



MARKSCHEME

November 2013

ECONOMICS

Higher Level


Paper 3

17 pages

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Notes for examiners:

1. 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. To do this you will need to use the on-page comment annotation tool ().
2. Alternative approaches may be taken in responses to the [4 mark] questions that use A02 command terms. If this is the case and the alternative approaches are valid, then full credit should be given.

1. (a) Outline one reason why

(i) the price elasticity of demand figures are negative; [2]

Level	Marks
0 <i>The work does not reach a standard described by the descriptors below.</i>	0
1 <i>There is a limited understanding.</i> As price increases, the quantity demanded decreases and vice versa	1
2 <i>There is a clear understanding.</i>	2

As price increases, the quantity demanded decreases and vice versa; there is a negative relationship between price and quantity demanded because if price increases the willingness and ability to purchase the good decreases.

N.B. For [2 marks], the candidate should refer to the relationship between P and Q and ONE of the following

- State that there is an inverse / negative relationship, OR
- Outline the *reason* for the negative relationship (*ie* Law of Demand) OR
- Use refer to the formula to illustrate the relationship

Alternatively, fully reward an account that PED is the ratio of changes in price and quantity demanded which move in opposite directions so one change will be positive and the other one negative resulting in a negative figure.

(ii) the income elasticity of demand figures are positive. [2]

Level	Marks
0 <i>The work does not reach a standard described by the descriptors below.</i>	0
1 <i>There is a limited understanding.</i> As incomes rise, quantity demanded rises.	1
2 <i>There is a clear understanding.</i>	2

As incomes rise, quantity demanded rises; as incomes rise households are more willing and able to purchase goods; the goods in the table are normal goods.

Reference to either normal goods or “ability to purchase” is sufficient for the 2nd mark.

Alternatively, fully reward an account that YED is the ratio of changes in income and quantity demanded which in this case move in the same direction so if one change is positive then the other change is also positive resulting in a positive figure.

(b) Using the price elasticity of demand data in the table

- (i) calculate the percentage change in quantity demanded for clothing and footwear if the price of clothing and footwear rises by 6 %;** [2]

$$-0.71 = \frac{\% \text{ change in } Q_D}{6}$$

$$-0.71 \times 6$$
 [1]

Any valid working is sufficient for [1 mark].

$$= -4.26$$
 [1]

- (ii) calculate the percentage change in the price of house furnishings that can lead to a 2 % fall in quantity demanded of house furnishings;** [2]

$$-0.77 = \frac{-2}{\% \text{ change in price}}$$

$$\frac{-2}{-0.77}$$
 [1]

Any valid working is sufficient for [1 mark].

$$= 2.60$$
 [1]

- (iii) describe what might happen to the revenues of food and beverages firms as the price of food and beverages increases.** [2]

Level	Marks
0 <i>The work does not reach a standard described by the descriptors below.</i>	0
1 <i>There is a limited understanding.</i> As the price of food and beverages increases the revenue of food and beverages firms increases because demand is price inelastic.	1
2 <i>There is a clear understanding.</i> As the price of food and beverages increases the revenue of food and beverages firms increases because demand is price inelastic so the increase in price leads to a proportionately smaller decrease in quantity demanded.	2

- (c) **The cross price elasticity between housing and house furnishing was estimated to be equal to –0.4. Using this cross price elasticity data, explain the possible impact that an increase in house prices might have on the demand for house furnishing.** [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> As the price of houses increases the demand for house furnishings will decrease as they are complementary goods.	1–2
2 <i>The written response is accurate.</i> As the price of houses increases the demand for house furnishings will decrease as they are complementary goods. As houses become more expensive, fewer will be bought and thus fewer house furnishings will be needed. As the price of houses increases the demand for house furnishing will decrease by a smaller percentage.	3–4

- (d) **Using the income elasticity of demand data in the table**

- (i) **calculate the percentage change in quantity demanded for housing if household incomes rise by 4 %;** [2]

$$+1.07 = \frac{\% \text{ change in } Q_D}{+4\%}$$

$$1.07 \times 4$$

Any valid working is sufficient for [1 mark].

$$= 4.28$$

- (ii) **calculate the percentage change in household incomes that can lead to a 5 % rise in quantity demanded of recreation.** [2]

$$= 1.41 = \frac{5}{\% \text{ change in income}}$$

$$\frac{5}{1.41}$$

Any valid working is sufficient for [1 mark].

$$= 3.55$$

- (e) (i) **Calculate the amount the average Argentinean household currently spends on health care.** [1]
 $0.09 \times 11132 = \$1001.88$ [1]
- (ii) **Calculate the forecasted average Argentinean household income for 2015.** [2]
 11132×1.27 [1]
Any valid working is sufficient for [1 mark].
 $\$14137.64$ [1]
- (iii) **As a result of the forecasted average Argentinean household income for 2015, calculated in part (ii), explain what you would expect to happen to the proportion of income Argentinean households spend on health care.** [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> Spending on health care will increase as income elasticity of demand is positive.	1-2
2 <i>The written response is accurate.</i> Income elasticity of demand for health care is greater than 1 (it is 1.31) which means the demand for health care rises faster than income as income rises; as a result households will be spending a higher proportion of their income on health care over time.	3-4

Candidates who correctly calculate that the percentage of income spent on healthcare will increase from 9% to 9.59% (but do not provide any explanation) may be rewarded with a maximum of 2 marks.

2. (a) Outline the difference between fixed and variable costs of production. [2]

Level		Marks
0	<i>The work does not reach a standard described by the descriptors below.</i>	0
1	<i>There is a limited understanding.</i> Variable costs change but fixed costs do not change.	1
2	<i>There is a clear understanding.</i>	2

Variable costs change with output while fixed costs do not change with output.

An alternative response which state that fixed costs can be avoided whereas variable costs cannot should be fully rewarded.

(b) (i) Using the data in the table below, determine the marginal product for the different quantities of labour employed and complete the marginal product column in the table. [2]

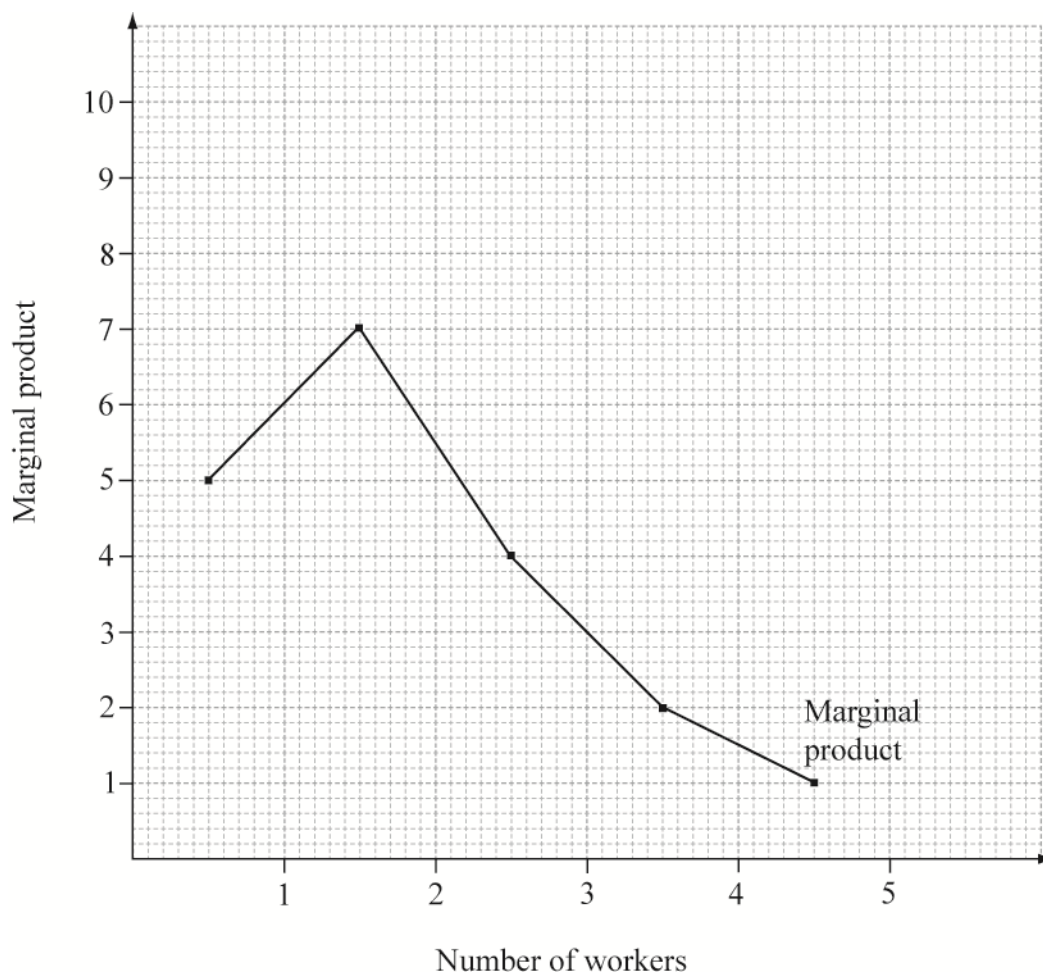
Labour input	Total product	Marginal product
0	0	–
		5
1	5	
		7
2	12	
		4
3	16	
		2
4	18	
		1
5	19	

For a correct marginal product column. [2]

Answers need not be written in the rows between output figures but could be written in the same row as the output figures.

Deduct [1 mark] for each incorrect figure.

- (ii) Using the data in the table in part (b)(i), draw a graph to show the relationship between marginal product and labour input. The axes and curve must be labelled. [2]



For a correctly drawn graph (a smooth curve is also acceptable) [1]

For correct labelling. [1]

The vertical axis may be labelled Marginal Product, MP, output, quantity

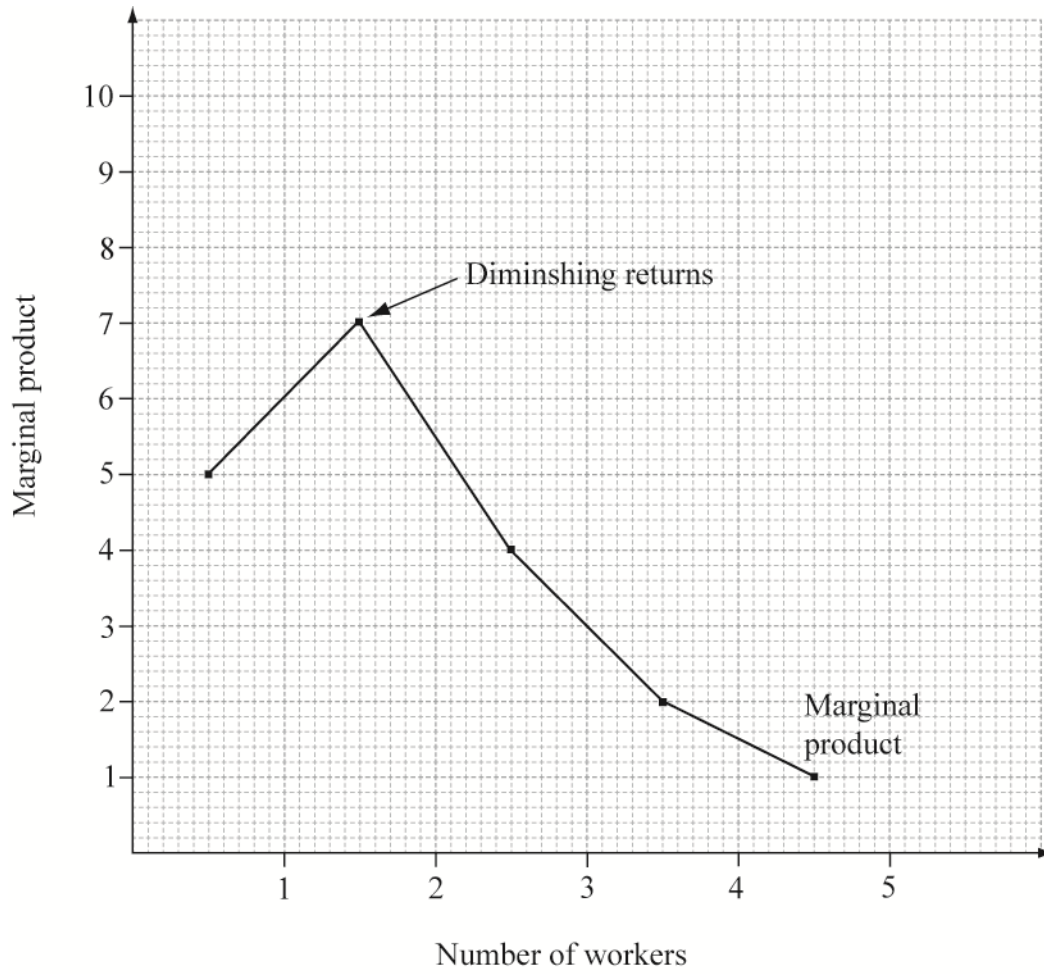
The horizontal axis may be labelled number of workers, labour or quantity, labour, L or Q_L

For correctly identifying the point. [1]

The MP points may be located either directly above or between the units of workers on the horizontal axis (per the data entry in the table on page 8)

Any point which indicates that diminishing marginal returns set in with the introduction of the 3rd worker should be rewarded (either at the apex or to the right of the apex); note that the point may also be indicated accordingly on the horizontal axis.

(iii) On the graph above identify the point where diminishing returns set in. [1]



- (c) (i) **State the equation used to calculate average total cost; marginal cost.**

[2]

average total cost:

$$ATC = \frac{TC}{Q}$$

For correctly stating the equation for ATC.

[1]

marginal cost:

$$MC = \frac{\text{change in TC}}{\text{change in output}}$$

For correctly stating the equation for MC.

[1]

- (ii) **Using the data in the table, determine the marginal cost and average total cost figures for the different quantities of total product and complete the marginal cost and average total cost columns in the table.**

[4]

Labour input	Total product	Total cost (in USD)	Marginal cost (in USD)	Average total cost (in USD)
0	0	56	–	–
			4.8	
1	5	80		16
			3.43	
2	12	104		8.67
			6	
3	16	128		8
			12	
4	18	152		8.44
			24	
5	19	176		9.26

For a correct marginal cost column.

[2]

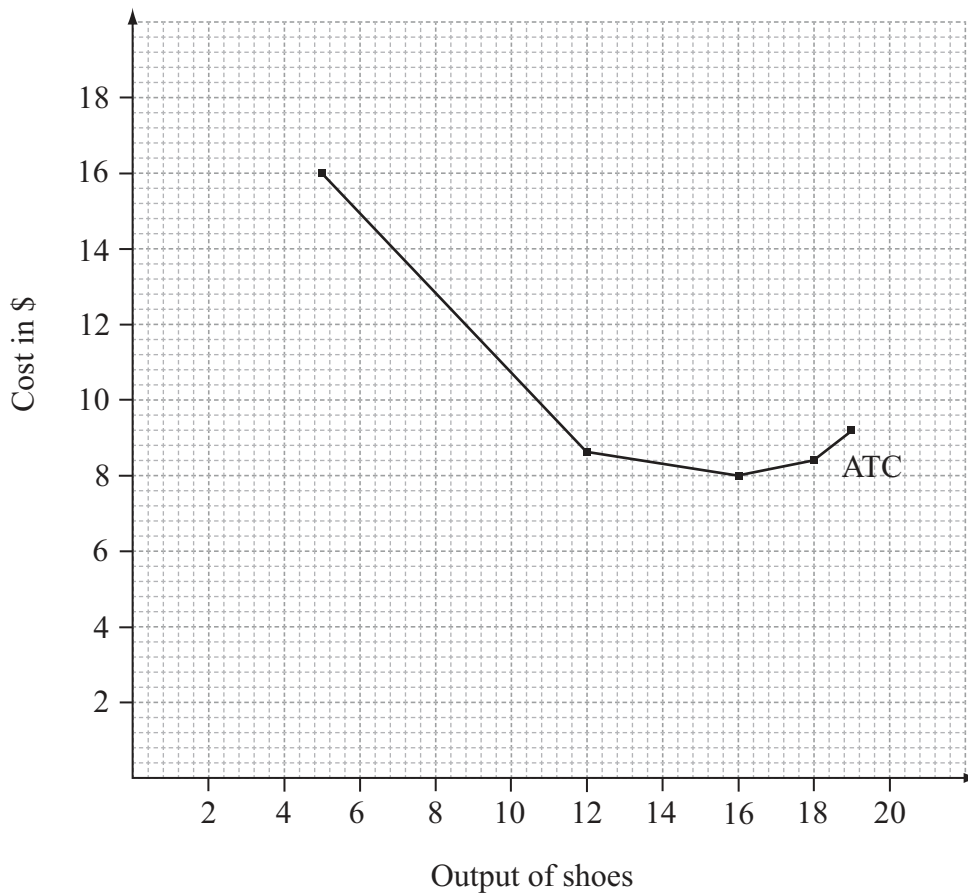
Deduct [1 mark], up to a maximum of [2 marks], for each error in the marginal cost column.

For a correct average total cost column.

[2]

Deduct [1 mark], up to a maximum of [2 marks], for each error in the average total cost column.

- (iii) Using the data in the table in part (c)(ii), draw a graph to show the firm's average total cost curve. The axes and curve must be labelled. [2]



- For a correct ATC curve. (a smooth curve is also acceptable) [1]
 For correctly labelling the ATC curve and the axes. [1]
 Horizontal axis may be output or quantity (of shoes); vertical axis may be costs, average (total) costs, \$.

- (iv) Define the term *productive efficiency*. [2]

Level	Marks
0 <i>Wrong definition</i>	0
1 <i>Vague definition</i> The idea that it is where a firm's cost are as low as possible.	1
2 <i>Precise definition</i> An explanation that productive efficiency is where a firm produces at the lowest unit or average total cost (or where MC equals ATC).	2

(d) Explain how the law of diminishing returns affects this firm’s marginal costs. [4]

Level Marks

0 *The work does not reach a standard described by the descriptors below.* **0**

1 *The written response is limited.* **1–2**
For stating if marginal product decreases then marginal costs increase and vice versa.

2 *The written response is accurate.* **3–4**

For stating that if marginal product decreases then marginal costs increase and vice versa AND for explaining that as diminishing returns set in, then for a given increase in the variable input (labour) the resulting increase in output becomes smaller. As a result, the additional cost of one more unit of output (the marginal cost) will begin to increase.

A response that correctly explains the above via use of equations should be fully rewarded.

(e) Explain *one* possible source of economies of scale that this firm might benefit from if it increases its scale of production. [4]

Level Marks

0 *The work does not reach a standard described by the descriptors below.* **0**

1 *The written response is limited.* **1–2**
For stating a correct source of economies of scale (*eg* technical, commercial, financial, managerial) with a vague explanation.

2 *The written response is accurate.* **3–4**

For an explanation of one economy of scale. This might include: technical, commercial, financial, managerial or any other valid type. For example, in the case of bulk buying of inputs a lower price may be secured. As a result the cost per unit (average cost) of output falls.

3. (a) Define the term *expenditure approach*. [2]

Level	Marks
0 <i>Wrong definition</i>	0
1 <i>Vague definition</i> The idea that it a method of calculating GDP based on total spending in the economy.	1
2 <i>Precise definition</i> An explanation that it is a method used to calculate GDP by summing total spending on domestic output in an economy OR that it is a method of calculating GDP based on summing consumption, investment, government expenditure and net exports (<i>ie</i> C + I + G + X - M).	2

(b) (i) Using the data in Table 1, calculate the nominal GDP in 2009 and 2010 for the South Korean economy. [2]

$$C + I + G + X - M = \text{GDP}$$

2009: $386 + 205 + 89 + 412 - 334 = \758 Billion [1]
2010: $408 + 223 + 93 + 448 - 356 = \816 Billion [1]

(ii) Using the GDP deflator, calculate the real GDP for South Korea for 2009 and 2010. [2]

2009: $\frac{\$758 \text{ Billion}}{97} \times 100 = \781.44 Billion [1]
2010: $\frac{\$816 \text{ Billion}}{100} \times 100 = \816 Billion [1]

(iii) Calculate the real economic growth rate for the South Korean economy for 2009 to 2010. [2]

$$816 - 781.44 = 34.56$$

$$\frac{34.56}{781.44} = 0.0442$$

$$0.0442 \times 100$$

Any valid working is sufficient for [1 mark].

$$= 4.42\%$$

OFR applies [1]

(iv) Describe the relative growth performance of the South Korean economy in 2010 compared with OECD countries. [2]

Level	Marks
0 <i>The work does not reach a standard described by the descriptors below.</i>	0
1 <i>There is a limited understanding.</i> For identifying that the South Korean economy is growing faster in 2010 than the OECD average.	1
2 <i>There is a clear understanding.</i>	2

For identifying that the South Korean economy is growing faster in 2010 than the OECD average. The South Korean growth performance of 4.42 % is higher than the 2.9 % average growth rate of the OECD countries. Some (implied) reference to the data is necessary.

(c) (i) Using the data in Table 2, calculate the value of the Keynesian multiplier in South Korea. [2]

$$\frac{1}{(MPS + MPT + MPM)}$$

$$\frac{1}{0.3 + 0.3 + 0.2} \quad [1]$$

Any valid working is sufficient for [1 mark].

$$\frac{1}{0.8} = 1.25 \quad [1]$$

(ii) Using the multiplier calculated in (c)(i), calculate the change in South Korea's real GDP brought about by the rise in its exports from 2009 to 2010. [3]

$$\text{Change in exports} = \$448 \text{ Billion} - \$412 \text{ Billion}$$

$$= \$36 \text{ Billion} \quad [1]$$

$$\$36 \text{ Billion} \times 1.25 \quad [1]$$

Any valid working is sufficient for [1 mark].

$$= \$45 \text{ Billion} \quad [1]$$

OFR applies to final figure

- (iii) On the axes below, draw an appropriate AD/AS diagram and use it to explain the impact on South Korean real GDP of the change in South Korean exports from 2009 to 2010. [4]

Level	Marks
0 <i>The work does not reach a standard described by the descriptors below.</i>	0
1 <i>There is a correct diagram or an accurate response.</i> For drawing a correctly labelled AD/AS diagram showing an increase in AD and an increase in real GDP or an explanation that as exports increase aggregate demand increases thus leading to an increase in real GDP (or, in real output).	1-2
2 <i>There is a correct diagram and an accurate response.</i> For drawing a correctly labelled AD/AS diagram showing an increase in AD and an increase in real GDP and an explanation that as exports increase aggregate demand increases thus leading to an increase in real GDP (or, in real output).	3-4

For the vertical axis, the labelling could be price level, average price level, PL, APL, CPI or GPL. For the horizontal axis, the labelling could be real GDP, real output, real income or Y. A title is not necessary.

Candidates who incorrectly label diagrams or who do not denote the change in real GDP on the horizontal axis can be awarded a maximum of [3 marks].

(d) (i) **Outline *one* possible reason for the high level of investment in South Korea.** [2]

Level	Marks
0 <i>The work does not reach a standard described by the descriptors below.</i>	0
1 <i>There is a limited understanding.</i> For stating one valid possible reason	1
2 <i>There is a clear understanding.</i> For a brief account of one reason, such as, that low interest rates reduce the cost of borrowing for firms inducing them to borrow more in order to acquire more capital.	2

N.B. A valid reason for high FDI is acceptable

(ii) **Explain *one* supply-side benefit to the South Korean economy of a high rate of investment.** [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 an explanation that investment will increase the quantity and/ or quality of factors of production thus shifting the LRAS (or, Keynesian AS) to the right OR that a rightward shift in the LRAS curve implies an increase in potential output thus enabling higher economic growth (OR rising employment OR lower inflation).	1–2
2 <i>The written response is clear.</i> For an explanation that investment will increase the quantity and/ or quality of factors of production thus shifting the LRAS (or, Keynesian AS) to the right AND that a rightward shift in the LRAS curve implies an increase in potential output thus enabling higher economic growth OR rising employment OR lower inflation.	3–4

N.B. A clear response which does not explicitly refer to the LRAS curve may be fully rewarded.