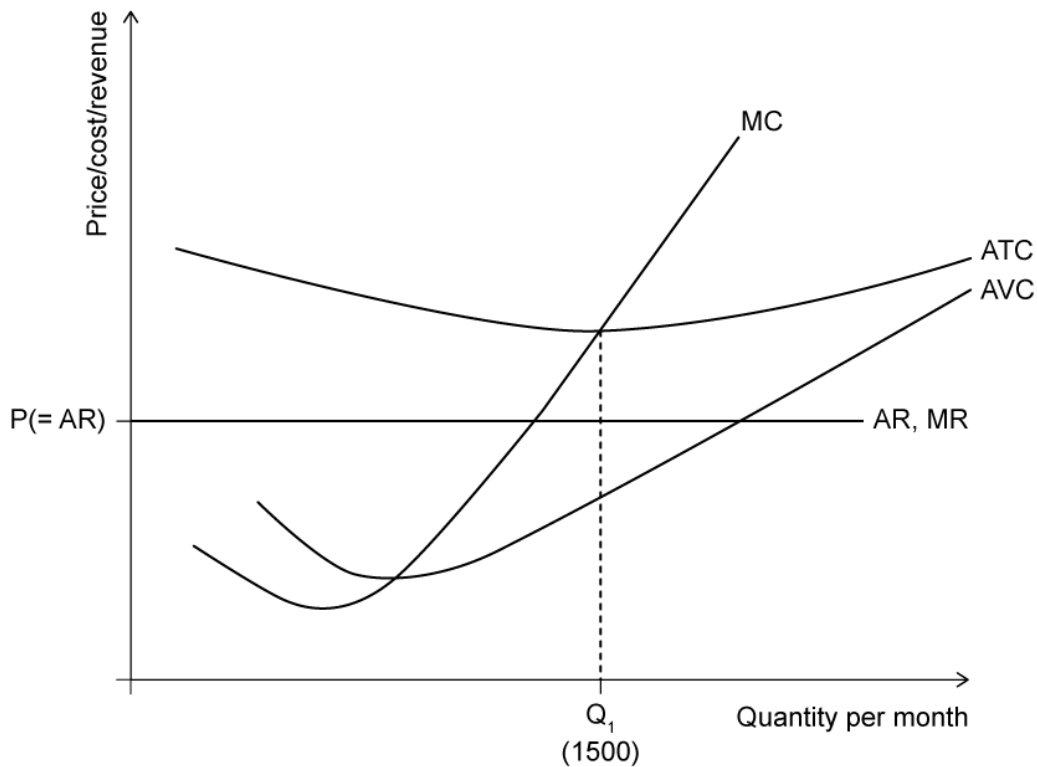
The requirement for answers being given to two decimal places only applies to non-terminating decimals. An accurate decimal answer is acceptable eg 2.0625 equals 33/16 exactly, so either 2.06 or 2.0625 should be rewarded.

Whenever relevant, carry over marks should 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. OFR may be awarded within a question part but this generally applies to parts worth 3 or 4 marks only. In such cases the markscheme will specify whether OFR will apply.

1. (a) Using the data in **Table 1**, state the reason why Firm A is operating in a perfectly competitive market. [1]

An answer which indicates that $MR = P$ or $AR = MR$ or that the demand curve faced by the firm is horizontal/perfectly elastic is sufficient for [1].

- (b) On the following diagram, label Firm A’s cost curves. The use of figures provided in Table 1 is **not** required. [3]



ATC accurately labelled [1]

AVC accurately labelled [1]

MC accurately labelled [1]

(c) Using the figures in **Table 1** or the diagram in part (b),

- (i) determine whether Firm A is productively (technically) efficient. You must give a reason for your choice.

[2]

Level		Marks
0	<i>The work does not reach a standard described by the descriptors below.</i>	0
1	<i>Correct answer with incorrect reasoning.</i> The firm is productively efficient.	1
2	<i>Accurate answer.</i> Since $ATC = MC$ OR (from diagram) ATC is at its minimum (so the firm is productively efficient).	2

- (ii) determine whether Firm A is allocatively efficient. You must give a reason for your choice.

[2]

Level		Marks
0	<i>The work does not reach a standard described by the descriptors below.</i>	0
1	<i>Correct answer with no or with incorrect reasoning.</i> The firm is not allocatively efficient.	1
2	<i>Accurate answer.</i> Since $AR(P)$ is not equal to MC , the firm is not allocatively efficient.	2

- (iii) determine whether Firm A is producing at the profit-maximizing (loss-minimizing) level of output. You must give a reason for your choice.

[2]

Level		Marks
0	<i>The work does not reach a standard described by the descriptors below.</i>	0
1	<i>Correct answer with no or with incorrect reasoning.</i> The firm is not producing at the profit maximizing (loss minimizing) level of output.	1
2	<i>Accurate answer.</i> Since MR is different from MC , the firm is not producing at the profit maximizing (loss minimizing) level of output.	2

- (d) Using **Table 1**, calculate the monthly profit or loss Firm A is making at the current level of output, Q_1 . [2]

$$TR = 30 \times 1500 = 45\,000$$

$$TC = 32 \times 1500 = 48\,000$$

Any valid working is sufficient for [1].

$$\pi = 45\,000 - 48\,000$$

$$= -\$3000$$

An answer of $-\$3000$ or 3000 without any valid working is sufficient for [1].

NB alternative calculation, which should be fully rewarded:

$$\pi = (AR - ATC)Q = (30 - 32)1500 = -\$3000$$

- (e) Using **Table 1**, calculate the total fixed costs incurred by Firm A at the current level of output, Q_1 . [2]

$$AFC = 32 - 28 = 4$$

Any valid working is sufficient for [1].

$$FC = AFC \times Q = 4 \times 1500$$

$$= \$6000$$

An answer of $\$6000$ or 6000 without any valid working is sufficient for [1].

- (f) Using your answer to part (e), calculate the average fixed costs if Firm A produces 2000 units of output per month instead of Q_1 units. [1]

$$\frac{6000}{2000} = 3$$

An answer of $\$3.00$ or 3 is sufficient for [1].

OFR applies.

(g) List **two** assumptions of the perfect competition model. [2]

Level		Marks
0	<i>The work does not meet a standard described by the descriptors below.</i>	0
1	<i>Limited response</i> For one assumption.	1
2	<i>Accurate response</i> For two assumptions. Assumptions: <ul style="list-style-type: none"> • large number of firms • a homogenous product • freedom of entry and exit (or no barriers) • perfect information • perfect factor mobility. 	2

(h) Explain why a loss-making perfectly competitive firm will shut down in the long run but may not shut down in the short run. [4]

Level		Marks
0	<i>The work does not reach a standard described by the descriptors below.</i>	0
1	<i>The written response is limited.</i> If a firm is making economic losses in the long run, it is not earning normal profits (or is not earning enough to stay in business). Award [1] if the answer refers <i>only</i> to factors not being fixed in the long run. OR if it is making losses in the short run, it may not shut down because its revenue may cover its variable costs and thus is able to make a contribution to its fixed costs. <i>An alternative response should clearly show that, as a result of fixed costs, the firm makes smaller losses by continuing to operate instead of shutting down.</i>	1–2
2	<i>The written response is accurate.</i> If a firm is making economic losses in the long run, it is not earning normal profits (or is not earning enough to stay in business). Award [1] if the answer refers <i>only</i> to factors not being fixed in the long run. AND if it is making losses in the short run, it may not shut down because its revenue may cover its variable costs and thus is able to make a contribution to its fixed costs. <i>An alternative response should clearly show that, as a result of fixed costs, the firm makes smaller losses by continuing to operate instead of shutting down.</i>	3–4

- (i) Explain why in the long run economic losses cannot persist in a perfectly competitive market.

[4]

Level		Marks
0	<i>The work does not reach a standard described by the descriptors below.</i>	0
1	<i>The written response is limited.</i> For the idea that losses will force some firms to exit the industry, so losses cannot persist.	1–2
2	<i>The written response is accurate.</i> For an explanation that in the long run losses will force some firms to exit the industry [1]; as a result, the market supply will decrease and/or shift to the left [1]; the market price will then start to rise [1]; exit of firms will continue until firms earn zero economic profits/normal profits or losses are eliminated [1].	3–4

2. (a) Using the data in **Table 2**, calculate factor income sent (paid) abroad in 2019.

[2]

$$\text{Factor income sent (paid) abroad} = 1098 + 68 - 982$$

Any valid working is sufficient for [1].

$$= \$184 \text{ billion}$$

An answer of \$184 billion or 184 without any valid working is sufficient for [1].

- (b) If the government increased expenditures by K\$21 billion, calculate the new level of GDP achieved.

[3]

$$\text{multiplier} = \frac{1}{1 - 0.6} = \frac{1}{0.1 + 0.21 + 0.09} = 2.5$$

Identification of the value of the multiplier = 2.5 is sufficient for [1].

$$\Delta Y = 2.5 \times 21 = 52.5$$

Any valid working is sufficient for [1].

$$Y_2 = 455 + 52.5$$

$$= \$507.5 \text{ billion}$$

An answer of \$507.5 without any valid working is sufficient for [1].

*OFR applies if the multiplier is calculated incorrectly and the resulting incorrect number is applied **correctly** to calculate the new level of GDP.*

(c) Explain **two** possible positive consequences of economic growth in Kanyaland. **[4]**

Level		Marks
0	<i>The work does not reach a standard described by the descriptors below.</i>	0
1	<i>The written response is limited.</i>	1-2
	For a limited explanation of one possible positive consequence, award a maximum of [1] . For an accurate explanation of one possible positive consequence OR a limited explanation of two possible positive consequences, award a maximum of [2] .	
2	<i>The written response is accurate.</i>	3-4
	For providing an accurate explanation of one possible consequence AND a limited explanation of one other possible consequence, award a maximum of [3] . For providing two accurate possible consequences, award a maximum of [4] . <i>Accurate explanations may include:</i> <ul style="list-style-type: none"> • Economic growth would lead to an increase in living standards, because growth tends to increase people’s incomes and/or leisure time. • Economic growth would decrease unemployment, because firms will need to hire more workers to increase output. • Economic growth could possibly decrease inequality in the distribution of income, because people who were unemployed will be finding jobs or because the government could embark on redistribution policies. • More resources become available to adopt cleaner technologies or there is more demand for a cleaner environment. • Higher tax revenue (as incomes and profits grow) provides more scope for government spending/repayment of debt. • If the growth is caused by an increase in LRAS, then inflationary pressure is lower/exports are more competitive. • Any other accurate explanation of a possible positive consequence 	

(d) In many developing countries GNI figures are lower than GDP figures. Outline how this may be due to the high levels of foreign direct investment in developing countries. **[2]**

Level		Marks
0	<i>The work does not meet a standard described by the descriptors below.</i>	0
1	<i>Limited understanding.</i>	1
	The idea that net income from abroad is negative.	
2	<i>Clear understanding.</i>	2
	High (inward) FDI means substantial outflows of factor income (profits, interest, rent) causing net income from abroad to be negative.	

- (e) Kanyaland specializes in and exports a narrow range of agricultural products. Outline **one** negative consequence of this strategy to achieve economic growth.

[2]

Level		Marks
0	<i>The work does not meet a standard described by the descriptors below.</i>	0
1	<i>Limited understanding.</i>	1
	A valid but vaguely outlined consequence	
2	<i>Clear understanding.</i>	2
	A valid clearly outlined consequence <i>Negative consequences may include:</i> <ul style="list-style-type: none"> • Prices of agricultural products fluctuate and thus lead to volatility of export earnings and national income. • Income elasticity of demand for many such farm exports is often low so as incomes in advanced economies grow, demand for these exports grows more slowly. • The terms of trade for the economy could deteriorate, so the country needs to export a greater volume in order to finance required imports. • Specialization in a narrow range of agricultural products implies that the economy does not diversify into higher value-added manufactured goods / becomes vulnerable to external demand shocks or supply chain problems or to trade protection policies imposed by foreign governments. • Any other valid negative consequence. 	

- (f) Explain how unemployment benefits and progressive taxation may help decrease economic fluctuations in Kanyaland.

[4]

Level		Marks
0	<i>The work does not meet a standard described by the descriptors below.</i>	0
1	<i>The written response is limited.</i>	1–2
	For a limited explanation of one stabilizer, award a maximum of [1] . For an accurate explanation of one stabilizer OR a limited explanation of two stabilizers, award a maximum of [2] .	
2	<i>The written response is accurate.</i>	3–4
	For providing an accurate explanation of one stabilizer AND a limited explanation of one other stabilizer, award a maximum of [3] . For providing two accurate explanations, award a maximum of [4] . <i>Accurate explanations include:</i> <ul style="list-style-type: none"> • When an economy enters recession and workers become unemployed, they (automatically) receive unemployment benefits. Their (disposable income and thus) consumption expenditures do not decrease as much, so AD and national income do not decrease as much. • As incomes are rising during an expansion, income tax revenues collected rise faster. Thus, (disposable incomes and) consumption expenditures rise more slowly, so the increase in AD is slower than otherwise and national income does not increase as much, reducing inflationary pressures. <p><i>A response which does not refer to both an upswing and a downswing may be awarded [3] only.</i></p>	

- (g) Using **Table 3**, calculate the rate of inflation in 2017 **and** in 2018. **[2]**

$$2017: \frac{174.2 - 176.3}{176.3} \times 100 = -1.19\%$$

$$2018: \frac{172.9 - 174.2}{174.2} \times 100 = -0.75\%$$

Award [1] for each correct answer.

No workings are necessary. The % sign is not necessary.

- (h) With reference to the CPI data in **Table 3**, describe the most likely monetary policy response adopted at the end of 2018 by the central bank of Kanyaland. **[1]**

Any answer which refers to easy (expansionary) monetary policy or an increase in the money supply or a decrease in interest rates is sufficient for [1].

- (i) Using **Table 4**, identify the marginal tax rate for Rufus. **[1]**

For an answer of 0.26 or 26% award [1].

- (j) Using **Table 4**, calculate the average tax rate for Sammy. **[2]**

$$(0.22 \times 20\,000) + (0.26 \times 10\,000) + (0.30 \times 8\,000) + (0.34 \times 8\,000) = 12\,120$$

Valid working (ie three of the four in parentheses correct) is sufficient for [1].

$$ATR = \frac{12\,120}{46\,000} \times 100 = 26.35\%$$

$$\text{OR } ATR = \frac{12\,120}{46\,000} = 0.26$$

An answer of 26.35 or 0.26 without any valid working is sufficient for [1].

- (k) The Gini coefficient in Kanyaland changed from 0.35 in 2010 to 0.52 in 2020. Outline what this change indicates for the economy. **[2]**

Level		Marks
0	<i>The work does not meet a standard described by the descriptors below.</i>	0
1	<i>Limited understanding.</i>	1
	For outlining that the Gini coefficient indicates income inequality OR that income inequality has increased.	
2	<i>Clear understanding.</i>	2
	For outlining that the Gini coefficient indicates income inequality AND that a higher Gini coefficient indicates that income inequality in the economy has increased. <i>Reference to equity should also be accepted.</i>	

3. (a) Distinguish between credit and debit items in the balance of payments. [2]

Level		Marks
0	<i>The work does not meet a standard described by the descriptors below.</i>	0
1	<i>Limited understanding.</i>	1
	The idea that the distinction relates to inflows and outflows of currency.	
2	<i>Clear understanding.</i>	2
	A credit item represents an inflow of currency (+ve item) into the account/country, whereas a debit item represents an outflow of currency (-ve item) from the account/country.	

- (b) State **one** example of a debit item from the financial account of the balance of payments. [1]

Correct examples include:

- (net) outward portfolio investment
- (net) outward FDI
- increase in forex reserves
- (net) outflow of "hot money".

OR *examples of any of the above, such as:*

Domestic residents purchasing foreign bonds / setting up a new company abroad or acquiring controlling percentage of shares of a foreign company / the central bank buying foreign currency / domestic residents buying foreign currency.

For any correct example award [1].

- (c) Using **Table 5**, calculate the value of net current transfers for Laylaland in 2020. [1]

$$539 - 1397 = -858$$

An answer of -\$858 million or -858 is sufficient for [1].

- (d) Using **Table 5**, calculate the net exports of goods and services for Laylaland in 2020. [2]

$$NX + \text{Net Income} + \text{Net Current Transfers} = -1865$$

$$(\text{Net Income} = 412 - 1075 = -663)$$

$$NX = 663 + 858 - 1865$$

Any valid working is sufficient for [1]. Valid working may constitute identifying the three figures (663, 858, 1865) regardless of their +/- signs.

$$NX = -\$344 \text{ million}$$

An answer of -\$344 without any valid working is sufficient for [1].

OFR applies if current transfers have been calculated incorrectly in part (c).

(e) Explain **two** methods that Laylaland’s government could use to correct the current account deficit.

[4]

Level		Marks
0	<i>The work does not meet a standard described by the descriptors below.</i>	0
1	<i>The written response is limited.</i>	1–2
	<p>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].</p> <p><i>Methods may include:</i></p> <ul style="list-style-type: none"> • expenditure switching policies/discouraging imports/ currency depreciation • expenditure reducing policies/contractionary macro policies • supply-side policies. 	
2	<i>The written response is accurate.</i>	3–4
	<p>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].</p> <p><i>Accurate explanations may include:</i></p> <ul style="list-style-type: none"> • expenditure switching policies: trade barriers/protection (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 • weakening (depreciating) 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, 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. <p><i>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.</i></p>	

- (f) List **two** administrative barriers that Nofiberland could have used to limit imports of chia seeds.

[2]

Level		Marks
0	<i>The work does not meet a standard described by the descriptors below.</i>	0
1	<i>Limited response</i> For one relevant barrier.	1
2	<i>Accurate response</i> For two relevant barriers. Barriers may include: <ul style="list-style-type: none"> • safety related regulations • health standards • increased red tape (bureaucracy) • specific packaging requirements • any other reasonable response. 	2

- (g) Calculate the price elasticity of demand for chia seeds in Nofiberland following the imposition of the tariff.

[2]

$$PED = \frac{29 - 35}{\frac{35}{21 - 15}} \cdot \frac{15}{15}$$

Any valid working (correct %Δ Qd(X) or %Δ P(X), provided the formula is not inverted) is sufficient for [1]. However, simply stating the correct % (eg a denominator of 40%) is not sufficient.

$$PED = 0.43 \text{ or } -0.43 \text{ or } -\frac{3}{7}$$

An answer of 0.43 or -0.43, without any valid working is sufficient for [1].

If a % sign is used in the final answer, a maximum of [1] may be awarded.

- (h) Calculate the change in consumer expenditure on imported chia seeds in Nofiberland resulting from the imposition of the tariff.

[2]

$$(21 \times 22) - (15 \times 31) = 462 - 465$$

Any valid working is sufficient for [1].

$$= -\$3 \text{ million}$$

An answer of -\\$3 million or 3 without any valid working is sufficient for [1].

- (i) Calculate the total welfare loss resulting from the imposition of the tariff on chia seeds. [2]

$$\left(\frac{3 \times 6}{2} + \frac{6 \times 6}{2} \right)$$

Any valid working is sufficient for [1]. If the response provides a correct calculation of **one** relevant triangle, then [1] may be awarded.

= \$27 million

An answer of \$27 million or 27 without any valid working is sufficient for [1].

- (j) Outline **one** reason why the imposition of the tariff would lead to a welfare loss. [2]

Level		Marks
0	The work does not meet a standard described by the descriptors below.	0
1	Limited understanding.	1
	Because it leads to misallocation of resources OR the sum of CS plus PS is not being maximized OR there is a loss in CS/consumers pay a higher price/quantity consumed decreases.	
2	Clear understanding.	2
	Because chia seeds that could have been imported at a lower cost are produced domestically OR because domestic firms would produce more inefficiently than foreign firms OR chia seeds that are worth more than the cost of importing them are not being consumed OR because the loss in CS outweighs the gain in PS and tax revenue.	

- (k) Describe the impact of the rise in demand for quinoa on the terms of trade of Proteinland. [1]

For stating that the terms of trade have improved/risen/increased or that there has been a favourable movement [1].

- (l) Explain how the increase in world demand for quinoa would likely affect the current account balance of Proteinland. [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 the idea that the current account balance would improve because of increased (net) exports.	
2	The written response is accurate.	3–4
	For providing an accurate explanation that the increase in demand would increase the price of quinoa [1] and increase (the quantity of) exports [1], which would increase the export revenue [1] and improve the current account balance (a deficit would decrease, or a surplus would increase) [1]. NB A response which refers to PED/decrease in quantity may be awarded a maximum of [3].	