1.24 Externalities: Negative and Positive Production and Consumption Effects: 30-minute Pack

Total Marks

AQA 7136 · Calculators not allowed · about 30 minutes

Name: _____ Date: ____ / ____ / _____

Answer all questions in full sentences where appropriate. Show working for any calculations. Allow about 30 minutes for the whole pack. At least three questions require full sentence answers (look for 'Explain' or 'Assess' command words).

1 Distinguish between externalities and information failure as two different sources of market failure, and give one brief example of how an information failure might interact with an externality (without repeating material on public goods or moral hazard).

(Total for Question 1 is 6 marks)

2 Explain briefly how the concept of marginal social benefit could justify government subsidising adult education courses, and give one potential drawback of such a subsidy.

(Total for Question 2 is 3 marks)

© Revision Library | revisionlibrary.co.uk

3 A small town has three brickworks. The marginal private cost schedule per unit of dust-producing output is constant at £7. If the marginal external cost per unit is estimated at £3 and the market demand for brickworks output is such that without intervention the equilibrium quantity is 100 units, explain using arithmetic what the socially optimal price and quantity would be if supply were perfectly competitive and the social optimum requires setting price equal to MSC. Assume demand at price £10 is Q = 100 and that demand is perfectly elastic at that price for the purposes of this calculation. State the socially optimal price and the Pigovian tax required.

(Total for Question 3 is 6 marks)

---

4 Explain one limitation of using a Pigovian tax to correct a negative production externality from an urban brickworks that emits dust affecting nearby residents.

(Total for Question 4 is 3 marks)

---

5 Explain one possible unintended consequence of regulating a negative production externality by imposing a quantity limit (tradable permits) on firms emitting particulate dust in a city brickworks cluster.

(Total for Question 5 is 4 marks)

© Revision Library | revisionlibrary.co.uk

Mark scheme · 1.24 Externalities: Negative and Positive Production and Consumption Effects: 30-minute Pack

Question 1

correctly defines externalities as external costs and benefits that affect third parties, captured by the MPC/MSC and MPB/MSB distinctions	**M1**
explains that information failures concern imperfect or asymmetric information between market participants, a different market-failure mechanism	**A1**
gives a concrete example of interaction, e.g. consumers underestimating vaccine benefits could mean subsidies are less effective because demand remains low, so information campaigns may complement subsidies	**M1**
explains the interaction briefly, e.g. without good information the shift from MPB to MSB via subsidy may be smaller than expected	**A1**
notes that information failure is a distinct market failure that can nonetheless interact with an externality	**B1**
concludes with a short policy implication, e.g. combining information provision with subsidy can be more cost effective	**B1**

Answer: Externalities are external costs and benefits affecting third parties, captured by MPC/MSC and MPB/MSB; information failures are about imperfect knowledge, a distinct market-failure mechanism, but the two can interact, for example if people underestimate vaccine benefits then subsidies alone may not shift demand to the social optimum and information campaigns are needed alongside subsidies.

Question 2

states that MSB > MPB for education because there are wider benefits such as higher productivity and lower crime	**M1**
explains that a subsidy shifts MPB toward MSB, increasing consumption of education towards the social optimum	**A1**
gives one drawback, e.g. fiscal cost to the government, risk of deadweight loss if subsidy is poorly targeted, or displacement of private provision	**B1**

Answer: MSB exceeds MPB for education because others benefit from higher skills; a subsidy raises private take-up towards the socially optimal level, but it has fiscal costs and risks being poorly targeted.

Question 3

calculates MSC = MPC + external cost = 7 + 3 = £10	**M1**
states that if demand is perfectly elastic at £10 and equilibrium without intervention is at price £10 and Q = 100, then setting price equal to MSC keeps quantity at 100	**A1**
identifies the Pigovian tax equals marginal external cost = £3 per unit	**M1**
states socially optimal price is £10 and quantity Qs = 100 under these assumptions	**A1**
explains briefly that the tax raises private supply cost to MSC, internalising the externality so firms face the social cost when deciding output	**B1**
notes limitation: real demand is rarely perfectly elastic, so in practice quantity would change and the calculation is a simplification	**B1**

Answer: MSC = £10, so socially optimal price = £10 and quantity remains 100 under the perfect elasticity assumption; Pigovian tax = £3 per unit.

Question 4

identifies a plausible limitation, for example the practical difficulty of measuring the true marginal external cost per unit of output	**M1**
explains the consequence, e.g. if the tax is set too low the externality is not corrected, if too high it creates excessive firm costs and deadweight loss	**A1**
offers a further developed evaluative point, for example political resistance or administrative costs may make precise Pigovian taxes impractical and reduce net welfare gains	**B1**

Answer: Measuring the true marginal external cost is difficult, so a tax set incorrectly may under- or over-correct; additionally political and administrative costs can reduce the net welfare benefit.

Question 5

identifies an unintended consequence, e.g. permit markets can lead to permit price volatility or concentration of permits among larger firms	**M1**
explains how concentration could occur: larger firms can buy permits and expand output while smaller firms are forced to exit, reducing competition	**A1**
offers a second consequence or elaboration, e.g. if permit prices rise unexpectedly costs are passed to consumers or firms may relocate production outside the urban area, shifting pollution rather than reducing it	**M1**
explains the welfare implication, e.g. potential loss of local jobs, higher consumer prices, or 'leakage' of pollution to other locations	**A1**

Answer: Tradable permits can concentrate permits with large firms, harming competition, and permit price volatility can raise costs or push firms to relocate, shifting pollution rather than eliminating it.

© Revision Library | revisionlibrary.co.uk