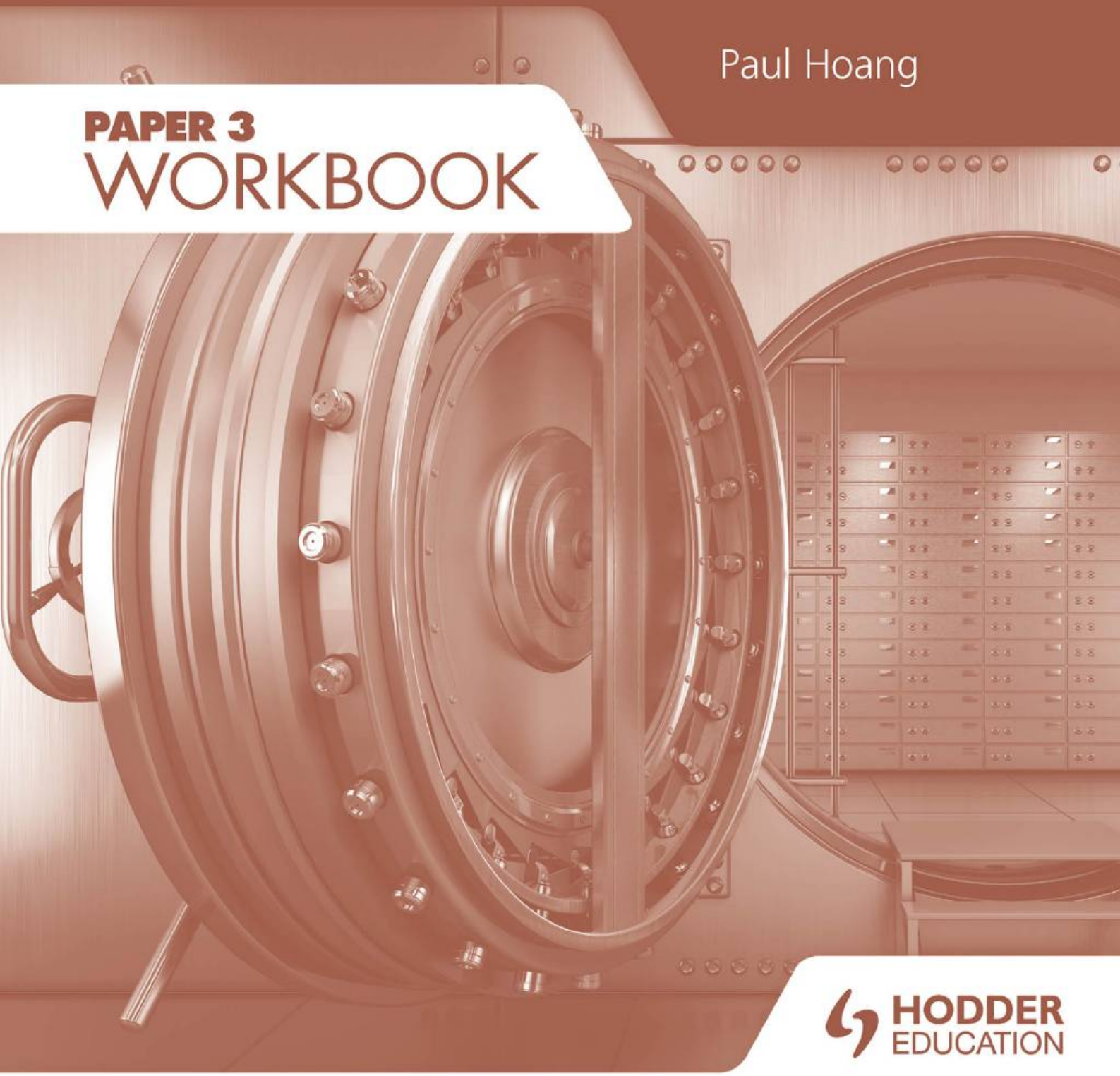
FOR THE
IB DIPLOMA

Economics

Paul Hoang

PAPER 3
WORKBOOK



HODDER
EDUCATION

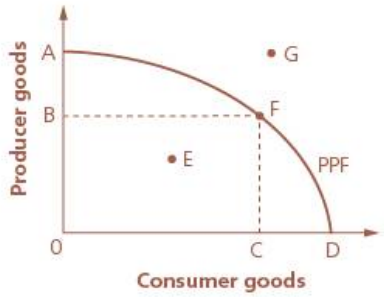
Contents

Note: answers are available free online at www.hoddereducation.com/IBextras

The foundations of economics

1 The diagram below shows the production possibility frontier (PPF) curve for an economy.

a Explain why the PPF curve is drawn as convex to the origin. [2]



b Briefly outline the opportunity cost to the economy if it produces 0C units of consumer goods. [2]

c Explain which of the three points (E, F or G) indicates that the economy could increase output without incurring any opportunity costs. [2]

2 A dentist is currently paid an annual salary of $150,000. She is considering setting up her own dental clinic for which she expects to have potential revenues of $900,000 per year with annual total costs forecast to be $760,000.

a Calculate the accounting profit if the dentist sets up her own clinic. [2]

b Calculate the total economic profit if the dentist sets up her own clinic. [2]

c Outline whether the dentist should, on economic grounds, open her own clinic. [2]

3 Use the data in the table below to calculate the opportunity cost of producing one unit of investment goods in terms of consumption goods. [2]

Consumption goods		Investment goods
85	plus	30
75	plus	35

4 The table below shows the various combinations of producing laptops and televisions for a firm. Calculate the opportunity cost of producing one unit of televisions. [2]

Televisions (units)	Laptops (units)
27,000	81,000
30,000	72,000
33,000	63,000
36,000	54,000

5 The table below shows the production possibilities for a farmer.

a Calculate the opportunity cost to the farmer of producing each extra 1 kg of strawberries. [2]

Strawberries (kg)	Potatoes (kg)
320	860
340	800
360	740
380	680

b Calculate the opportunity cost to the farmer of increasing the production of potatoes from 740 kg to 800 kg. [2]

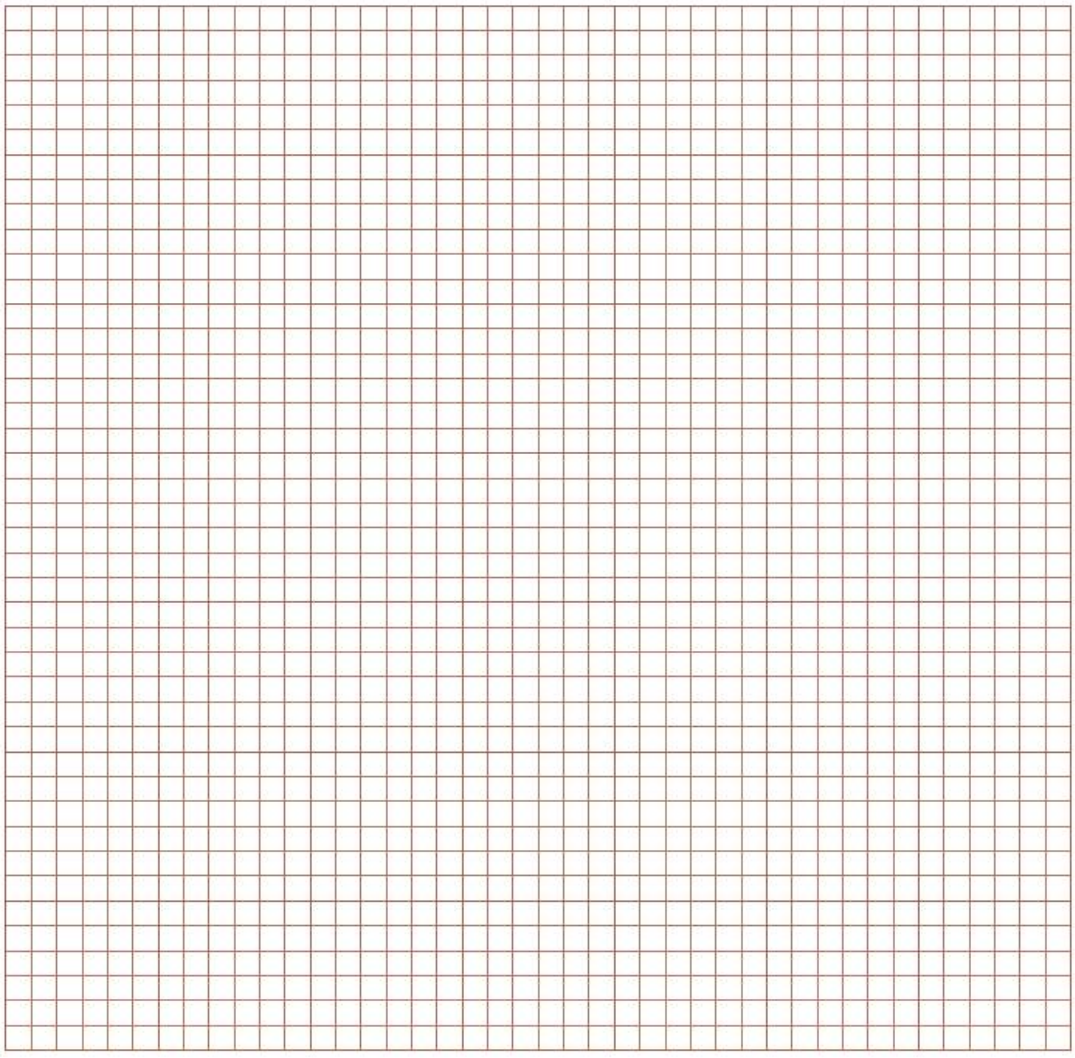
Section 1 Microeconomics

1.1 Competitive markets: demand and supply

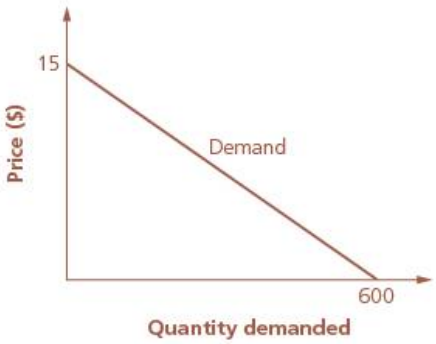
Demand

1 The linear demand function for smartphones is given as Qd = a – bP. Explain what this shows. [4]

2 Using a fully labelled diagram, plot a demand curve from the given linear demand function: Qd = 800 – 25P. [4]

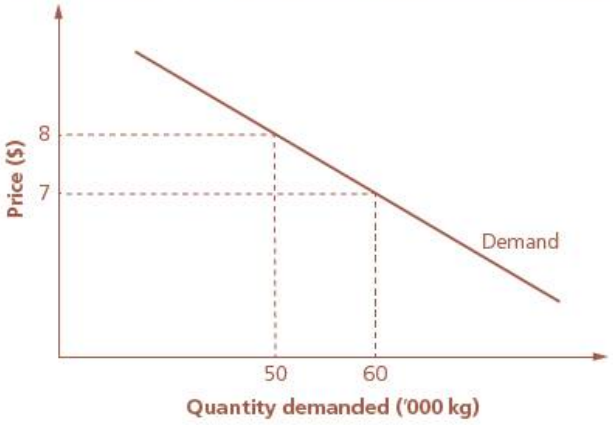


3 From the diagram below, solve the linear function of the demand curve. [2]



4 Suppose the daily demand for organic chicken at a supermarket is given by the function Qd = 420 – 12P. Calculate the daily revenue from the sale of organic chicken if the price is $8 per kilogram. [2]

5 With reference to the diagram below, calculate the change in the value of sales revenue if the firm raises its price from $7 to $8, and comment on your findings. [4]

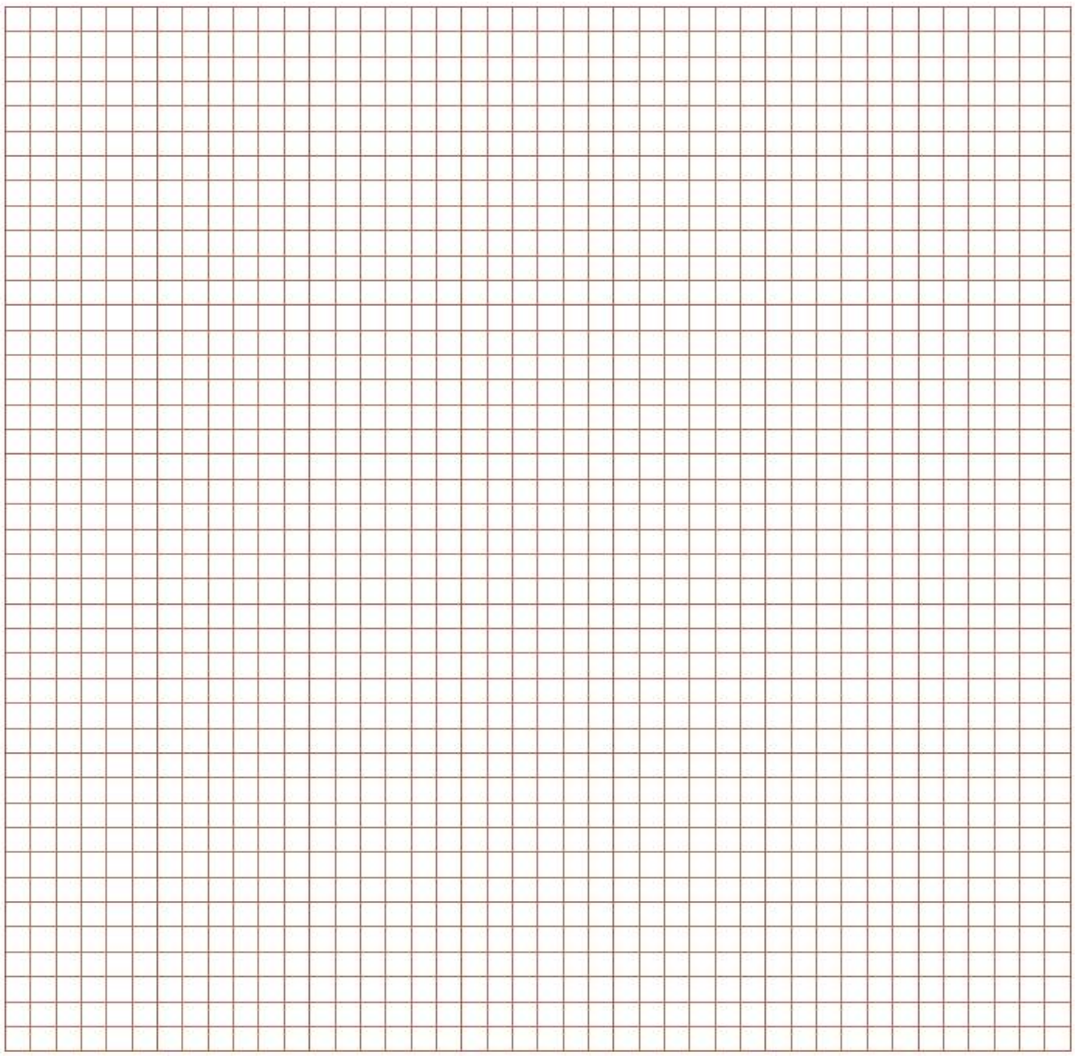


Supply

1 The supply curve for a particular product is given as Qs = –800 + 20P. Calculate the lowest price that would create an ability and willingness for firms to supply their product. [2]

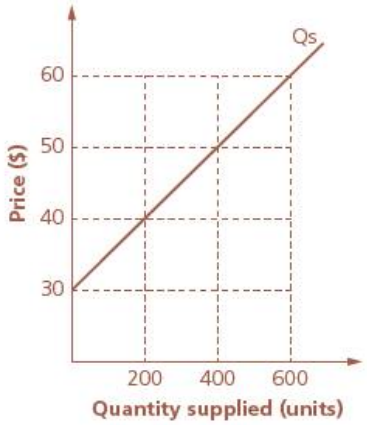
2 Suppose the supply curve for a certain product is given by the function Qs = 300 + 10P. If technological progress enables 200 more units to be produced at each price level, show the new linear function of the supply curve. [2]

3 Plot a supply curve with the following linear supply function: Qs = –100 + 10P. [4]



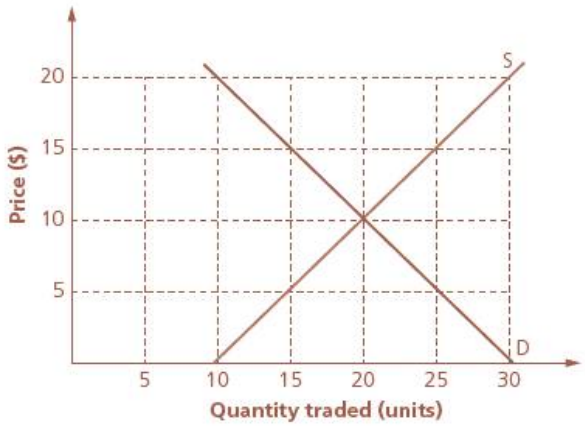
4 Explain which of the following supply curves would be flatter: $Qs_1 = 40 + 4P$ or $Qs_2 = 40 + 8P$. [2]

5 Study the supply curve below and calculate its linear function. [2]

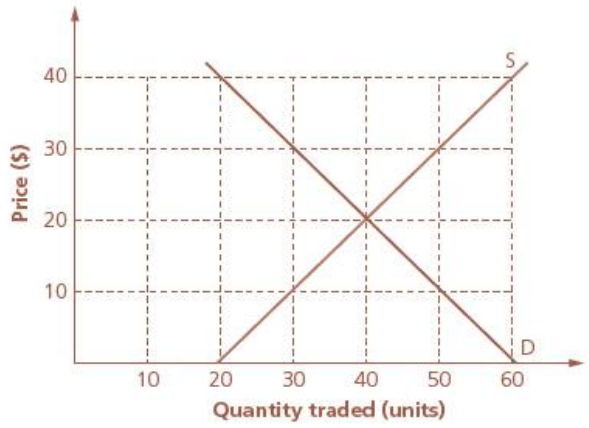


Market equilibrium

1 Calculate the value of the total area of excess supply in the diagram below if the price is $15. [2]



2 Calculate the value of the total area of excess demand at $10 in the diagram below. [2]



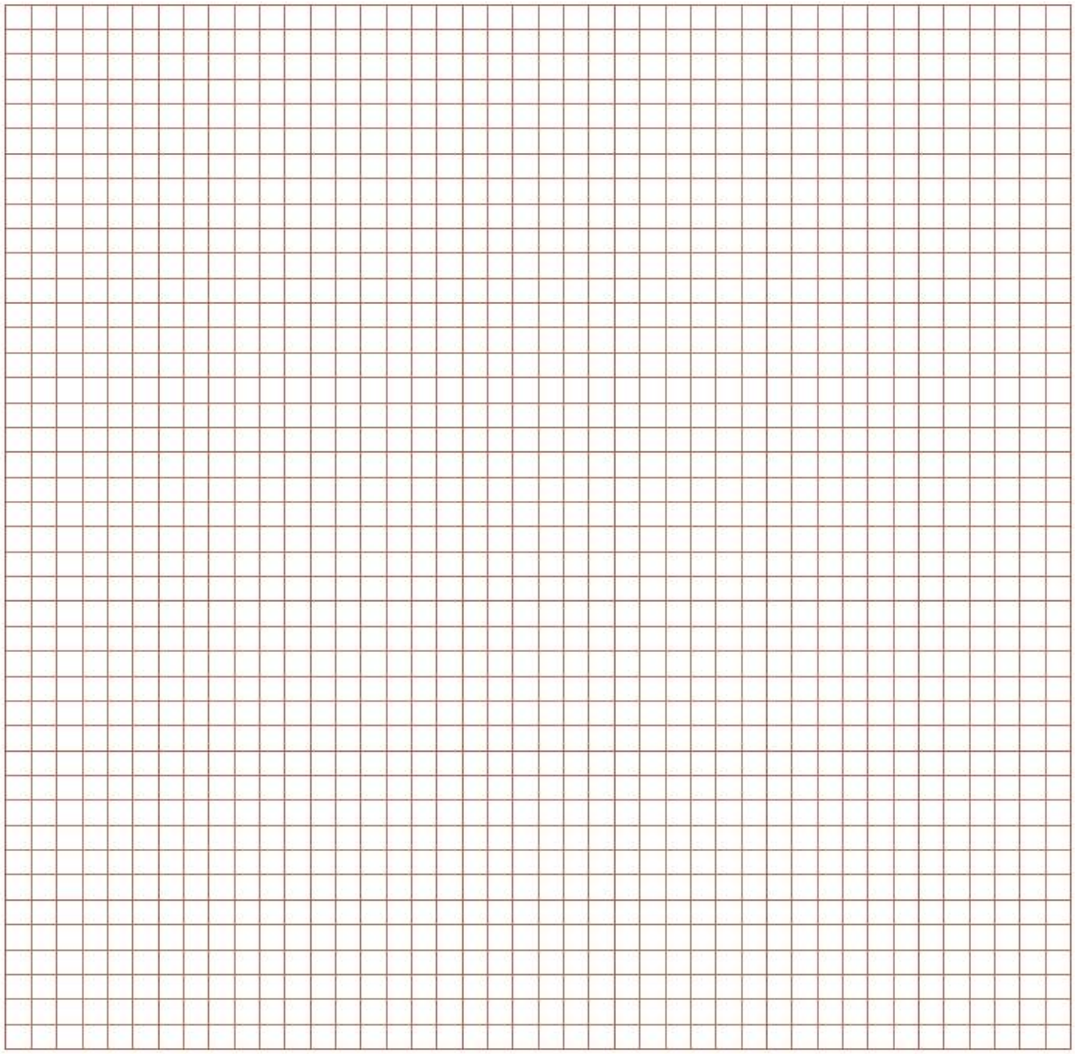
3 The table below shows the demand and supply schedules for a product. A fall in production costs increases supply by 20 units at all prices. Calculate the new equilibrium price. [2]

Price ($)	Quantity demanded	Quantity supplied
5	100	60
6	90	70
7	80	80
8	70	90

4 Calculate the equilibrium price and quantity if the demand function is given as Qd = 600 – 3P and the supply function is Qs = –100 + 2P. [3]

5 Suppose the demand function for a product is given as Qd = 80 – 2P while the supply is expressed as Qs = 2P.

a Plot the demand and supply curves, and identify the equilibrium price and equilibrium quantity. [4]



b Use your graph from Question **5a** to calculate the value of the consumer surplus at the equilibrium price. [2]

c Calculate the quantity of excess demand at a price of $10 per unit. [2]

d Calculate the quantity of excess supply at a price of $30 per unit. [2]

1.2 Elasticity

Price elasticity of demand (PED)

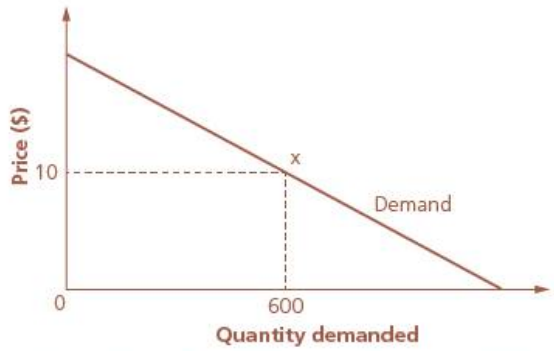
1 Juke Ltd. sells 200 units of its product each day at a price of $4, with a known price elasticity of demand of –2.0.

a Calculate Juke Ltd.'s sales revenue. [2]

b Calculate the new sales revenue if Juke Ltd. increases its price by 20%. [3]

c Explain whether raising its price was a good decision for Juke Ltd. [2]

2 In the diagram below, Point x represents the mid-point of the demand curve.



a State the value of the price elasticity of demand at Point x. [1]

b Explain what will happen to total revenue if the price falls below $10. [2]

3 From the data below for a given product, comment on the value of the price elasticity of demand for the product. [3]

Unit price (€)	15	25	40
Sales revenue (€)	300	500	800

4 Suppose the demand for a good is given by the function Qd = 400 – 25P.

a Calculate the price elasticity of demand (PED) for the good if the price increases from $4 to $5 and then from $10 to $11. [3]

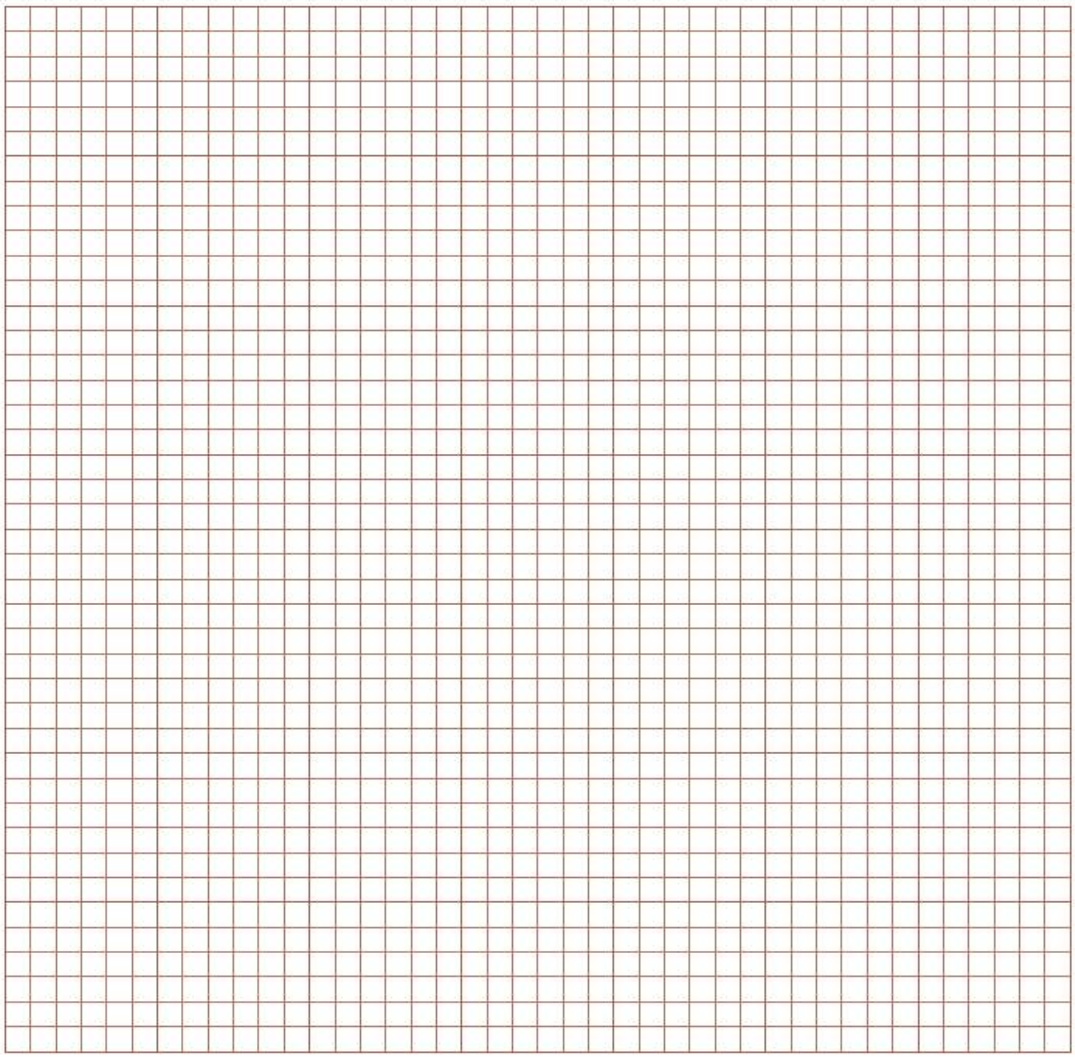
b Using your answer to Question **4a**, explain what happens to the value of the PED for a good with a linear demand function as the price of the good increases. [2]

c If the value of the PED = –1, explain what the effect will be on the firm's total revenue if it reduces price by 5%. [2]

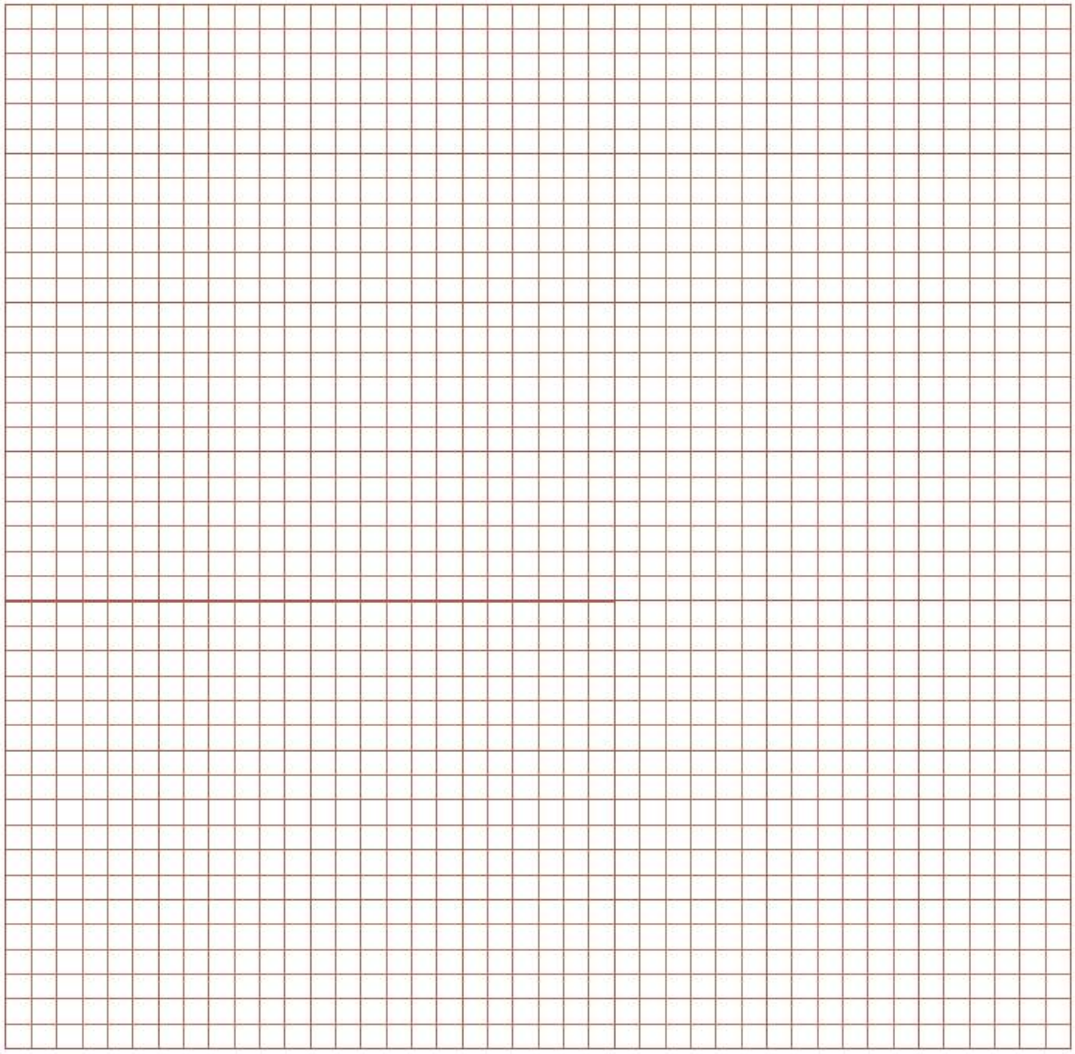
5 Study the demand schedule below and answer the questions that follow.

Price per unit ($)	Quantity demanded
10	0
9	1
8	2
7	3
6	4
5	5
4	6
3	7
2	8
1	9
0	10

a Plot the demand curve. [3]



b Using a separate graph, plot the total revenue curve under the demand curve in Question **5a**. [3]



c Using your understanding of the concept of price elasticity of demand, explain why total revenue is maximized at the mid-point of a linear demand curve, i.e. at $5 in the above example. [3]

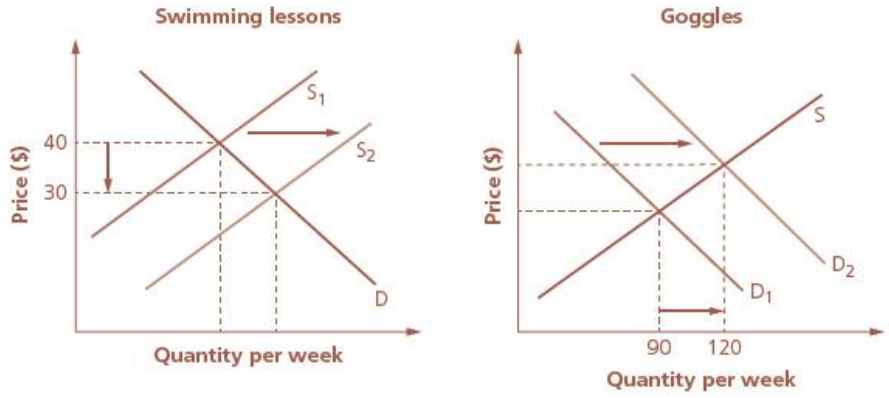
Cross price elasticity of demand (XED)

1 Explain why the cross price elasticity of demand (XED) for complementary goods is negative. [2]

2 Calculate the value of the XED if the price of McDonald's coffee falls by 8% and in the following time period it is observed that the demand for Starbuck's coffee declines by 2%. [2]

3 The price of monthly disposable contact lenses increases from $24.50 to $26.95 per pack. It is observed that the demand for contact lens solution subsequently falls from 225 boxes to 200 boxes per month. Calculate the cross price elasticity of demand and comment on your findings. [3]

4 Study the diagrams below that show the demand for and supply of private swimming lessons and goggles. Calculate the cross price elasticity of demand for goggles if the price of private swimming lessons drops from $40 to $30 and comment on your findings. [4]



5 The table below shows the price and quantity demanded for two products, A and B. Calculate the XED when the price of Product A falls from $5 to $4.50. [2]

Price of Product A ($)	Quantity demanded of Product A	Quantity demanded of Product B
5.00	25	50
4.50	30	60

Income elasticity of demand (YED)

1 Calculate the income elasticity of demand (YED) for tea if a 3% increase in real household income causes sales of tea to rise from 100 million to 101 million units. Comment on what this suggests about tea as a product. [3]

2 Assume the income elasticity of demand for cigarettes in a particular country is known to be +0.14.

a If there is a 3.5% increase in real household income, explain what happens to the demand for cigarettes. [2]

b Using your answer to Question **2a**, briefly explain what the figure suggests about the demand for cigarettes in that country. [2]

3 Suppose that real household income in France is expected to rise by 1% this year. Calculate the sales volume for the following products:

a Chanel perfume, given sales of 50,000 units in the previous year and a known income elasticity of demand of +3.25. [2]

b Carrefour own-branded extra-value sausages, given sales of 2 million units in the previous year and a known income elasticity of demand of –6.5. [2]

4 Suppose in a country the average annual income increases from $28,000 to $29,400, which results in the average household increasing the number of cinema visits from 6 to 8 times a year. Calculate the YED for visits to the cinema and comment on your findings. [3]

5 Study the estimates of the YED for various products in a country, then answer the questions that follow.

Product	YED (estimate)
Petrol (gas)	+0.25
Soft drinks	–0.33
Domestic holidays	+1.36
Public transportation	–0.22

a Identify one inferior good and one luxury good from the products shown in the table. [2]

b Explain which of the given suppliers would gain the most from an economic boom. [2]

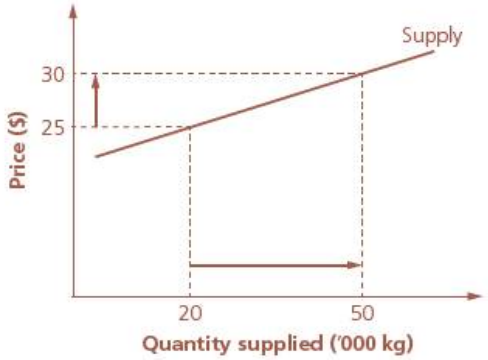
c Explain which of the given suppliers would gain the most from an economic downturn (recession or slump). [2]

d If average household income increases by 3.5%, calculate the percentage change in the demand for public transportation and domestic holidays. [2]

e Using the figures in the table, explain why the government is more inclined to tax petrol (gas) rather than to tax providers of domestic holidays. [3]

Price elasticity of supply (PES)

1 Calculate the value of price elasticity of supply from the diagram below, if price rises from $25 to $30. [2]



2 The daily demand and supply functions for burgers at a market stand are expressed as Qd = 100 – 10P and Qs = –50 + 20P.

a Calculate the equilibrium price and quantity. [3]

b Complete the Quantity demanded and Quantity supplied columns in the table below. [2]

Price ($ per burger)	Quantity demanded (Qd = 100 – 10P)	Quantity supplied (Qs = –50 + 20P)
3		
4		
5		
6		
7		

c Calculate the price elasticity of supply (PES) if price increases from $5 to $6 per burger. [2]

d Comment on your answer to Question **2c** (the value of the PES). [2]

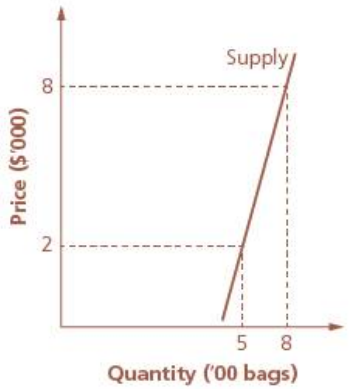
e Assume a rival hotdog stand causes the demand for burgers at the market stand to fall by 15 units at all price levels. Determine the equation of the new demand function. [2]

f Calculate the new equilibrium price and quantity. [3]

3 *Angry Birds* is a highly popular video game created by Finnish company Rovio. More than 12 million customers have paid $0.99 each to download the game from Apple's App Store. With the use of an appropriate diagram, explain why the high level of demand for *Angry Birds* games has no effect on the selling price. [4]

4 **a** The price of a restaurant meal is $6 and the daily quantity supplied is 400 meals. If the PES is known to be +1.25, calculate how a fall in price to $5.40 per meal will affect the quantity supplied, ceteris paribus. [2]

b The supply curve for a particular Chanel handbag is shown in the diagram below.



i Identify the intended sales of Chanel handbags at a unit price of $2,000. [1]

ii Calculate the value of the price elasticity of supply for Chanel handbags if price quadruples from $2,000 to $8,000. [2]

iii With reference to the diagram, explain why luxury handbags made by Chanel have a steep supply curve. [3]

5 Suppose the output of a health product is given by the supply function Qs = –180 + 5P. Answer the questions that follow.

a Calculate the price required in order for the product to be supplied. [2]

b Calculate the price elasticity of supply (PES) if the price rises from $40 to $45. [2]

c Calculate the PES if the price of the health product falls from $48 to $45. [2]

d Explain why the PES of the health product might be so price elastic. [2]

1.3 Government intervention

Indirect taxes/Subsidies/Price controls

1 The table below shows the demand and supply schedules for Product Y.

Demand	Price ($)	Supply
30,000	10	12,000
25,000	15	16,000
20,000	20	20,000
15,000	25	24,000
10,000	30	28,000
5,000	35	32,000

a Identify the equilibrium price of Product Y. [1]

b Define the term 'price ceiling'. [2]

c Briefly explain the impact of the government imposing a price ceiling of $25 for Product Y. [2]

2 The table below shows the demand (Qd) and supply (Qs) schedules for Product X.

Qd	Price ($)	Qs
3,000	7	9,000
4,000	6	8,000
5,000	5	7,000
6,000	4	6,000
7,000	3	5,000
8,000	2	4,000
9,000	1	3,000

a Identify the equilibrium price of Product X. [1]

b State the amount of excess supply at a price of $5 per unit. [1]

c Assume that the government imposes a specific tax of $2 per unit on Product X. Calculate the new equilibrium price. [2]

d Calculate the total tax revenue payable to the government. [2]

e Outline how much of the tax incidence is borne by the consumer. [2]

3 The table below shows the demand (Qd) and supply (Qs) schedules for Product Z.

Qd	Price ($)	Qs
30,000	7.5	90,000
40,000	7.0	80,000
50,000	6.5	70,000
60,000	6.0	60,000
70,000	5.5	50,000
80,000	5.0	40,000
90,000	4.5	30,000

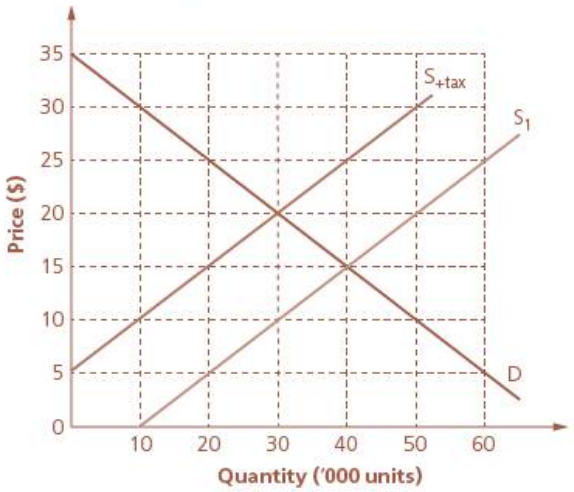
a Identify the equilibrium price and quantity. [2]

b Suppose the government grants a subsidy of $1 per unit to the producers of Product Z. Calculate the new equilibrium price and quantity. [3]

c Calculate the total cost to the government of passing on the subsidy to the producers of Product Z. [2]

d Determine the value of the incidence of the subsidy that is passed on to the consumers of Product Z. [2]

4 Refer to the diagram below and answer the questions that follow.



a Calculate the total tax revenue collected by the government from the imposition of the tax. [2]

b Calculate the incidence of tax paid by the consumer. [2]

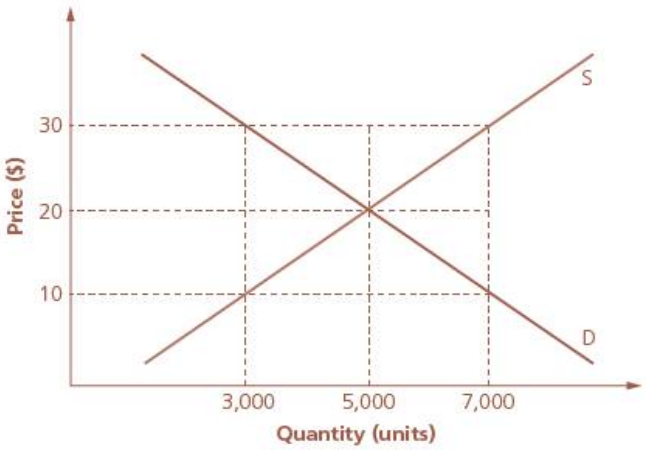
c Calculate the change in consumer spending following the imposition of the tax. [2]

d Calculate the deadweight loss resulting from the imposition of the tax. [2]

e Calculate the value of the producer surplus after the imposition of the tax. [2]

f Calculate the change in the value of consumer surplus after the tax has been imposed. [2]

5 Refer to the diagram below and answer the questions that follow.



a Explain the situation which arises if the government imposes a price floor of $30 for the product. [2]

b Calculate the change in consumer spending following the imposition of the price floor. [2]

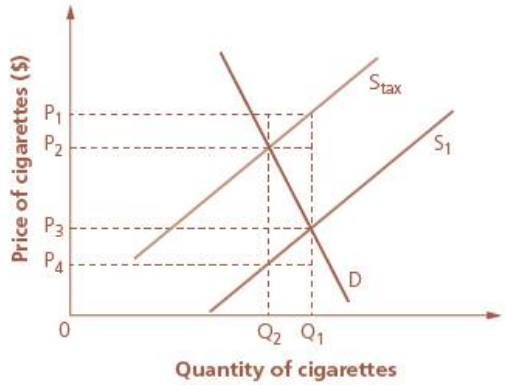
c Calculate the change in producer revenue following the imposition of the price floor if the government buys all the surplus. [2]

d Suppose the government exports all the excess supply at $20 per unit. Calculate the amount of taxpayers' money needed to support this price control scheme. [2]

1.4 Market failure

Market failure

1 The diagram below shows the before and after situation following the imposition of an indirect tax on cigarettes.



a Identify the original equilibrium price and quantity. [1]

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b Using the diagram, determine the amount of tax paid by smokers. [2]

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c Determine the amount of tax revenue collected by the government. [2]

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d Explain why the government might choose to tax the production and/or consumption of cigarettes. [2]

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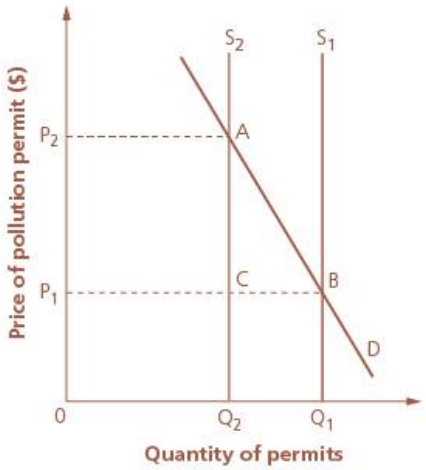
2 The diagram below shows the market for tradable permits in Country X.



a With reference to the diagram, explain the intended consequences following the decision to reduce the number of tradable permits in Country X. [3]

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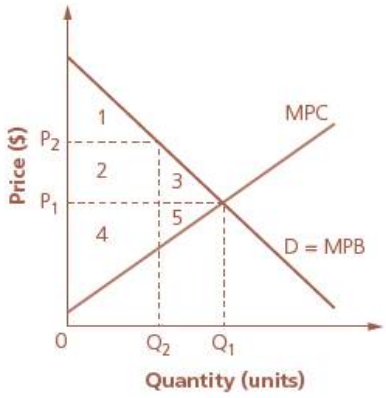
b Determine the change in the amount of revenue collected by the government after the reduction in the number of permits issued. [2]

3 Refer to the diagram below, which represents the market for petrol (gas) in Country H prior to government intervention, where MPC = Marginal private cost and MPB = Marginal private benefit.

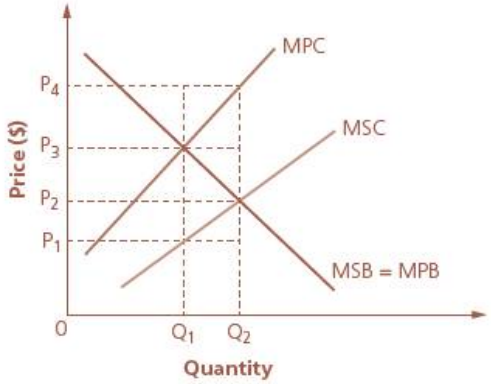


a Identify the area of consumer surplus without government intervention. [1]

b Identify the area of producer surplus without government intervention. [1]

c Suppose the government imposes a carbon tax, causing the equilibrium price to rise to P_2. Draw the marginal social cost (MSC) curve on the diagram above and explain what happens to the value of consumer surplus. [3]

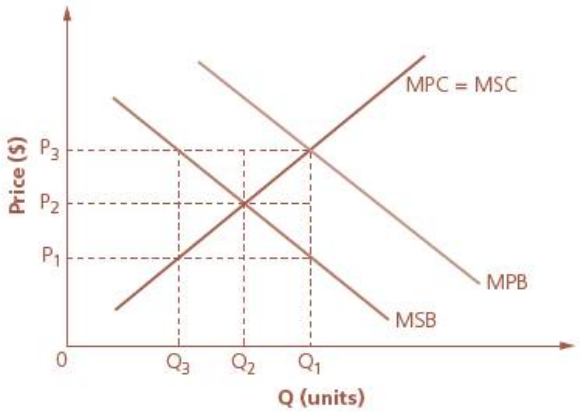
4 The diagram below represents the situation for expenditure on research and development (R&D) in the economy.



a On the diagram, determine the value of the positive externality of production by shading in the relevant area. [1]

b Explain your answer to Question **4a**. [2]

5 The diagram below represents the situation for the consumption of junk food, a demerit good, which creates negative externalities of consumption.



a Define the term 'demerit good'. [2]

b Show on the diagram above the value of the negative externality of consumption of junk food. [1]

c Explain your answer to Question **5b**. [2]

1.5 Theory of the firm and market structures (HL only)

Production and costs/Revenues/Profit

1 Au Construction Company has annual fixed costs of $10 million. It has an annual output of 22,000 units and a variable cost per unit of $120.

a Calculate the total costs for Au Construction Company. [2]

b If Au Construction Company charges $800 per unit, calculate the annual profit made if the firm manages to sell all of its output. [3]

c Calculate the difference in the average costs of production at 11,000 units of output and at 22,000 units of output. Explain what these figures suggest. [4]

2 The table below shows the total costs of production for STC Inc.

Output (kg)	Total costs ($)
0	15,000
50	25,000
100	33,000
150	39,000

a State the value of STC Inc.'s fixed costs. [1]

b Calculate the value of STC Inc.'s average variable cost if it produces 100 kg of output. [2]

c With reference to the data in the table, explain whether STC Inc. achieves economies of scale as it increases output from 50 kg to 150 kg. [3]

3 The table below shows SIS Ltd.'s total costs of production at various levels of output.

Output (kg)	Total costs ($)
0	200
10	280
20	480
30	690
40	900

a Calculate the average costs of production and comment on whether SIS Ltd. experiences economies of scale. [3]

b Calculate the value of the average fixed costs (AFC) of producing 20 kg of output. [2]

c Calculate the value of the AFC at the productively efficient level of output. [2]

d Calculate the value of the average variable costs (AVC) of producing 30 kg of output. [2]

4 Bhardwaj Candles has fixed costs of $4,000 each month. Its average variable costs are $3 per candle. The firm's current level of demand is 2,500 candles per month. The average price of its candles is $6.

a Using a relevant example, explain what is meant by a fixed cost. [2]

b Calculate the firm's average total costs (ATC) per month. [2]

c Calculate the monthly total costs of production for Bhardwaj Candles. [2]

d Calculate the profit if demand increases to 3,000 candles per month. [2]

5 The following data refer to the costs and revenues of Sharma Curtains Co. when operating at 300 units of output per month.

Item	Costs and revenues ($)
Price	50
Raw materials per unit	15
Advertising costs	200
Rent	3,500
Salaries	3,000

a Explain why advertising costs are an example of fixed costs of production for Sharma Curtains Co. [2]

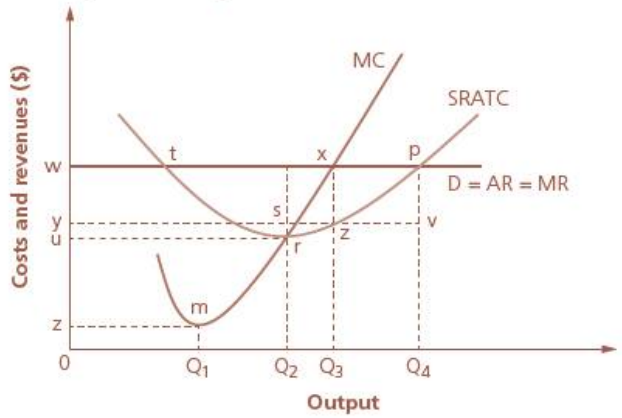
b Calculate Sharma Curtains Co.'s monthly total fixed costs of production. [2]

c Calculate Sharma Curtains Co.'s total cost of producing 300 units. [2]

d Calculate the profit made by Sharma Curtains Co. if it sells all its output. [2]

Perfect competition

1 Answer the following questions, with reference to the diagram below, for a profit-maximizing firm operating under perfect competition.



a Explain which level of output represents profit maximization for the firm. [2]

b Explain which level of output represents the most economically efficient. [2]

c With reference to the diagram, explain whether the profit-maximizing firm earns economic profit. [3]

2 Study the cost data below, which shows the monthly production costs for Adrian's Awning Company.

Components and materials	$35,500
Wages	$45,000
Rent	$30,000
Output (units)	500

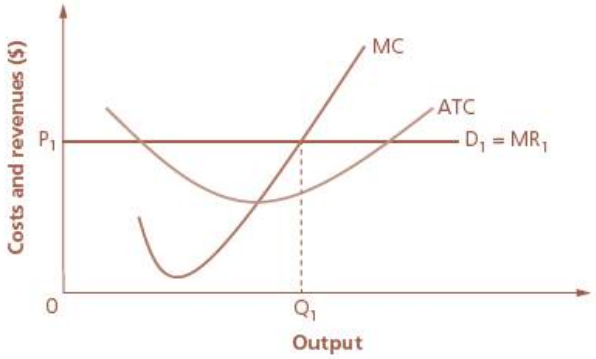
a Calculate the short-run shut-down price for the firm. [2]

b Calculate the break-even price for the firm. [2]

3 **a** Explain the break-even price for a profit-maximizing firm with the following cost structure: average total cost = $2.5 and average variable cost = $2.0. [2]

b Explain the short-run shut-down price **and** the break-even price for a profit-maximizing firm with the following revenue and cost structure: average revenue = $35 and average variable cost = $30. [3]

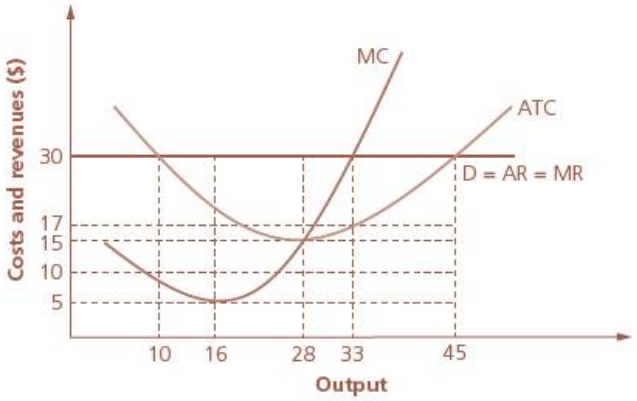
4 The diagram below shows the short-run position for a firm operating in perfect competition.



a On the diagram, show the profit or loss of the profit-maximizing firm. [1]

b Show on the diagram and then explain the long-run position of the profit-maximizing firm. [4]

5 The following questions refer to the diagram below.



a With reference to the diagram, identify the following:

i The long-run shut-down price. [1]

ii The profit-maximizing level of output. [1]

iii The price that enables productive efficiency to take place. [1]

b Calculate the value of the profit or loss of the profit-maximizing firm. [2]

c Suppose the current market price drops to $10. Explain what would happen in the long run. [2]

d Calculate the value of the firm's normal profit in the long run. [2]

Monopoly

1 A monopolist has the following cost and revenue structures in the short run. All monetary figures are in US dollars ($).

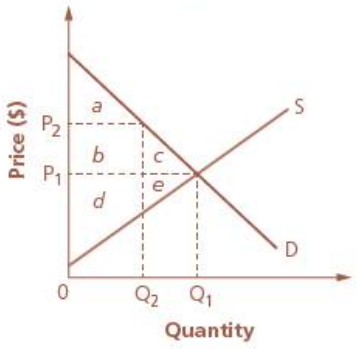
Output	Price	MR	MC	AC
150,000	15	5	5	9

a Calculate the monopolist's profit or loss in the short run. [2]

b Using the data above, outline why the monopolist is not productively efficient. [2]

c Using the data, explain why the profit-maximizing monopolist will increase its output in the long run. [2]

2 Refer to the diagram below and answer the questions that follow.



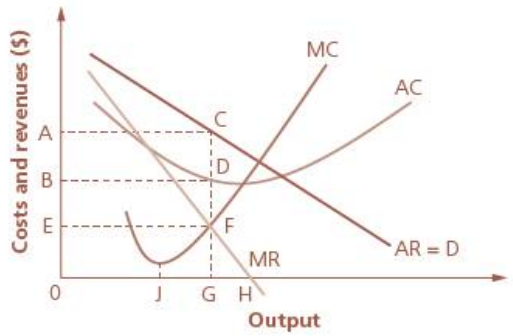
a Identify the area of consumer surplus in a competitive market. [1]

b Identify the area of producer surplus in a competitive market. [1]

c A monopolist opts to reduce the supply to Q_2 thereby forcing the price to rise to P_2. Identify the new consumer surplus and the new producer surplus. [2]

d Determine the loss in social (community) surplus following the decision by the monopolist to restrict supply from Q_1 to Q_2. [2]

3 Study the monopoly diagram below and answer the questions that follow.



a Determine the price charged by a profit-maximizing monopolist. [2]

b Determine the total cost for the profit-maximizing monopolist. [2]

c Derive from the diagram the amount of profit earned by the profit-maximizing monopolist. [2]

d Briefly explain the level of output if the monopolist aimed for revenue maximization. [2]

e Use the diagram to explain why the profit-maximizing monopolist is allocative inefficient. [3]

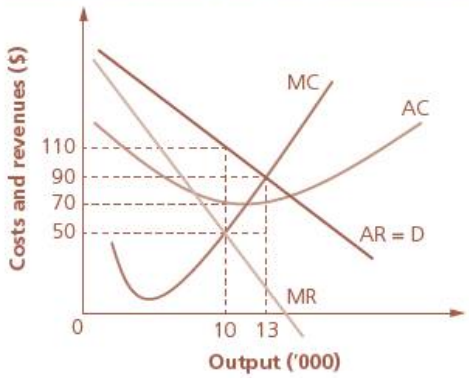
4 The table below shows part of the demand schedule and cost structure for a profit-maximizing monopolist.

Quantity (units)	Price ($ per unit)	Total cost ($)	Total revenue ($)	Marginal revenue ($)	Marginal cost ($)
50	1,700	60,000			
60	1,600	68,000			
70	1,500	77,000			
80	1,400	87,000			
90	1,300	98,000			

a Complete the table above and determine the level of output for the monopolist. [4]

b Calculate the profit earned by the monopolist. [2]

5 Refer to the monopoly diagram below and answer the questions that follow.



a Calculate the total revenue of the profit-maximizing monopolist. [2]

b Calculate the monopolist's total costs. [2]

c Determine the abnormal profit earned by the monopolist. [2]

d Calculate the deadweight loss to society caused by the actions of the profit-maximizing monopolist. [2]

Monopolistic competition

1 A profit-maximizing firm in monopolistic competition has the following costs and revenues.

Output (Q)	Total fixed costs ($)	Total revenue ($)	Average variable cost ($)
800	5,000	12,800	5.75

a Calculate the firm's average total cost. [2]

b Calculate the profit or loss made by the firm in the short run. [2]

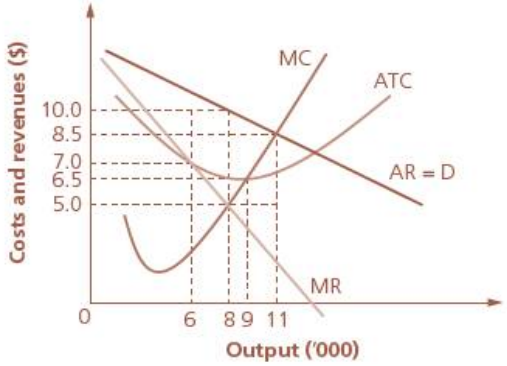
2 The data below apply to a firm operating in monopolistic competition in the short run. All monetary figures are in US dollars ($).

MR	AR	MC	ATC
9	14	6	12

a Explain whether it would be financially beneficial for the firm to increase or reduce output. [2]

b Calculate the amount of profit or loss if the monopolistically competitive firm sells 6,000 units of output. [2]

3 The diagram below represents a short-run position for a firm in monopolistic competition.

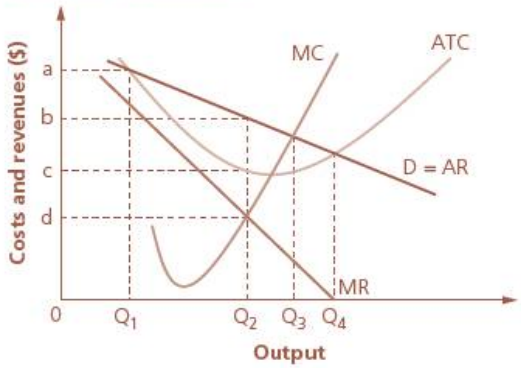


a Explain which level of output the monopolistically competitive firm will operate at in the short run. [2]

b Calculate the profit or loss made by the monopolistically competitive firm in the short run. [2]

c Calculate the value of profits for the firm in the long run. [2]

4 The diagram below shows the short-run position for a profit-maximizing firm operating in a monopolistically competitive industry.



a Identify the level of output for the monopolistically competitive firm. [1]

b Identify the price charged by the firm in the short run. [1]

c Identify the per unit profit earned by the firm in the short run. [1]

d Explain what is likely to happen to the monopolistically competitive firm in the long run. [2]

5 The short-run cost and revenue data for a profit-maximizing firm at 100 units of output are as follows: price = $120, average total cost = $100, marginal cost = $80 and marginal revenue = $80.

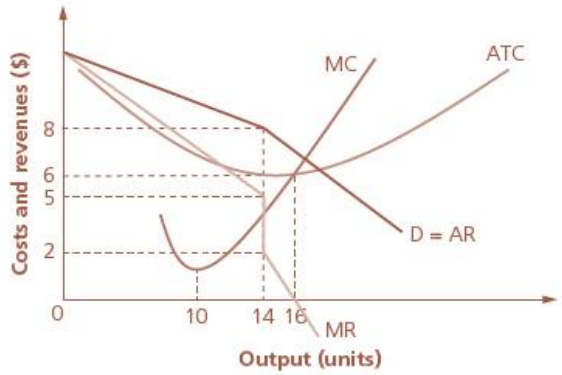
a Outline why the firm maximizes profit by producing at 100 units. [2]

b Briefly explain whether the profit-maximizing firm operates under perfect competition. [2]

c Calculate the firm's total economic profit in the short run. [2]

Oligopoly

1 Refer to the following kinked demand curve diagram and answer the questions that follow.



a Identify the equilibrium output for the profit-maximizing oligopolist. [1]

b Identify the price charged by the profit-maximizing oligopolist. [1]

c Identify the per unit profit made by the profit-maximizing oligopolist. [1]

d With reference to the diagram, explain why there is price rigidity under an oligopoly market structure. [2]

2 The data below show the sales revenues for a particular industry.

Firm A	Firm B	Firm C	Firm D	Firm E
$2.5bn	$3.5bn	$2.7bn	$3.5bn	$3.8bn

a Calculate the 3-firm concentration ratio. [2]

b Comment on whether the industry is highly concentrated. [2]

3 Refer to the game theory information below for Adidas and Nike.

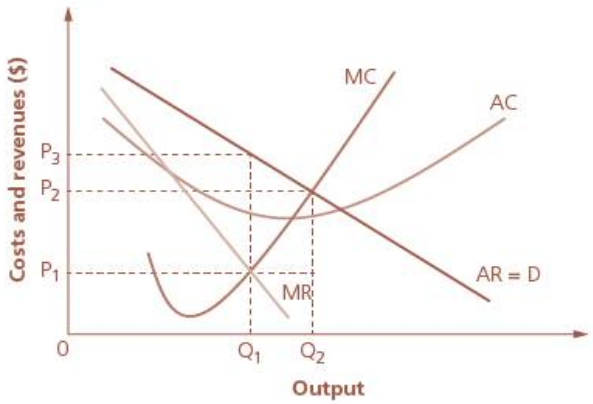
Nike's pricing policy	Adidas's pricing policy: High	Adidas's pricing policy: Low
High	A: \$50 m / \$50 m	B: \$60 m / \$20 m
Low	C: \$20 m / \$60 m	D: \$30 m / \$30 m

a Define the term 'game theory'. [2]

b Explain what the dominant strategy would be for the oligopolistic firms. [2]

c Explain why the sub-optimal result for both firms (Decision D) is the most probable outcome in the long run. [2]

4 The diagram below represents a situation of collusive oligopoly.



a Define the term 'collusive oligopoly'. [2]

b With reference to the diagram, explain the equilibrium position of the oligopolistic firm. [2]

5 A non-collusive, profit-maximizing oligopolistic firm has the following cost and revenue data. All figures are in euros (€).

Average revenue	Marginal revenue	Average total cost	Marginal cost
20	8	12	8

a Use the data to explain whether the oligopolistic firm earns abnormal profit. [2]

b Explain why the oligopolistic firm might continue to charge €20 even if its marginal cost increases beyond €8. [2]

Section 2 Macroeconomics

2.1 The level of overall economic activity

Economic activity/The business cycle

1 Calculate the value of gross domestic product (GDP) **and** gross national product (GNP) from the given information: consumption = $150 bn, investment expenditure = $60 bn, government spending = $55 bn, export earnings = $31 bn, import expenditure = $28 bn, net property income from abroad = –$8 bn. [3]

2 The data below are for Country G.

Year	Nominal GDP ($bn)	GDP deflator
2013	228.0	106.0
2014	230.2	107.8
2015	232.4	109.8

a Calculate the real GDP for Country G in 2014. [2]

b In Country G, the average annual salary in 2015 is $24,000. Calculate the average real income for the average worker in Country G. [2]

c Explain why, despite the nominal GDP increasing in the given time period, the real value of GDP in Country G has actually fallen. [3]

3 The following list shows the total expenditures in Country C for last year. All monetary values are in billions of euros (€bn), expressed in current prices.

Export earnings	96
Government expenditure	195
Household consumption	363
Import expenditure	123
Net property income	58
Private-sector investments	159

a Calculate the nominal value GDP for Country C. [2]

b Determine the real GDP for Country C if the GDP deflator for last year was 106.2. [2]

c Country C's real GDP is €640.25 billion this year. Calculate the country's growth rate since last year. [2]

4 The data in the table below refer to Country S in 2014 and 2015. All figures are in billions of US dollars ($bn).

Item	2014	2015
Wages and salaries	50	55
Investment	40	38
Interest, profits and dividends	10	12
Import payments	40	36
Government spending	30	33
Export receipts	35	40
Consumption	80	85

a Use the expenditure approach to calculate the nominal value of GDP for Country S in 2014. [2]

b Calculate the rate of economic growth in Country S in 2015. [3]

c Explain **two** limitations of using nominal GDP per capita as a measurement of the level of economic activity in Country S. [4]

5 The following information relates to Country K's gross domestic product (GDP) for last year.

Item of expenditure	Value of expenditure ($bn)
Consumption	231
Investment	148
Government	98
Exports	24
Imports	37
Savings	88
Taxation	112

a Calculate the value of Country K's GDP. [2]

b Calculate the value of Country K's injections for last year. [2]

c Use the information to explain if Country K is contracting or expanding. [3]

d Determine the value of withdrawals in Country K necessary for national income equilibrium in the economy. [1]

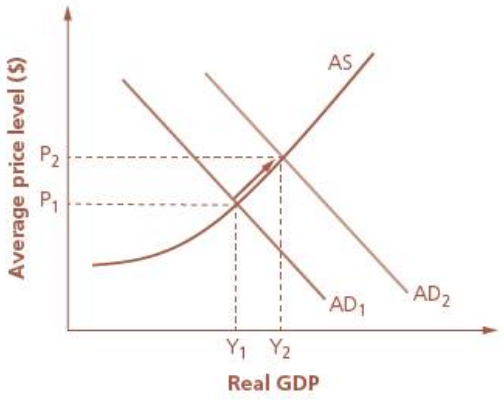
e Determine whether Country K has a budget deficit or budget surplus. [2]

f Calculate Country K's external deficit as a percentage if its GDP. [2]

2.2 Aggregate demand and aggregate supply

Aggregate demand (AD)/Aggregate supply (AS)/ Equilibrium

1 With reference to the diagram below, explain **two** possible reasons for the movement along an economy's aggregate demand curve from AD_1 to AD_2. [4]

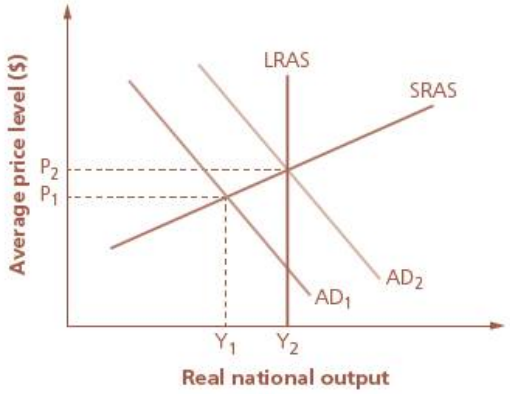


2 In an economy, it is known that the marginal propensity to tax (MPT) = 0.2, the marginal propensity to import (MPM) = 0.15 and the marginal propensity to save (MPS) = 0.1.

a Define the term 'Keynesian multiplier'. Include the formula in your answer. [3]

b Calculate the change in national income if there is an increase in investment expenditure of $600 million in the economy. [3]

3 Study the diagram below for Country X and answer the questions that follow.



a Identify Country X's real national output in the long run. [1]

b Explain whether Country X is experiencing a recessionary gap or an inflationary gap. [2]

c Explain **two** methods that Country X could use to close this gap. [4]

d Explain **two** possible causes of an outwards shift of Country X's long-run aggregate supply (LRAS) curve. [4]

4 In a particular country, the marginal propensity to consume (MPC) is known to be 0.85.

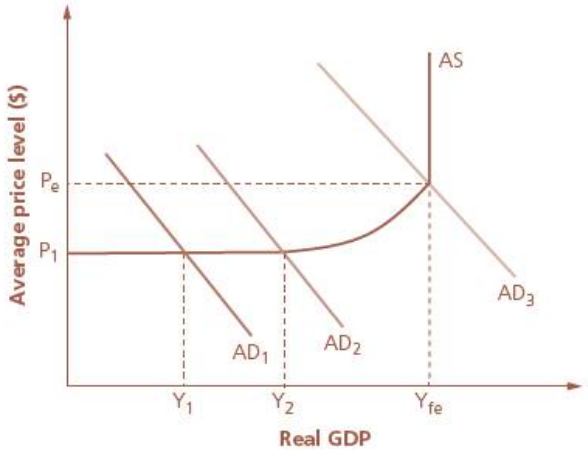
a Calculate the country's marginal propensity to withdraw (MPW). [2]

b Calculate the size of the Keynesian multiplier. [2]

c Suppose the country's export earnings increase by $200 m. Ceteris paribus, calculate the change in the country's real national income. [2]

d In the subsequent time period, the country suffers a recession and has a deflationary gap of $92 bn. Calculate the amount of government expenditure needed to close the recessionary gap in order to restore equilibrium. [2]

5 Use the diagram below to answer the questions that follow.



a Explain the likely impact on the economy if aggregate demand increases from AD_1 to AD_2. [2]

b If the economy is operating at Y_2, explain why it experiences a recessionary (negative output) gap. [2]

c Explain why an increase in aggregate demand beyond AD_3 will cause an inflationary gap. [2]

2.3 Macroeconomic objectives

Low unemployment

1 Use the data below for Country X to calculate the total number of people unemployed. [2]

Labour force	35 million
Population of working age	40 million
Unemployment rate	6.8%

2 Study the data below for Country Z and answer the questions that follow.

Total population	80 million
Percentage of population employed	76.2%
Population of unemployed	12.2 million
Dependent population	8.55%

a Calculate the unemployment rate for Country Z. [3]

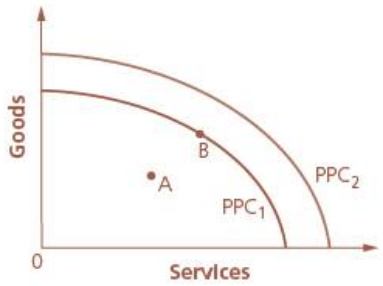
b Suppose in the subsequent time period, 2 million immigrants enter Country Z and all find employment. Calculate the new unemployment rate for Country Z. [2]

3 Low unemployment is a universal macroeconomic objective. Underemployment is a macroeconomic problem tackled by governments.

a Distinguish between the terms 'underemployment' and 'unemployment'. [3]

b Explain **two** reasons why low unemployment is a universal macroeconomic objective. [4]

4 The diagram below shows the production possibility curves (PPC) for Country P.



a Briefly explain how the economy might move from Point A to Point B. [2]

b Identify **two** possible causes of the shift in the production possibility curve from PPC_1 to PPC_2. [2]

5 Use the data below for Country B to answer the questions that follow.

Labour market figures (2015)	
Total population	135.36 million
Adult population	94.00 million
Number of unemployed	10.81 million
Number employed	62.35 million

a Calculate the size of Country B's labour force. [2]

b Calculate the labour force participation rate for Country B. [2]

c Calculate the rate of unemployment in Country B. [2]

Low and stable inflation

1 Use the data below to calculate the weighted price index for Country W. [2]

Item of expenditure	This year's price index	Statistical weighting	Weighted price index
Housing	155.3	0.305	
Food	113.4	0.250	
Travel	125.2	0.225	
Clothing	131.6	0.115	
Entertainment	142.5	0.105	

2 The data below show the inflation rate in Spain between 2014 and 2015.

Source: www.tradingeconomics.com/spain/inflation-cpi

Outline what has happened to inflation in the Spanish economy during this time. [2]

3 Refer to the data below for an individual and answer the questions that follow.

	Year 1	Year 2
Income ($)	34,600	36,849
Consumer price index (CPI)	132.5	143.1

Using the data above, explain what is likely to have happened to the individual's standard of living between Year 1 and Year 2. [3]

4 The table below shows the prices of four products in Country X over a three-year period.

Year	Price of alphas	Price of betas	Price of gammas	Price of deltas
1	$4.00	$4.90	$6.00	$5.00
2	$4.00	$5.20	$6.10	$5.30
3	$4.50	$5.50	$6.50	$5.50

The typical household basket of products contains 5 units of alphas, 3 units of betas, 2 units of gammas and 4 units of deltas.

a Use the table below to construct a weighted price index for Country X, using Year 2 as the base year. [4]

Year	Spending on alphas	Spending on betas	Spending on gammas	Spending on deltas	Total cost of basket	Weighted price index
1						
2						
3						

b Determine the inflation rate in Year 3. [1]

c Calculate the inflation rate in Year 2. [2]

5 The data below are for a hypothetical country, Satcolbe.

Item	Retail prices index	Weight
Clothing	120	15
Food	130	30
Housing	140	40
Others	125	15

a Define the term 'retail prices index' (RPI). [2]

b 'The typical household in Satcolbe spends more money on food than on clothing.' Explain this statement. [2]

c Use the data above to calculate the weighted retail prices index (RPI) in Satcolbe. [3]

Item	Retail prices index	Weight	Weighted retail prices index
Clothing	120	15	
Food	130	30	
Housing	140	40	
Others	125	15	
Weighted RPI			

Economic growth

1 The data below show the nominal gross domestic product (GDP) for Country Y.

Year	Nominal GDP ($bn)	GDP deflator
2013	115.0	100.0
2014	118.6	103.5
2015	122.8	105.0

a Calculate the real GDP in 2014. [2]

b Calculate the nominal growth rate in 2014. [2]

c Explain what happened to real GDP between 2013 and 2014. [2]

d Calculate the real growth rate in 2015. [2]

2 The data below refer to Country W.

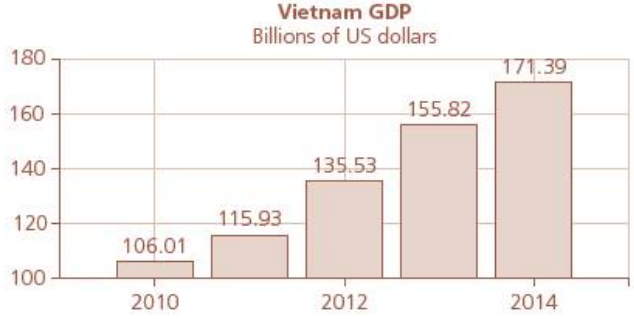
Year	Nominal GDP ($bn)	GDP deflator
2012	250	102.2
2013	260	100.0
2014	280	105.4
2015	320	108.6

a Calculate the real GDP in 2014. [2]

b Calculate the change in the real GDP between 2012 and 2013 and comment on your findings. [3]

c Suppose the population in Country W was 62 million in 2015. Calculate the GDP per capita. [2]

3 The chart below shows the nominal national output for Vietnam over a five-year period.



Source: www.tradingeconomics.com/vietnam/gdp

a Determine the year in which Vietnam experienced its highest gain in nominal GDP over the period shown. [2]

b Determine the year in which economic growth was at its highest (round figures to 2 decimal places). [2]

4 Study the following data for Country E and answer the questions that follow.

Economic variable	2014 ($bn)	2015 ($bn)
Capital consumption	7	9
Consumption	85	90
Export earnings	32	30
Government spending	38	38
Import expenditure	28	32
Interest, profit and dividends	9	7
Investments	30	35

a Calculate the nominal value of Country E's gross domestic product (GDP) in 2014 and in 2015. [3]

b Calculate the economic growth rate in Country E between 2014 and 2015. [2]

c In Country E, the inflation index in 2014 was 102.5 and was 107.6 in 2015. Calculate the real value of Country E's GDP in 2015. [2]

5 The following information is for Country A (all figures are in $ billion): consumption = 105, investment = 56, government spending = 35, exports = 45, imports = 56, income earned from assets abroad = 10, and income paid to foreign owners of assets in Country A = 25.

a Calculate the nominal GDP in Country A. [2]

b Calculate the gross national product (GNP) in Country A. [2]

Equity in the distribution of income

1 Study the data below for Country Y and answer the questions that follow.

Income tier	Tax rate (%)
$10,000	0
$10,001–$25,000	10
$25,001–$45,000	20
$45,001 and above	45

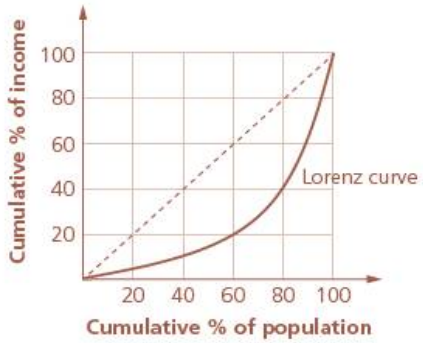
a Identify the taxable allowance in Country Y. [1]

b Calculate the amount of tax paid by an individual who earns $50,000 a year. [3]

c Calculate the average rate of tax paid by the individual. [2]

2 An individual earned $25,000 last year and paid $3,250 in indirect taxes. This year, she received a 7.5% pay rise and paid a total of $3,493.75 in indirect taxes. Calculate the marginal rate of indirect tax paid by the individual. [2]

3 The diagram below shows the Lorenz curve for Country W.



a Briefly explain what the 45-degree line represents for Country W. [2]

b Determine from the diagram the earnings from the third quintile in Country W. [2]

4 An individual in Country H earns an annual salary of $77,635. The tax bands in Country H are shown below.

Income bracket	Tax band
$0–$15,000	5%
$15,001–$35,000	12%
$35,001–$70,000	15%
$70,001+	20%

a Calculate the total amount of tax payable by the individual in Country H. [3]

b Calculate the average rate of tax paid by the individual in Country H. [2]

5 The data below refer to Country N and Country J. The first quintile represents the lowest 20% of income earners while the fifth quintile represents the top 20%.

Country	Percentage of total income earned				
	1st quintile	2nd quintile	3rd quintile	4th quintile	5th quintile
N	6	10	13	23	48
J	9	15	18	22	36

a Explain what the second quintile reveals about income distribution in Countries N and J. [2]

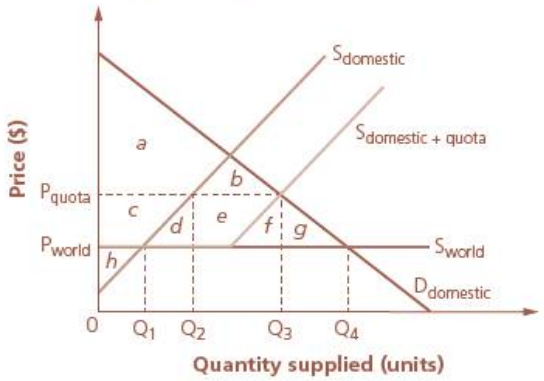
b Explain what the fifth quintile reveals about income distribution in Countries N and J. [2]

Section 3 International economics

3.1 International trade

Free trade/Restrictions on free trade: Trade protection

1 Study the quota diagram below and answer the questions that follow.



a Determine the consumer surplus before the imposition of the quota. [1]

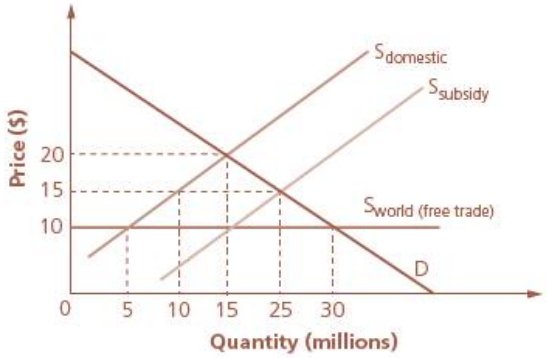
b Identify the producer surplus for domestic firms before the imposition of the quota. [1]

c Determine the consumer surplus after the imposition of the quota. [1]

d Identify the producer surplus for domestic firms after the imposition of the quota. [1]

e Determine the welfare loss following the imposition of the quota. [1]

2 Study the diagram below and answer the questions that follow.



a Calculate the cost of the subsidy to the government. [2]

b Calculate the amount of imports *before* government intervention. [2]

c Calculate the amount of imports *after* government intervention. [2]

d Calculate the total amount spent by domestic consumers under free trade. [2]

e Calculate the total amount spent by domestic consumers after the imposition of the subsidy. [2]

3 Refer to the following production possibilities for two countries and answer the questions that follow.

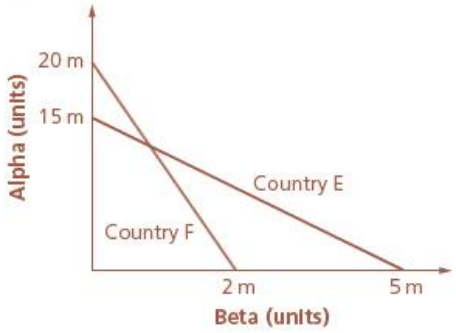
	Fruits (units)	Vegetables (units)
Country K	8,000	0
	0	10,000
Country P	4,000	0
	0	8,000

a Identify which country has the absolute advantage in the production of vegetables. [1]

b Explain which country should specialize in the production of fruits. [2]

c Calculate the opportunity cost of producing 8 units of fruits, in terms of vegetables, for Country P. [2]

4 Study the diagram below that shows the production possibility curves for two countries, and answer the questions that follow.

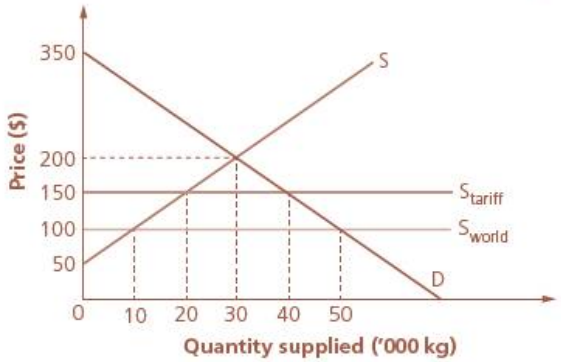


a Calculate the opportunity cost of producing 1 million units of beta for Country E. [2]

b Calculate the opportunity cost of producing 1 million units of alpha for Country F. [2]

c Explain which country should specialize in the output of beta. [2]

5 The diagram below shows the effects following the imposition of a tariff by Country L's government.



a Calculate the value of consumer surplus before the imposition of the tariff. [2]

b Calculate the value of producer surplus before the imposition of the tariff. [2]

c Calculate the consumer surplus after the imposition of the tariff. [2]

d Calculate the producer surplus after the imposition of the tariff. [2]

e Calculate the revenue to the government after the imposition of the tariff. [2]

f Calculate the welfare loss after the imposition of the tariff. [2]

3.2 Exchange rates

Freely floating exchange rates/Government intervention

1 Suppose the exchange rate between the British pound (GBP) and the Hong Kong dollar (HKD) is GBP1 = HKD12.5.

a Calculate how much it costs the British tourist (in British pounds) to buy an iPad in Hong Kong that is priced at HKD6,000. [2]

b Suppose the exchange rate between the Australian dollar (AUD) and the British pound (GBP) is AUD1 = GBP0.55 and the Hong Kong dollar (HKD) is AUD1 = HKD7.25. Calculate the exchange rate of the GBP against the HKD. [2]

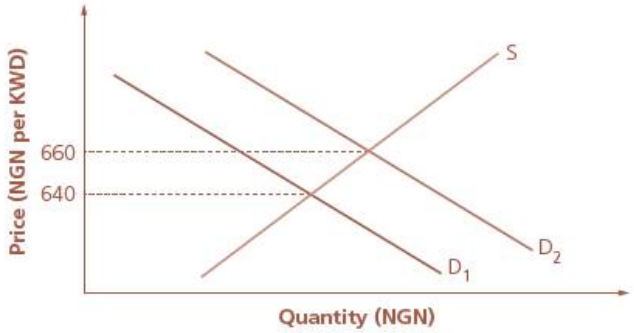
2 Suppose the exchange rate between the British pound (£) and the US dollar ($) is £1 = $1.65.

a Calculate the price for customers in Britain who buy American cars priced at $45,500. [2]

b Calculate the price paid in British pounds by a British tourist spending $45 for a theme park ticket in Florida, USA. [2]

c If the US dollar falls against the British pound to $1 = £0.6, calculate the new amount that British tourists have to pay in British pounds to enter the theme park. [2]

3 With reference to the diagram below, outline **two** possible reasons for the change in the exchange rate of the Kuwaiti dinar (KWD) against the Nigerian naira (NGN). [4]



4 The exchange rate of the British pound (£) in terms of the Hong Kong dollar ($) is given by the demand and supply functions:

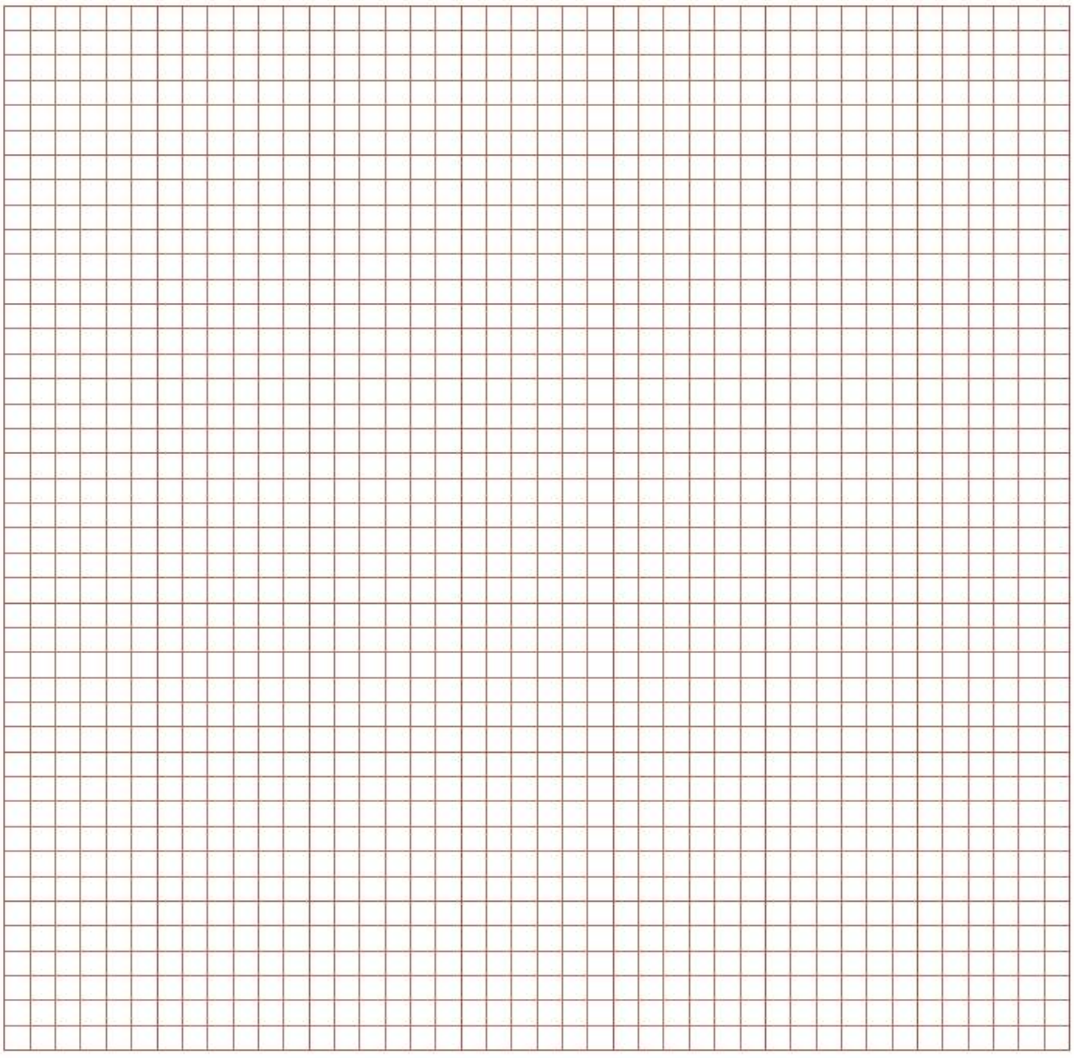
$Qd = 150 - 5P$

$Qs = -25 + 9P$

a Calculate the equilibrium exchange rate. [2]

b Calculate the equilibrium quantity (in billions of British pounds) traded. [2]

c Plot the demand and supply curves and identify the equilibrium exchange rate. [4]



d On the same graph, plot and identify the new equilibrium exchange rate if the supply function changes to $Qs = -32 + 9P$. [2]

5 Although the Chinese government controls the value of its exchange rate, it has been known to allow the yuan (the Chinese currency) to appreciate.

a Explain what is meant by an appreciation in the value of a currency. [2]

b Explain **two** likely effects of China's currency appreciation on its exports and imports. [4]

3.3 The balance of payments

The structure of the balance of payments

1 The data below show trade figures for Country F.

Balance of trade in goods ($m)	2014
Food, beverages and tobacco	–3,558
Oil	4,305
Finished manufactured goods	–685
Others	–1,886
Balance of trade in services ($m)	**2014**
Transportation	–632
Communications	–531
Insurance	1,450
Others	3,776

a Calculate the value of the balance of invisibles. [2]

b Calculate the balance of trade for Country F. [2]

2 Study the data below and answer the questions that follow.

Balance of trade for Country K ($bn)	
Exports	85
Goods	57
Services	28
Imports	
Goods	88
Services	15
Balance of trade in goods	
Balance of trade in services	
Trade balance	

a Define the term 'balance of trade in services'. [2]

b Calculate the missing figures in the data above and complete the table. [4]

3 The table below shows data from Country J's balance of payments.

	$bn		$bn
Exports of goods	235	Net current transfers	–30
Exports of services	320	Net direct investment	65
Imports of goods	–440	Net portfolio investment	38
Imports of services	–235	Capital transfers	26
Net income	20	Trade in non-produced, non-financial assets	20

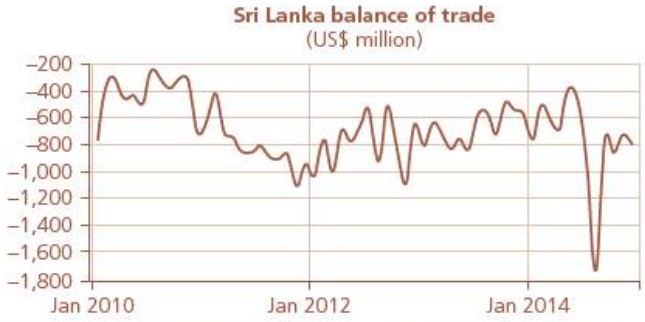
a Calculate the value of Country J's current account balance. [2]

b Calculate the value of the financial account for Country J. [2]

c Calculate the value of the capital account for Country J. [2]

d Calculate the value of reserve asset funding + errors and omissions for Country J. [2]

4 Sri Lanka is a major exporter of textiles, garments and tea, which combine to account for around 57% of the country's exports. The chart below shows the balance of trade for Sri Lanka from 2010 to 2015.

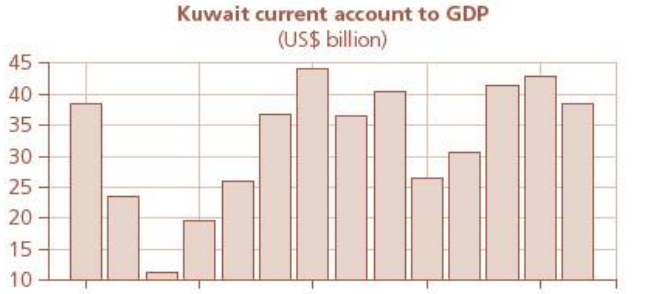


Source: www.tradingeconomics.com/sri-lanka/balance-of-trade

a Define the term 'balance of trade'. [2]

b Explain **two** possible causes of Sri Lanka's persistent balance of trade deficit as shown in the chart above. [4]

5 Kuwait is one of the world's largest net exporters of oil. The chart below shows the ratio of the country's current account balance relative to its gross domestic product (GDP) from 2000 to 2014.



Source: www.tradingeconomics.com/kuwait/current-account-to-gdp

a Define the term 'current account surplus'. [2]

b Explain **two** consequences of Kuwait's persistent current account surplus from 2000 to 2014. [4]

3.4 Terms of trade (HL only)

The meaning of the terms of trade

1 The table below shows the index of export prices and import prices for a less economically developed country (LEDC).

	2013	2014	2015
Index of export prices	102.1	100.5	97.8
Index of import prices	119.6	112.6	116.4

a Calculate the terms of trade for each year and comment on your findings. [4]

b Explain **two** reasons why LEDCs tend to experience a deterioration in their terms of trade. [4]

2 The following data show particular exports and imports for a particular country.

Exports	Unit price	Weighting
Apples	$2.3	0.4
Bananas	$3.5	0.1
Carrots	$3.0	0.5

Imports	Unit price	Weighting
Durian	$8	0.3
Eggplant	$5	0.6
Fennel	$4	0.1

a Calculate the weighted price index for exports. [3]

b Calculate the weighted price index for imports. [3]

c Calculate the terms of trade for the country. [2]

d Explain what is likely to happen to the country's terms of trade if the price of carrots increases significantly. [2]

3 Refer to the information below for Country M. Assume that 2013 is the base year.

Year	Price of rice exports ($ per unit)	Price of milk imports ($ per unit)
2013	430.0	19.2
2014	481.6	22.6
2015	505.7	23.7

a Calculate the price index of rice exports in 2014. [2]

b Calculate the price index of milk imports in 2014. [2]

c Calculate the terms of trade in 2014. [2]

d Comment on the change in the terms of trade for Country M. [2]

4 The data below refer to the terms of trade (TOT) for the United States of America and Sri Lanka. The base year is 2012.

Year	Average price of oil ($ per unit)	Price index (oil)	Average price of tea ($ per unit)	Price index (tea)	TOT (USA)	TOT (Sri Lanka)
2011	98	94.2	320		84.8	
2012	104	100.0	288	100.0	100.0	100.0
2013	109		254	88.2		84.2

a Calculate the price index for tea in 2011. [2]

b Calculate the price index for oil in 2013. [2]

c Calculate the terms of trade for the United States of America in 2013. [2]

d Calculate the terms of trade for Sri Lanka in 2011. [2]

e Comment on how the terms of trade between the United States of America and Sri Lanka have changed in the time period shown. [2]

5 The information below refers to Country L. The base year is 2012.

Year	Price of sugar exports ($ per unit)	Price of cotton imports ($ per unit)
2012	606.50	83.50
2013	620.40	141.95
2014	667.70	78.07

a Calculate the price index for sugar exports in 2014. [2]

b Calculate the value of Country L's terms of trade in 2013. [2]

c Comment on what has happened to Country L's terms of trade between 2012 and 2014. [2]

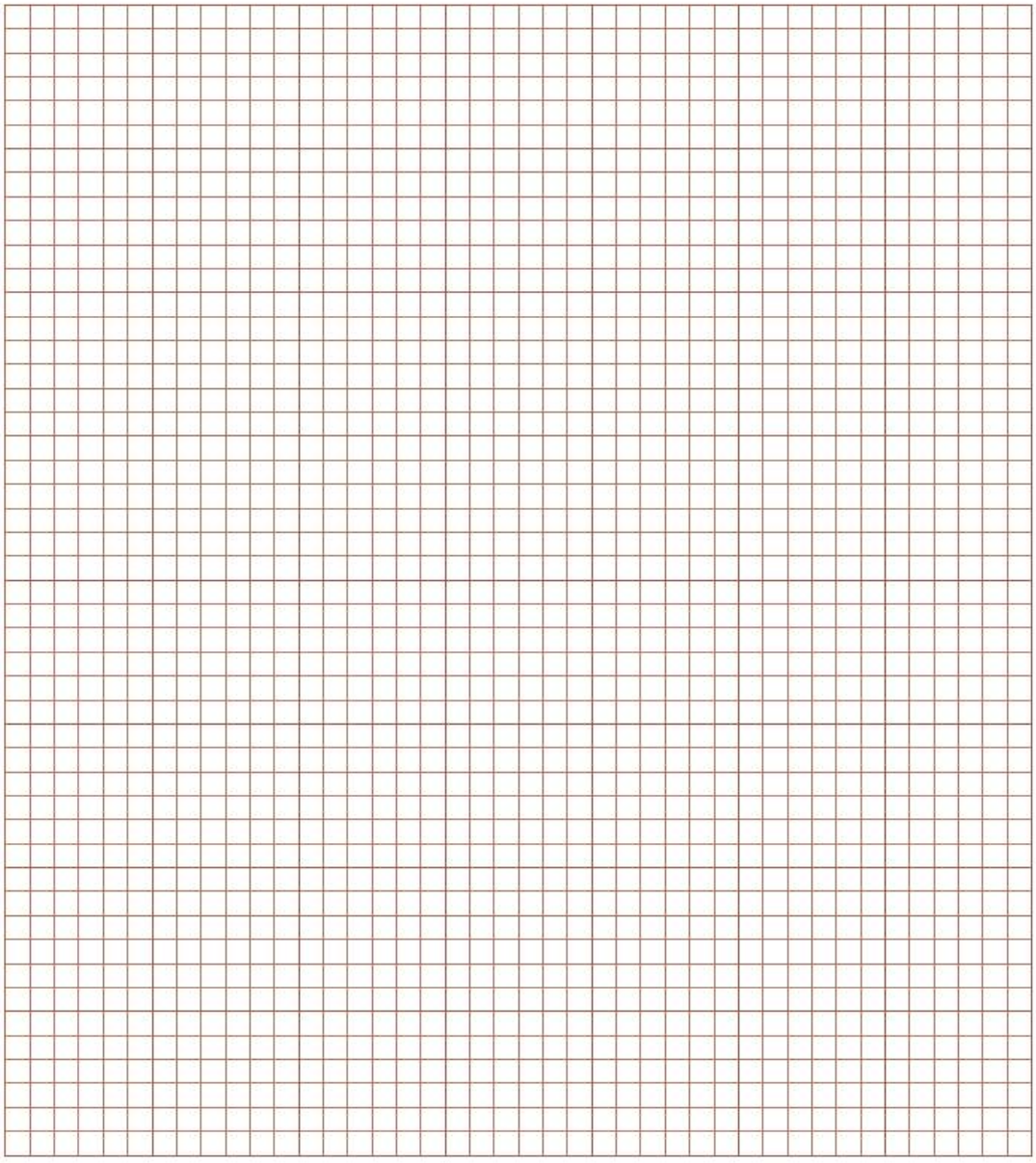
Mock exam practice paper

*Each question is worth **[25 marks]**. Write your answers in the boxes provided.*

1. The table below shows the demand for and supply of vegetarian meals per week for a small restaurant.

Price ($)	Quantity demanded	Quantity supplied
10.00	60	100
9.00	70	90
8.00	80	80
7.00	90	70
6.00	100	60

(a) Plot the demand and supply curves on the graph paper below, making sure the diagram is fully labelled. *[4]*



(b) Determine the linear function (equation) of the demand and supply curves in your diagram. *[2]*

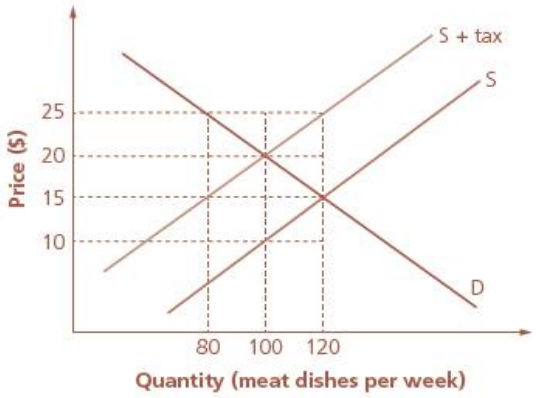
(c) Use your demand and supply linear functions from part (b) to calculate the equilibrium price and quantity traded each week. *[3]*

(d) Clearly show on your diagram the excess disequilibrium at $6 and $9 per vegetarian meal. *[4]*

(e) Calculate the price that would be necessary for customers to buy 86 vegetarian meals per week at the restaurant. *[2]*

(f) Suppose the government imposed a $2 per unit tax on vegetarian meals in restaurants. Calculate the new equilibrium price and quantity below and then identify both of these on your diagram. *[4]*

The restaurant also sells meat dishes prepared with saturated fat at a price of $15 per person. However, the imposition of a 'fat tax' has resulted in the following situation for the restaurant owner.



(g) Calculate the total amount of tax collected by the government from the restaurant for meat dishes. *[2]*

(h) Calculate the incidence of tax paid by the restaurant owner. *[2]*

(i) Calculate the value of the deadweight (welfare) loss following the imposition of the 'fat tax'. *[2]*

2. Suppose the demand for US dollars (USD) in terms of the New Zealand dollar (NZD) on the foreign exchange market is determined by the linear function **Qd = 150 – 25P** and the supply for US dollars is determined by the linear function **Qs = 50 + 25P**.

(a) **(i)** Calculate the equilibrium exchange rate of the USD against the NZD. *[2]*

(ii) Calculate the new equilibrium exchange rate if a hike in US interest rates led to the demand function changing to **Qd = 160 – 25P**. *[2]*

(iii) Describe how higher interest rates in the United States of America led to a change in its exchange rate. *[2]*

(iv) Outline one other reason for the change in the price of the USD in terms of the NZD. *[2]*

(b) Study the data below for a country and answer the questions that follow.

Imports of goods	–$32 bn
Exports of goods	+$10 bn
Net trade in services	+$15.3 bn
Net income	+$8.2 bn
Net transfers	–$4 bn

(i) Calculate the value of the balance of trade. *[2]*

(ii) Calculate the value of the current account. *[2]*

(c) Study the information in the table below and answer the following questions.

Year	Price of silver ($ per unit)	Index number (silver)	Price of rice ($ per unit)
2012	1,540	106.2	17,095
2013	1,450	100.0	17,805
2014	1,650	113.8	16,060

(i) Using 2013 as the base year (with an index number of 100), calculate the index number for the price of rice in both 2012 and 2014. *[3]*

(ii) Explain what these index numbers reveal about the price of rice. *[2]*

(iii) Calculate the terms of trade for the United States of America (exporting silver and importing rice) in 2014. *[2]*

(iv) Calculate the terms of trade for Thailand (exporting rice and importing silver) in 2014. Identify which country has experienced an improvement in its terms of trade. *[3]*

(v) Show which commodity (silver or rice) experienced the larger percentage change in price between 2012 and 2014. *[3]*

3. Refer to the table below, which shows the demand schedule for a firm.

Price ($)	Quantity demanded (units)
10	1
9	2
8	3
7	4

(a) (i) Define the term 'demand'. *[2]*

(ii) Calculate the marginal revenue from selling the third unit of output. *[2]*

(iii) Show why total revenue is maximized at a price of $7 per unit. *[2]*

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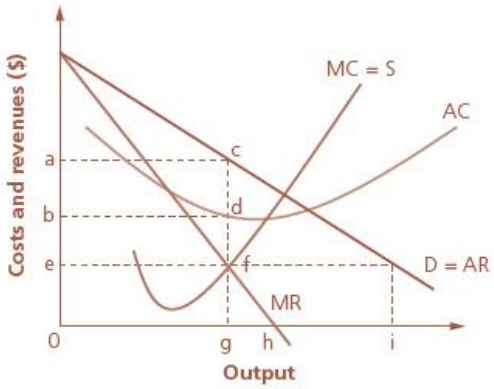
(b) Refer to the diagram below, depicting the position of a profit-maximizing monopolist, and answer the questions that follow.



(i) Identify the price charged by the monopolist. *[1]*

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(ii) Identify the area that shows the total costs of the monopolist. *[1]*

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(iii) With reference to the above diagram, define the term 'abnormal profit'. *[3]*

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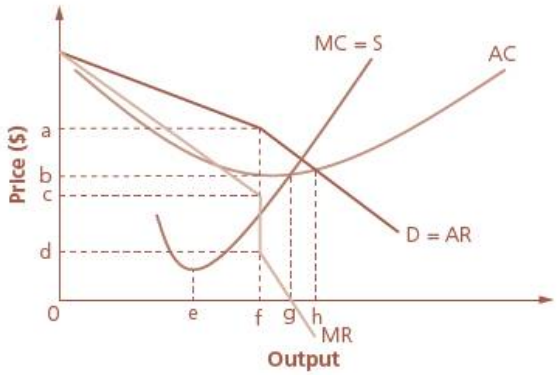
(iv) Explain **two** reasons for monopolists earning abnormal (supernormal) profits. *[4]*

(v) With reference to the diagram for the profit-maximizing monopolist, explain why monopolists are said to be inefficient. *[3]*

(vi) If the monopolist were to become a revenue maximizer, state the desired output level. *[1]*

(c) Refer to the kinked demand curve diagram below, depicting the position of a profit-maximizing oligopolist, and answer the questions that follow.



(i) Identify the level of output, the price charged by the oligopolist and the most productively efficient level of output. *[3]*

(ii) With reference to the above diagram for an oligopolist, explain why there is price rigidity under the model of oligopoly. *[3]*

4. The government of Jukeland uses a consumer price index (CPI) to calculate the cost of living in its country. The data it has collected for a representative basket of goods and services are shown in the table below. The average household monthly spending in 2012 was $268.

Product	Average monthly purchases (quantity)	Average price ($) in 2013	Average price ($) in 2014
e-Books	8	10	11
Contact lenses	30	2	2.5
Pizza	4	12	11
Mobile phone bill	1	35	38
Clothing	3	20	22

(a) Explain what is meant by the consumer price index (CPI). *[2]*

(b) **(i)** Use the data in the table to calculate the CPI in Jukeland for 2013 and 2014, using 2012 as the base year. *[3]*

(ii) Calculate the inflation rate in Jukeland between 2012–13 and 2013–14. *[3]*

(iii) Using your answers to parts (i) and (ii), comment on how the cost of living has changed in Jukeland between 2012 and 2014. *[2]*

(iv) Clothing is more important than pizza to people in Jukeland. Use the data to explain this statement. *[3]*

(c) Explain **two** drawbacks of using a CPI to measure the cost of living in a country. *[4]*

(d) The table below shows the components of nominal gross domestic product (GDP) for Jukeland in 2015.

Component of nominal gross domestic product (GDP)	Value ($bn)
Consumption expenditure	236
Investment expenditure	65
Government expenditure	45
Export earnings	37
Import expenditure	38
Net property income from abroad	–12