1.3 Price determination in a competitive market

AQA 7136 · Calculator allowed · about 105 minutes · Write-in edition

Total Marks

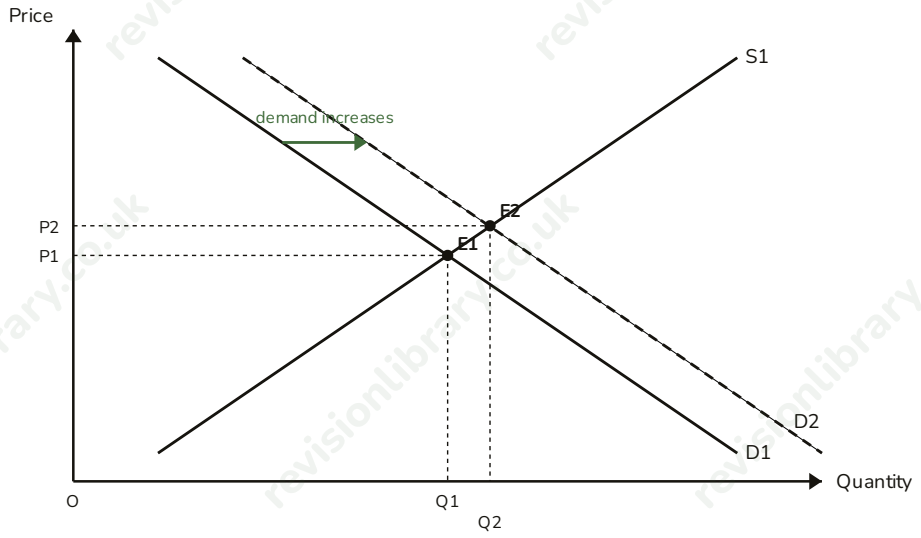
Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Analyse how the price mechanism performs the rationing and signalling functions in a competitive market, using an example of a sudden increase in demand for a good.

(Total for Question 1 is 12 marks)

2 The diagram shows the market for a good, initially in equilibrium at E1. Demand then rises, shown by a rightward shift of the demand curve from D1 to D2, with the supply curve S1 unchanged. A new equilibrium is reached at E2.



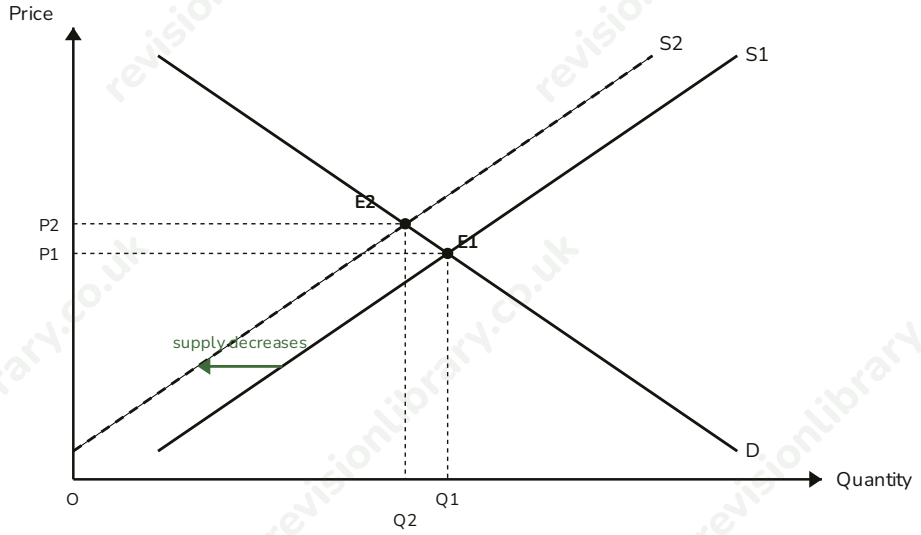
(a) State the change in equilibrium price and quantity shown by the shift from D1 to D2. **(2)**

(b) Using the diagram, and an example, explain ONE non-price factor that could cause the rightward shift shown from D1 to D2. **(4)**

(c) Explain why the market mechanism (the price mechanism) restores equilibrium at the new price P2 without the need for government intervention. **(4)**

(Total for Question 2 is 10 marks)

3 The diagram shows the market for an agricultural good. Supply then falls, shown by a leftward shift of the supply curve from S1 to S2, with the demand curve D unchanged.



(a) State the change in equilibrium price and quantity shown by the shift from S1 to S2. **(2)**

(b) Explain ONE cause of a leftward shift of the supply curve from S1 to S2 for an agricultural good. **(3)**

(c) Explain why a decrease in supply, other things remaining constant, leads to a rise in the equilibrium price. **(4)**

(Total for Question 3 is 9 marks)

4 A firm sells a good at a price of £8. It raises the price to £10. As a result, weekly quantity demanded falls from 4,000 units to 3,600 units.

(a) Define price elasticity of demand (PED). **(2)**

(b) Calculate the price elasticity of demand for this good. Show your working. **(4)**

(c) Using your answer to part (b), state whether demand for this good is price elastic or price inelastic, and explain what this means for the responsiveness of quantity demanded to a change in price. **(2)**

(d) Hence, calculate the change in the firm's total revenue (in GBP) as a result of the price rise from £8 to £10, and explain whether this is consistent with your answer to part (c). **(4)**

(Total for Question 4 is 12 marks)

5 Two further scenarios about elasticity of demand.

(a) A consumer's income rises from £20,000 to £22,000 per year. As a result, their demand for a good rises from 50 units to 65 units per year. Calculate the income elasticity of demand (YED) for this good. **(3)**

(b) Using your answer to part (a), classify this good (state whether it is a normal or inferior good, and whether demand is income elastic or income inelastic), giving a reason. **(3)**

(c) The price of tea rises by 10%. As a result, the quantity demanded of coffee rises by 4%. Calculate the cross elasticity of demand (XED) of coffee with respect to the price of tea, and use your answer to state the relationship between the two goods. **(3)**

(Total for Question 5 is 9 marks)

6 The price of a good rises from £5 to £6. As a result, quantity supplied rises from 1,000 to 1,300 units per month.

(a) Calculate the price elasticity of supply (PES). **(3)**

(b) State two factors that determine whether supply of a good is elastic or inelastic. **(2)**

(c) Would supply typically be more elastic in the short run or the long run? Justify your answer. **(2)**

(Total for Question 6 is 7 marks)

7 Bad weather in a key growing region reduces the global supply of cocoa beans, a key input for chocolate manufacturers.

(a) Explain the likely effect on the market for chocolate bars of the reduction in the supply of cocoa beans. **(4)**

(b) Discuss whether the demand for chocolate bars is likely to be price elastic or price inelastic, and explain why this matters for how much the price of chocolate bars rises. **(4)**

(Total for Question 7 is 8 marks)

Mark scheme · 1.3 Price determination in a competitive market

Question 1

Level 3 Thorough, well-linked analysis of both the rationing and signalling functions, applied clearly to a chosen example, using correct terminology throughout. **9-12**

Level 2 Some accurate analysis of at least one function, with partial application to an example. **5-8**

Level 1 Basic or generic statements about the price mechanism with little application to an example. **1-4**

Level 0 No relevant content. **0**

Indicative content:

- The signalling function: a rise in demand causes excess demand at the original price, which signals to producers (via rising prices) that consumers want more of the good.
- The rationing function: as price rises, the good is rationed (allocated) towards those consumers most willing and able to pay, while some consumers are priced out of the market.
- Higher prices act as an incentive for existing firms to expand output, and for new firms to enter the market, drawing resources into producing the good in higher demand.
- Example application: a sudden rise in demand for umbrellas during an unusually wet month; price rises, rationing available umbrellas to those willing to pay most, while signalling to producers/retailers to order and supply more umbrellas.
- The two functions work together: price changes both allocate the existing quantity (rationing) and direct resources towards or away from a market (signalling), reallocating resources without central planning.
- Evaluative extension: the price mechanism works most effectively where markets are competitive and information is good; time lags in production mean the rationing function may operate faster than the signalling function's effect on output.

Question 2

(a) price rises, from P1 to P2 **B1**

(a) quantity rises, from Q1 to Q2 **B1**

(a) Answer: Price rises (P1 to P2); quantity rises (Q1 to Q2).

(b) identifies a valid non-price determinant of demand, e.g. a rise in consumer income for a normal good, a successful advertising campaign, a rise in the price of a substitute, or a favourable change in tastes **M1**

(b) explains the mechanism: at every price, consumers now wish to buy more of the good than before **M1**

(b) links this explicitly to a rightward shift of the whole demand curve (not a movement along it) **A1**

(b) correctly identifies that this produces the higher equilibrium price and quantity shown at E2 (ft candidate's own example) **A1**

(b) Answer: Example: a rise in consumer income raises demand for a normal good at every price, shifting D1 to D2 and raising both price and quantity.

(c) at the original price P1, the increase in demand creates excess demand (a shortage) at that price, since quantity demanded on D2 now exceeds quantity supplied on S1 **M1**

(c) firms respond to the shortage (e.g. falling stock, queues) by raising price **M1**

(c) as price rises, quantity supplied extends along S1 (a movement along the supply curve) while quantity demanded contracts along D2, closing the gap between the two **A1**

(c) price continues to adjust until quantity demanded again equals quantity supplied, at the new equilibrium (P2, Q2), where there is no further tendency for price to change **A1**

(c) Answer: Excess demand at P1 bids the price up until Qd (on D2) again equals Qs (on S1) at P2, Q2.

Question 3

(a) price rises, from P1 to P2 **B1**

(a) quantity falls, from Q1 to Q2 **B1**

(a) Answer: Price rises (P1 to P2); quantity falls (Q1 to Q2).

(b) identifies a valid cause, e.g. a poor harvest caused by adverse weather, a rise in the cost of a key input such as fertiliser or labour, or a new tax on producers **M1**

(b) explains the mechanism: fewer units can be profitably supplied at each price, or the cost of producing each unit of output rises **M1**

(b) links this explicitly to a leftward shift of the whole supply curve (less is supplied at every price, not a movement along S1) **A1**

(b) Answer: Example: a poor harvest raises production costs/reduces available output at every price, shifting S1 to S2.

(c) at the original price P1, the leftward shift creates excess demand (a shortage), since quantity demanded on D now exceeds quantity supplied on S2 at that price **M1**

(c) this shortage puts upward pressure on price **M1**

(c) as price rises, quantity demanded contracts along the unchanged demand curve D **A1**

(c) equilibrium is restored at a higher price and lower quantity (P2, Q2), where quantity demanded once again equals quantity supplied **A1**

(c) Answer: Excess demand at P1 (since S2 supplies less) bids price up until Qd again equals Qs, at a higher price and lower quantity.

Question 4

(a) a measure of the responsiveness of quantity demanded to a change in price **B1**

(a) PED = percentage change in quantity demanded / percentage change in price **B1**

(a) Answer: PED measures how responsive quantity demanded is to a change in price: %change in Qd / %change in P.

(b) %change in price = (10 - 8) / 8 x 100 = 25% **M1**

(b) %change in quantity demanded = (3600 - 4000) / 4000 x 100 = -10% **M1**

(b) PED = -10 / 25 **M1**

(b) = -0.4 cao **A1**

(b) Answer: PED = -0.4.

(c) inelastic, since the magnitude of PED (0.4) is less than 1 **B1**

(c) a given percentage change in price causes a proportionately smaller percentage change in quantity demanded **B1**

(c) Answer: Inelastic, since |PED| = 0.4 < 1.

(d) revenue before = 8 x 4000 = £32,000 **M1**

(d) revenue after = 10 x 3600 = £36,000 **M1**

(d) revenue rises by £4,000 (36,000 - 32,000) **A1**

(d) consistent with inelastic demand: the percentage fall in quantity (10%) is smaller than the percentage rise in price (25%), so total revenue rises when price rises **A1**

(d) Answer: Revenue rises by £4,000 (from £32,000 to £36,000); consistent with inelastic demand.

Question 5

(a) %change in income = (22000 - 20000) / 20000 x 100 = 10% **M1**

(a) %change in quantity demanded = (65 - 50) / 50 x 100 = 30% **M1**

(a) YED = 30 / 10 = +3.0 cao **A1**

(a) Answer: YED = +3.0.

(b) normal good, since YED is positive **B1**

(b) income elastic (a luxury/superior good), since the magnitude of YED (3.0) is greater than 1 **B1**

(b) quantity demanded rises by a greater percentage than the rise in income (30% > 10%) **B1**

(b) Answer: Normal, income-elastic (luxury/superior) good, since YED = +3.0 > 1.

(c) XED = %change in Qd of coffee / %change in price of tea = 4 / 10 **M1**

(c) = +0.4 cao **A1**

(c) positive XED indicates tea and coffee are substitutes (a weak/mild substitute relationship, since |XED| is less than 1) **B1**

(c) Answer: XED = +0.4; tea and coffee are (weak) substitutes.

Question 6

(a) %change in price = (6 - 5) / 5 x 100 = 20% **M1**

(a) %change in quantity supplied = (1300 - 1000) / 1000 x 100 = 30% **M1**

(a) PES = 30 / 20 = 1.5 cao **A1**

(a) Answer: PES = 1.5 (elastic).

(b) the amount of spare capacity firms have (ease of increasing output) **B1**

(b) the length of time producers have to respond (short run vs long run); allow: availability/mobility of factors of production, ease of storing stock, number of alternative uses of inputs **B1**

(b) Answer: Spare capacity; time period (any two valid, distinct determinants).

(c) more elastic in the long run **B1**

(c) because firms have time to vary all factors of production (e.g. build new factories, employ more capital), allowing a larger response of quantity supplied to a price change **B1**

(c) Answer: Long run, since all factors of production can then be varied.

Question 7

(a) cocoa beans are a key raw material/input for chocolate, so a reduced supply of cocoa raises the cost of production for chocolate manufacturers **M1**

(a) this causes a decrease (leftward shift) in the supply curve for chocolate bars **M1**

(a) leading to a rise in the equilibrium price of chocolate bars **A1**

(a) and a fall in the equilibrium quantity of chocolate bars bought and sold **A1**

(a) Answer: Higher input costs shift chocolate supply left, raising price and lowering quantity.

(b) chocolate has some close substitutes (other confectionery/snacks), suggesting demand could be relatively elastic; but many consumers are habitual/brand-loyal buyers, and chocolate typically makes up only a small proportion of a consumer's income, both of which tend to make demand more price inelastic (accept either reasoned position) **M1**

(b) identifies that the size of the price rise depends on the (candidate's chosen) elasticity of demand **M1**

(b) if demand is relatively inelastic, a given leftward shift in supply causes a proportionately larger rise in price (and smaller fall in quantity) than if demand were elastic **A1**

(b) conversely, if demand were elastic, the same supply shift would cause a smaller price rise but a larger fall in quantity traded **A1**

(b) Answer: Chocolate demand is plausibly relatively inelastic (small budget share, brand loyalty); inelastic demand means the same supply shock causes a larger price rise.