

Week 30

A-Level Economics

Homework bundle for this week

本周作业合集

exercises.lol

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7. The price system and the microeconomy (A Level) Starter Quiz · 课前小测

A-Level Economics

Name: _____ Score: _____

1. Total utility from 2 then 3 ice creams is 18 then 24. What is the marginal utility of the 3rd?

2. An indifference curve joins all consumption bundles that give:

- ☐ the same level of satisfaction
- ☐ the same total cost
- ☐ maximum profit
- ☐ zero utility

3. Allocative efficiency occurs where:

- ☐ price = marginal cost
- ☐ price = average cost
- ☐ total revenue is maximised
- ☐ output is zero

4. Marginal social cost (MSC) equals marginal private cost plus the:

- ☐ external cost
- ☐ total revenue
- ☐ fixed cost
- ☐ subsidy

5. Total cost is 120 to make 10 units. What is the average cost per unit?

6. A firm sells 30 units at a price of 5. What is total revenue ($TR = P \times Q$)?

7. In perfect competition, each firm is a:

- ☐ price-taker
- ☐ price-maker
- ☐ monopolist
- ☐ cartel

8. A profit-maximising monopolist sets output where:

☐ $MR = MC$, then prices off the demand curve

☐ price = 0

☐ $AR = AC$

☐ output is maximised

9. Total revenue is 150 and total cost is 100. What is the profit?

10. In long-run perfect competition, firms earn only normal profit.

☐ True ☐ False

1. **6**

$MU = \text{change in } TU = 24 - 18 = 6.$

2. **the same level of satisfaction**

Every point on one indifference curve yields equal utility.

3. **price = marginal cost**

$P = MC$ means the value of the last unit equals its cost — allocatively efficient.

4. **external cost**

$MSC = MPC + \text{external cost imposed on third parties.}$

5. **12**

$AC = TC / Q = 120 / 10 = 12.$

6. **150**

$TR = 5 \times 30 = 150.$

7. **price-taker**

With many firms and an identical product, each must accept the market price.

8. **MR = MC, then prices off the demand curve**

$MR = MC$ gives the profit-maximising quantity; the price comes from demand at that quantity.

9. **50**

$\text{Profit} = TR - TC = 150 - 100 = 50.$

10. **True**

Free entry competes away any supernormal profit until $P = AC$ at its minimum.

7.1 Utility

Name: _____ Class: _____ Date: _____ **Total: 24 marks**

KEY WORDS utility 效用 · marginal utility 边际效用
• diminishing marginal utility 边际效用递减 · equi-marginal principle 等边际原则
• total utility 总效用

Objective

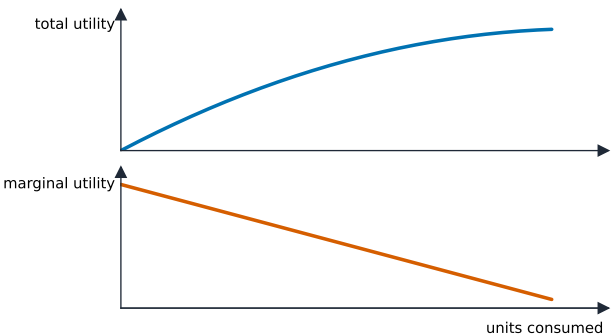
Build the skills to answer exam questions on **utility** 效用 — **total and marginal utility** 总效用与边际效用, **diminishing marginal utility** 边际效用递减, and the **equi-marginal principle** 等边际原则.

You must be able to:

- define total and marginal utility
- explain diminishing marginal utility and why demand slopes downward
- apply and evaluate the equi-marginal principle

1 Worked examples

■ Utility and consumer choice

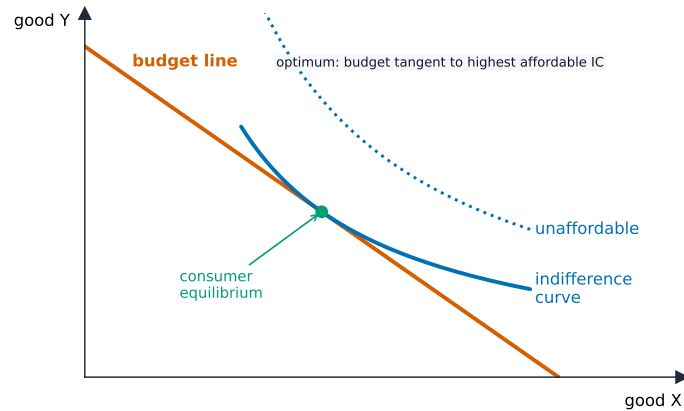


Each extra unit adds less satisfaction — so buyers pay less for later units

- **Total utility** 总效用: satisfaction from all units; **marginal utility** 边际效用:

satisfaction from one more unit.

- **Diminishing marginal utility** 边际效用递减: each extra unit adds less → demand slopes **down**.
- **Equi-marginal principle:** utility is maximised when $\frac{MU_A}{P_A} = \frac{MU_B}{P_B}$.



The same utility-maximising choice shown with indifference curves and a budget line

Answer shapes: AO1 + AO2 + AO3 (analysis) + AO4 (judgement, for evaluate questions).

2 Practice

2.1 Define the term *marginal utility*. [2]

2.2 State the law of diminishing marginal utility. [2]

2.3 State the equi-marginal condition for two goods A and B. [1]

3 Exam-style questions

3.1 A consumer maximises total utility from two goods when: [1]

- **A** the price of each good is equal
- **B** the marginal utility of each good is equal
- **C** the marginal utility per dollar spent on each good is equal
- **D** total utility from each good is equal

3.2 Explain how diminishing marginal utility helps explain the downward-sloping demand curve. [6]

3.3 Discuss the usefulness of marginal utility theory in explaining consumer behaviour. [12]

Solutions

Economics answers are marked by **level of response** against the assessment objectives: award **AO1** knowledge, **AO2** application, **AO3** analysis and **AO4** evaluation.

2.1 the extra satisfaction (utility) gained from consuming one more unit of a good (2 for a clear definition; 1 for a partial idea).

2.2 as more of a good is consumed, each extra unit gives less extra satisfaction than the one before (2 for a clear statement; 1 for a partial idea).

$$\mathbf{2.3} \quad \frac{MU_A}{P_A} = \frac{MU_B}{P_B} \quad (1).$$

3.1 C. Utility is maximised when the marginal utility per dollar is equal across goods.

3.2 [6] AO1 1 + AO3 up to 5 — each extra unit gives less marginal utility, so it is worth less to the consumer → they will only buy more units if the price is lower → quantity demanded rises as price falls → the demand curve slopes downward.

3.3 [12] AO1/AO2/AO3 up to 8 + AO4 up to 4. **Useful:** it explains the downward demand curve and consumer equilibrium, and underpins the idea of consumer surplus. **Limits:** utility cannot be measured in numbers, consumers do not calculate like this, and it ignores habit, advertising and bounded rationality. **Judgement:** the theory gives useful insight into choice, but behavioural factors mean it is a simplification — its value depends on the decision being modelled.

4 A consumer maximises his total utility by initially buying 10 units of good X and 10 units of good Y.

Assuming both goods are normal, what would cause this utility-maximising consumer to purchase more of good Y and less of good X?

- A an increase in the marginal utility of good Y
- B an increase in the price of good Y
- C an increase in the tax on the consumption of good Y
- D an increase in the tax on the income of consumers

5 The table gives the marginal utility of two goods, X and Y. The price of good X is \$2.00 and the price of good Y is \$1.00.

quantity	marginal utility of good X	marginal utility of good Y
1	110	66
2	80	50
3	66	38
4	56	33
5	33	30

If a consumer spends all of their income on goods X and Y, which combination of goods would they choose to maximise their utility?

- A 1 unit of X and 1 unit of Y
- B 3 units of X and 1 unit of Y
- C 3 units of X and 4 units of Y
- D 5 units of X and 1 unit of Y

7.2 Indifference curves and budget lines

Name: _____ Class: _____ Date: _____

Total: 22 marks

KEY WORDS indifference curve 无差异曲线 • budget line 预算线 • substitution effect 替代效应
• consumer equilibrium 消费者均衡 • income effect 收入效应

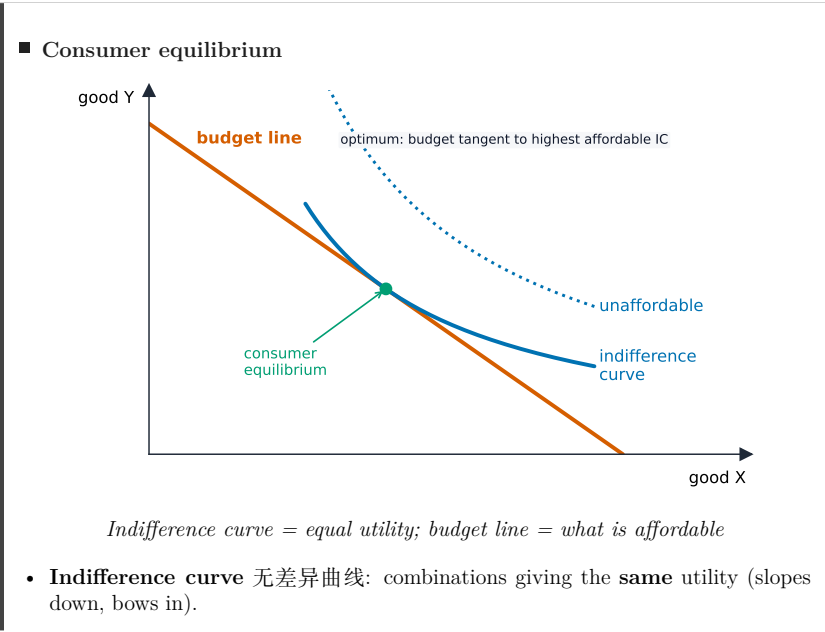
Objective

Build the skills to answer exam questions on **indifference curves and budget lines** 无差异曲线与预算线 — **consumer equilibrium** 消费者均衡, and the **income and substitution effects** 收入效应与替代效应.

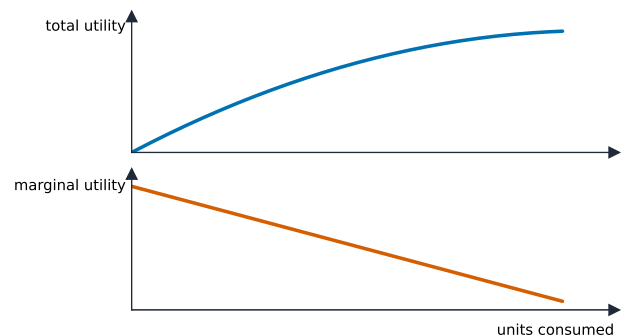
You must be able to:

- draw an indifference curve and a budget line
- find consumer equilibrium (tangency)
- explain the income and substitution effects (normal, inferior, Giffen goods)

1 Worked examples



- **Budget line** 预算线: combinations just affordable; **equilibrium** at the tangency point.
- A price fall raises quantity via two effects: **substitution effect** 替代效应 (switch to the cheaper good) + **income effect** 收入效应 (real income rises).
- **Giffen good** 吉芬品: a strong negative income effect → demand rises as price rises.



diminishing MU: each extra unit adds less · TU flattens as MU → 0

Behind the indifference map: diminishing marginal utility is why the curves bow inward

Answer shapes: an **Explain** [up to 8] answer may use an indifference diagram (AO3); **Discuss** [12] adds a judgement (AO4).

2 Practice

2.1 Define the term *indifference curve*. [2]

2.2 State where **consumer equilibrium** occurs on an indifference diagram. [1]

2.3 State the difference between the income effect and the substitution effect. [2]

3 Exam-style questions

3.1 Consumer equilibrium occurs where the budget line is: [1]

- **A** above the highest indifference curve
- **B** tangent to the highest reachable indifference curve
- **C** parallel to the indifference curve
- **D** at the origin

3.2 Using an indifference-curve diagram, explain how a consumer reaches equilibrium. [8]

3.3 Explain, using income and substitution effects, why the demand for a Giffen good slopes upward. [8]

Solutions

Economics answers are marked by **level of response** against the assessment objectives: award **AO1** knowledge, **AO2** application, **AO3** analysis and **AO4** evaluation.

2.1 a curve showing all combinations of two goods that give a consumer the same total utility (2 for a clear definition; 1 for a partial idea).

2.2 where the budget line is tangent to the highest reachable indifference curve (1).

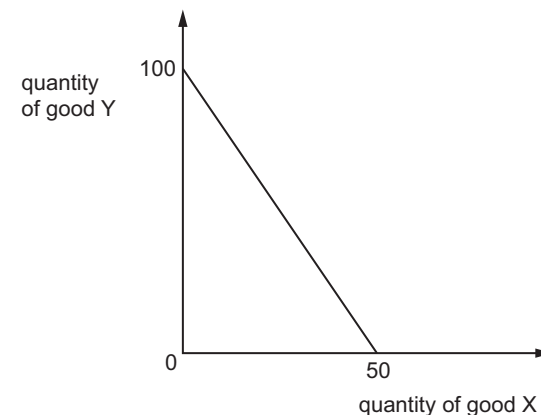
2.3 the substitution effect is the change in quantity from a good becoming relatively cheaper; the income effect is the change from the consumer's real income rising (2 for a clear difference; 1 for a partial idea).

3.1 B. Equilibrium is at the tangency with the highest reachable indifference curve.

3.2 [8] AO1 1 + **AO3 diagram up to 4** (budget line, indifference map, tangency) + AO2/AO3 up to 3 — the consumer wants the highest utility they can afford → they reach the highest indifference curve the budget line touches → at the tangency the slope of the budget line equals the slope of the indifference curve (the marginal rate of substitution equals the price ratio).

3.3 [8] AO1 1 + AO3 up to 7 — when a Giffen good's price falls, the substitution effect raises quantity, but it is a very inferior good, so the income effect (higher real income → buy less of it) is **stronger** and works the opposite way → the net effect is that quantity demanded falls as price falls → demand slopes upward.

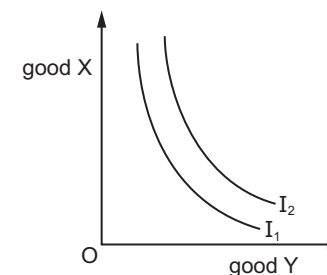
2 The diagram shows a consumer's budget line.



What determines the slope of the budget line?

- A** the marginal rate of substitution of good X for good Y
- B** the price of good X multiplied by the price of good Y
- C** the ratio of the price of good X to the income of the consumer
- D** the ratio of the price of good X to the price of good Y

2 The diagram shows two indifference curves.



What do indifference curves indicate?

- A** Consumers get more satisfaction on curve I_1 from consuming more of X and less of Y.
- B** Consumers get more satisfaction on curve I_2 from consuming less of X and more of Y.
- C** Each point on the curve represents the marginal rate of substitution of good X for good Y.
- D** Movement from I_1 to I_2 cannot be made unless the indifference curves cross.

7.3 Efficiency and market failure

Name: _____ Class: _____ Date: _____

Total: 24 marks

KEY WORDS allocative efficiency 配置效率 • market failure 市场失灵

• productive efficiency 生产效率 • information failure 信息失灵 • pareto optimality 帕累托最优

Objective

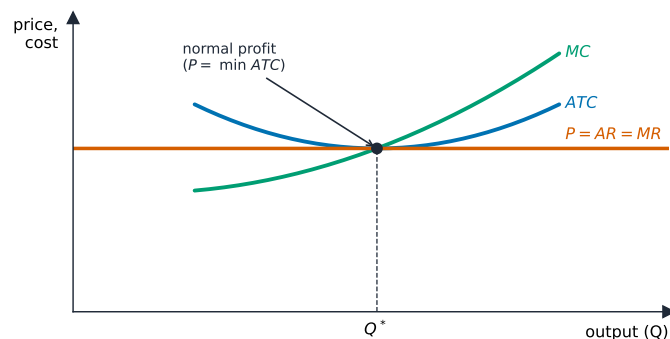
Build the skills to answer exam questions on **efficiency and market failure** 效率与市场失灵 — **productive, allocative, dynamic efficiency** 生产、配置、动态效率, **Pareto optimality** 帕累托最优, and the causes of market failure.

You must be able to:

- define the types of efficiency
- explain Pareto optimality
- analyse the causes of market failure

1 Worked examples

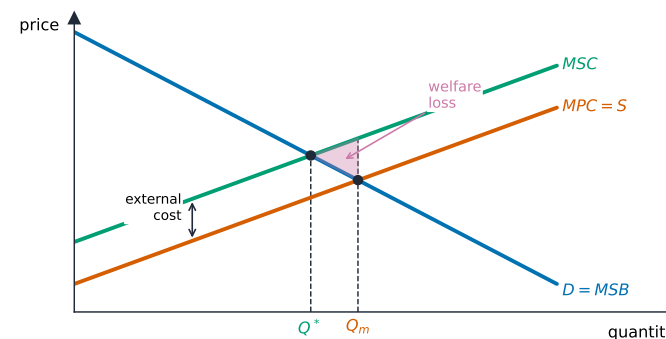
Types of efficiency



Productive efficiency: lowest cost; allocative efficiency: price = marginal cost

- **Productive efficiency** 生产效率: lowest possible cost (at the bottom of ATC).

- **Allocative efficiency** 配置效率: where **price = marginal cost** (making what people most want).
- **Dynamic efficiency** 动态效率: improving over time through innovation.
- **Pareto optimality** 帕累托最优: no one can gain without someone losing.
- **Market failure causes:** monopoly power, externalities, public goods, information failure, factor immobility.



$MSC > MPC \Rightarrow Q_m > Q^* \cdot \text{DWL from over-production}$

Externalities are a key cause of allocative inefficiency — the market output misses the social optimum

Answer shapes: AO1 + AO2 + AO3 (analysis) + AO4 (a supported judgement *in context*).

2 Practice

2.1 Define the term *allocative efficiency*. [2]

2.2 State the condition for productive efficiency. [1]

2.3 State two causes of market failure. [2]

3 Exam-style questions

3.1 Allocative efficiency is achieved where: [1]

- A average cost is at its minimum
- B price equals marginal cost
- C marginal revenue equals zero
- D supernormal profit is maximised

3.2 Explain the difference between productive and allocative efficiency. [6]

3.3 Discuss whether a free market can ever achieve an efficient allocation of resources.[12]

Solutions

Economics answers are marked by **level of response** against the assessment objectives: award **AO1** knowledge, **AO2** application, **AO3** analysis and **AO4** evaluation.

2.1 producing the combination of goods that people most want, where price equals marginal cost (2 for a clear definition; 1 for a partial idea).

2.2 producing at the lowest possible average cost (at the minimum of the ATC curve) (1).

2.3 any two of: monopoly power; externalities; public goods; information failure; factor immobility (1 + 1).

3.1 B. Allocative efficiency is where price equals marginal cost.

3.2 [6] AO1 2 + AO3 up to 4 — productive efficiency means making goods at the lowest possible cost (minimum ATC), using the fewest resources; allocative efficiency means producing the goods consumers most want, at the point where price equals marginal cost → one is about *how* cheaply goods are made, the other about *which* goods are made.

3.3 [12] AO1/AO2/AO3 up to 8 + AO4 up to 4. **For:** perfect competition delivers both productive and allocative efficiency, and the price mechanism guides resources well. **Against:** real markets have monopoly power, externalities, public goods and information failure, so they fail to reach the social optimum. Judgement: a free market can be efficient under ideal (perfect-competition) conditions, but real-world failures usually require government intervention — it depends on the market.

1 What is the definition of moral hazard?

- A** An increase in the likelihood of taking risks because another party is paying for these risks.
- B** The loss of social welfare arising from the consumption of a good.
- C** When buyers and sellers have different amounts of information regarding product quality.
- D** When costs and benefits are taken into account when a decision is being made.

6 An economist undertakes a cost–benefit analysis of the pollution resulting from a manufacturing process.

Which outcome is most likely to guide any recommendation about the optimal level of manufacturing output?

- A** that the marginal social cost of manufacturing equals the marginal social benefit
- B** that the marginal cost of pollution is zero
- C** that the total revenue of manufacturing equals the total cost
- D** that the total benefit of pollution is maximised

7 A firm is operating at a level of output which corresponds to the point where $MR = 0$.

What objective is the firm achieving?

- A** maximising consumer surplus
- B** maximising profit
- C** maximising sales
- D** maximising revenue

From Adam Smith onwards, most economists have regarded competitive markets as the main mechanism of economic activity. They argue that the interaction between producers and consumers can lead to both allocative efficiency and productive efficiency.

It can, however, be questioned whether the market automatically produces the best solution. Sometimes there are significant reasons for governments to intervene in a market in order to produce a better outcome than market forces alone. These situations are market failures.

When producing goods and services firms consider the private costs they pay and private benefits they receive. For example, a steel producer accounts for the cost of iron ore, fuel, labour and administration. It offsets these costs against the revenue from selling the steel. However, those people who live near the steelworks suffer the consequences of the noise, dirt and polluted air generated as part of the production process. Similarly, in many areas the extraction of iron ore can lead to environmental destruction such as the degradation of ground water for domestic consumption and a reduction in the variety of wildlife and flowers.

Competitive markets as envisaged by economists, however, may not exist. Firms may integrate to gain the benefits of economies of scale, to realise their ambition to rule the market or to increase their market share. Such integration might lead to the development of a monopoly market structure. Many believe that a monopoly always operates against the interests of the consumer because of its lack of efficiency. As a result, governments often restrict the operation of monopolies.

- (a) Explain the meaning of 'allocative efficiency and productive efficiency'. [4]
- (b) (i) Explain what is meant by a negative production externality. [2]
- (ii) Identify from the extract a negative production externality resulting from steel production. [1]
- (iii) Explain, with the aid of a diagram, the consequences for output and price if the steel market is required to take into consideration negative production externalities. [5]
- (c) Consider whether 'a monopoly always operates against the interests of the consumer'. [8]

Section B

Answer **one** question.

EITHER

7.4 Private costs and benefits, externalities and social costs and benefits

Name: _____ Class: _____ Date: _____ Total: 26 marks

KEY WORDS externality 外部性 • private benefit 私人收益 • private cost 私人成本
• deadweight welfare loss 无谓损失 • social benefit 社会收益

Objective

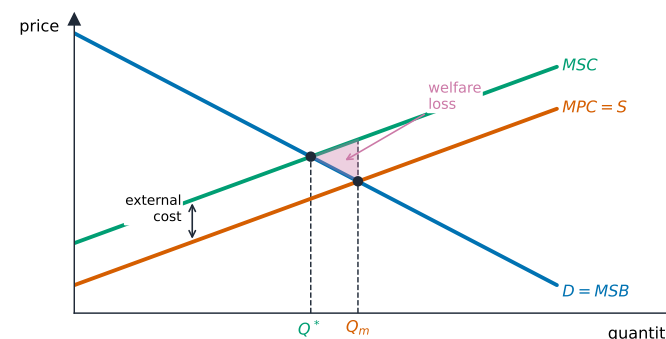
Build the skills to answer exam questions on **externalities and social costs and benefits** 外部性与社会成本收益 — **private, external and social** 私人、外部、社会 costs and benefits, **marginal analysis** 边际分析 (MPC, MSC, MPB, MSB), and **deadweight welfare loss** 无谓损失.

You must be able to:

- distinguish private, external and social costs and benefits
- draw the marginal externality diagram and identify the welfare loss
- analyse negative and positive externalities

1 Worked examples

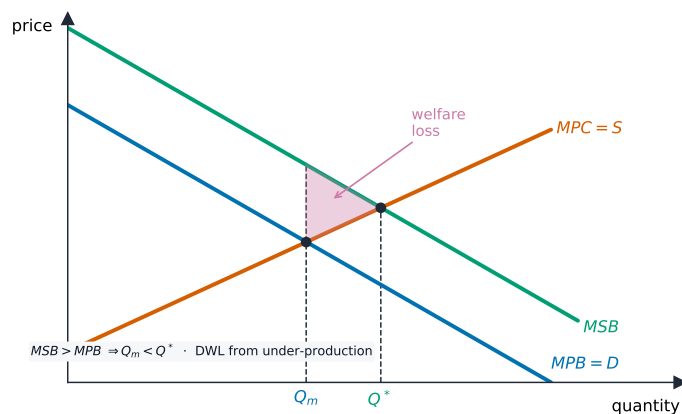
■ Marginal externality analysis



$$MSC > MPC \Rightarrow Q_m > Q^* \cdot \text{DWL from over-production}$$

The social optimum is where $MSC = MSB$; the market produces where $MPC = MPB$

- **Social cost** 社会成本 = private cost + **external cost** 外部成本; **social benefit** = private benefit + external benefit.
- **Negative externality:** $MSC > MPC \rightarrow$ market makes **too much**. **Positive externality:** $MSB > MPB \rightarrow$ **too little**.
- The gap creates a **deadweight welfare loss** 无谓损失 (the triangle between the social and private curves).



A positive externality: the free market under-produces below the social optimum Q^*

Answer shapes: an **Explain [up to 8]** answer should use a labelled marginal diagram (AO3); **Discuss [12]** adds a judgement (AO4).

2 Practice

2.1 Define the term *external cost*. [2]

2.2 State the relationship between marginal social benefit and marginal private benefit for a good with a positive externality. [1]

2.3 Define the term *deadweight welfare loss*. [2]

3 Exam-style questions

3.1 At the socially optimum level of output: [1]

- **A** marginal private cost equals marginal private benefit
- **B** marginal social cost equals marginal social benefit
- **C** total cost equals total benefit
- **D** marginal cost equals zero

3.2 Using a marginal diagram, explain why a good with a **positive externality** is under-produced by the free market. [8]

3.3 Discuss the best way for a government to deal with the negative externality from car use. [12]

Solutions

Economics answers are marked by **level of response** against the assessment objectives: award **AO1** knowledge, **AO2** application, **AO3** analysis and **AO4** evaluation.

2.1 a cost of production or consumption that falls on a third party, not the buyer or seller (2 for a clear definition; 1 for a partial idea).

2.2 marginal social benefit is greater than marginal private benefit (1).

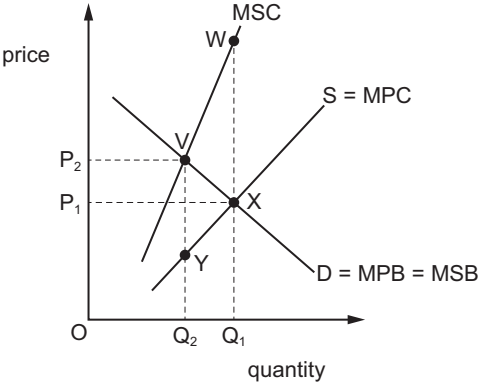
2.3 the loss of welfare (consumer plus producer surplus) when output is not at the socially optimum level (2 for a clear definition; 1 for a partial idea).

3.1 B. The social optimum is where $MSC = MSB$.

3.2 [8] AO1 1 + AO3 diagram up to 4 (MPB, MSB above it, MPC; market output where MPC = MPB, optimum where MSC = MSB; welfare-loss triangle) + AO2/AO3 up to 3 — buyers consider only their private benefit, so the market produces where MPC = MPB; but the true social benefit is higher, so the optimum is greater → the good is under-produced and welfare is lost.

3.3 [12] AO1/AO2/AO3 up to 8 (diagram + policies) + AO4 up to 4. **Options:** a tax on fuel/congestion (internalises the cost but is regressive and inelastic), regulation (emissions limits — effective but hard to enforce), subsidising public transport (switches demand but is costly), tradable permits. Judgement: a mix usually works best — a tax plus better public transport — the best policy depends on the price elasticity of demand for car use and the ability to enforce it.

6 The diagram shows market failure caused by negative production externalities.

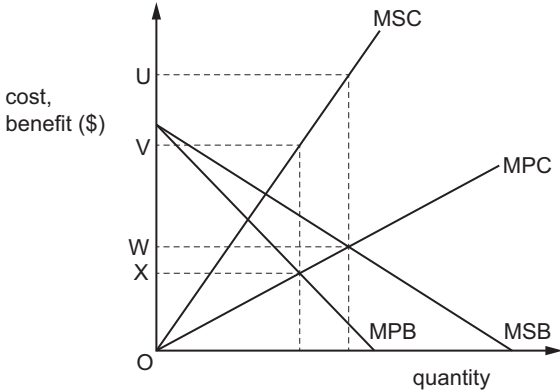


Identify the correct combination of the result of the market failure and the area on the diagram that shows deadweight welfare loss.

	result of market failure	area showing deadweight welfare loss
A	overproduction	VWX
B	overproduction	XYV
C	underproduction	VWX
D	underproduction	XYV

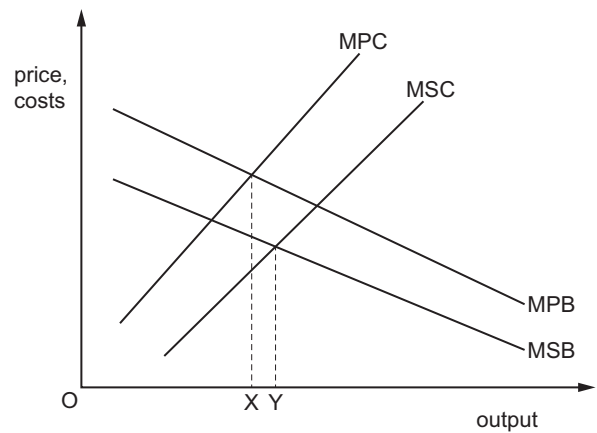
3 The diagram shows the marginal costs and marginal benefits of producing a good in a free market.

What is the marginal external cost when the free market is in equilibrium?



- A UW
- B UO
- C VX
- D VO

4 The diagram shows positive and negative externalities of production and consumption.



Which row shows the correct combination of production and consumption externality when economic welfare is maximised?

	position of economic welfare	production externality	consumption externality
A	X	negative	negative
B	Y	positive	negative
C	X	negative	positive
D	Y	positive	positive

7.5 Types of cost, revenue and profit, short-run and long-run production

Name: _____ Class: _____ Date: _____

Total: 24 marks

KEY WORDS total cost 总成本 • economies of scale 规模经济 • average cost 平均成本
• diminishing returns 边际报酬递减 • normal profit 正常利润

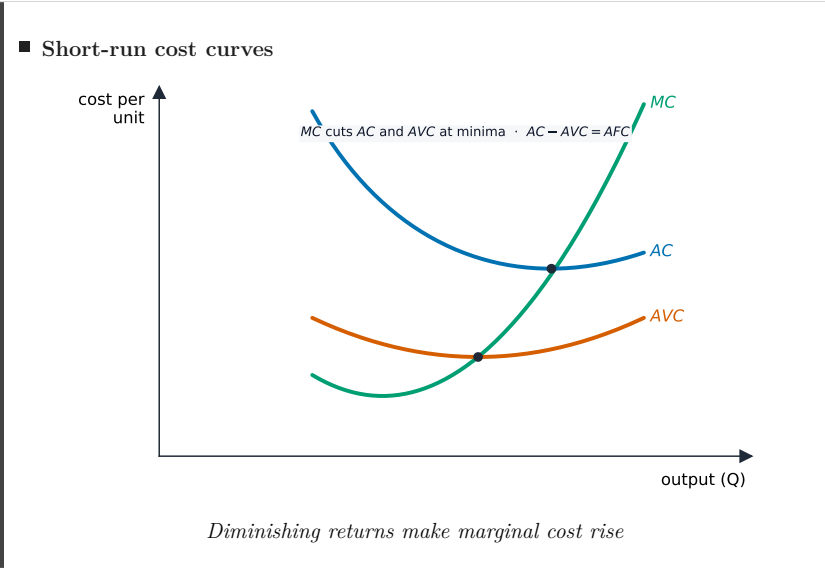
Objective

Build the skills to answer exam questions on **costs, revenue and profit** 成本、收益与利润 — short-run and long-run costs, **diminishing returns** 边际报酬递减, **economies of scale** 规模经济, and **normal and supernormal profit** 正常与超常利润.

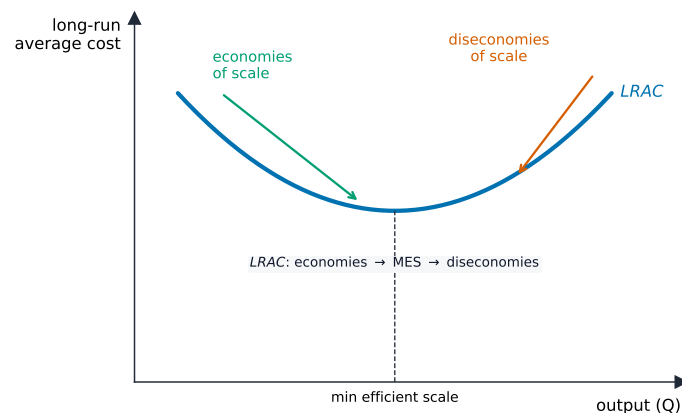
You must be able to:

- define fixed, variable, average and marginal cost
- explain diminishing returns and economies of scale
- explain normal/supernormal profit and the profit-maximising rule ($MR = MC$)

1 Worked examples



- $AC = TC/Q$; $MC = \Delta TC/\Delta Q$. **Diminishing returns** 边际报酬递减: adding a variable factor to a fixed one eventually raises MC.
- **Economies of scale** 规模经济: long-run average cost falls as the firm grows; **diseconomies** raise it if too big.



The long-run picture: economies then diseconomies of scale give a U-shaped LRAC

- **Normal profit** 正常利润: just enough to stay (a cost); **supernormal** 超常利润: above normal.
- A firm maximises profit where $MR = MC$.

Answer shapes: an **Explain** [up to 8] answer may use a cost diagram (AO3); **Discuss** [12] adds a judgement (AO4).

2 Practice

2.1 Define the term *marginal cost*. [2]

2.2 State the difference between *normal* and *supernormal* profit. [2]

2.3 State the output rule for profit maximisation. [1]

3 Exam-style questions

3.1 A firm maximises profit at the output where: [1]

- A average cost is lowest
- B marginal revenue equals marginal cost
- C total revenue is highest
- D price equals average cost

3.2 Explain, using diminishing returns, why the marginal cost curve is U-shaped. [6]

3.3 Discuss why a firm's long-run average cost may fall and then rise as output increases. [12]

Solutions

Economics answers are marked by **level of response** against the assessment objectives: award **AO1** knowledge, **AO2** application, **AO3** analysis and **AO4** evaluation.

2.1 the addition to total cost from producing one more unit of output ($\Delta TC/\Delta Q$) (2 for a clear definition; 1 for a partial idea).

2.2 normal profit is just enough to keep the firm in the industry (it counts as a cost); supernormal profit is any profit above normal (2 for a clear difference; 1 for a partial idea).

2.3 produce where marginal revenue equals marginal cost ($MR = MC$) (1).

3.1 B. Profit is maximised where $MR = MC$.

3.2 [6] AO1 + AO3 up to 5 — at low output, adding a variable factor to fixed factors raises productivity, so MC falls; beyond a point, diminishing returns set in (each extra worker adds less output) → the cost of each extra unit rises → MC rises → the curve is U-shaped.

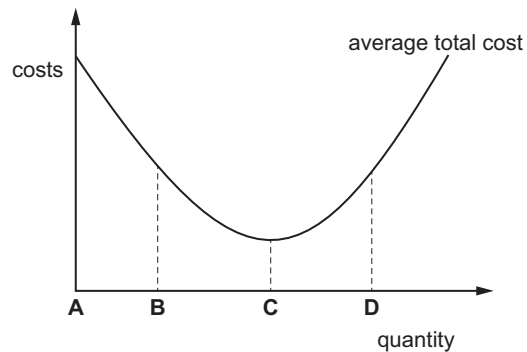
3.3 [12] AO1/AO2/AO3 up to 8 + AO4 up to 4. **Falls:** economies of scale — bulk buying, large machines, specialisation, financial economies lower average cost as the firm grows. **Rises:** diseconomies of scale — poor communication, control and coordination problems raise average cost if it grows too large. **Judgement:** there is an optimum size at minimum LRAC; whether a firm gains net economies depends on the industry and how well it is managed.

5 Which statement about factors of production is correct?

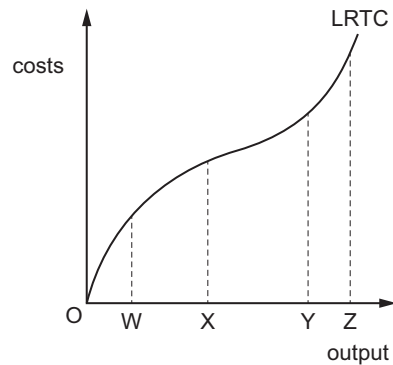
- A In the short run all factors are fixed; in the long run all factors are varied.
- B In the short run at least one factor is fixed; in the long run all factors can be varied.
- C In the short run at least one factor is varied; in the long run all factors are fixed.
- D In the short run at least one factor is varied; in the long run at least one factor is fixed.

4 The diagram shows the average total cost for a firm.

At what level of output does marginal cost exceed average total cost?



7 The diagram shows the long-run total cost (LRTC) curve of a firm.



At which output is the long-run average total cost at its minimum?

- A OW
- B OX
- C OY
- D OZ

5 A firm has fixed costs of \$300 and can produce two units per hour. Its total variable costs are \$200 for one unit and \$300 for two units.

Which cost will fall by the lowest amount when the second unit is produced?

- A average fixed cost
- B average total cost
- C average variable cost
- D marginal cost

7.6 Different market structures

Name: _____ Class: _____ Date: _____

Total: 26 marks

KEY WORDS monopoly 垄断 • monopolistic competition 垄断竞争
 • perfect competition 完全竞争 • price discrimination 价格歧视 • oligopoly 寡头垄断

Objective

Build the skills to answer exam questions on **market structures** 市场结构 — **perfect competition**, **monopolistic competition**, **oligopoly** and **monopoly** 完全竞争、垄断竞争、寡头垄断、垄断, plus **collusion** 合谋 and **price discrimination** 价格歧视.

You must be able to:

- compare the four market structures (firms, barriers, product, profit)
- draw perfect competition and monopoly in long-run equilibrium
- analyse and evaluate monopoly versus competition

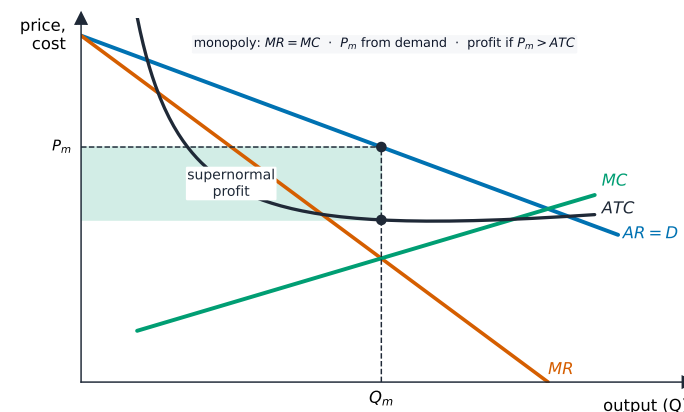
1 Worked examples

■ The spectrum of competition



Firms, barriers to entry and product type define each structure

- **Perfect competition** 完全竞争: many firms, no barriers, identical product, **normal profit** only; efficient.
- **Monopolistic competition** 垄断竞争: many firms, differentiated product, normal profit long-run.
- **Oligopoly** 寡头垄断: a few firms, high barriers; may **collude** 合谋 (a **cartel** 卡特尔).
- **Monopoly** 垄断: one firm, high barriers, **supernormal profit** 超常利润, often inefficient.



One pole of the spectrum: the monopoly diagram (price above MC, supernormal profit)

- **Price discrimination** 价格歧视: charging different groups different prices.

Answer shapes: an **Explain** [up to 8] answer may use a firm diagram (AO3); **Discuss** [12] adds a judgement (AO4).

2 Practice

2.1 State two features of **perfect competition**. [2]

2.2 Define the term *price discrimination*. [2]

2.3 State why a monopoly can earn supernormal profit in the long run. [1]

3 Exam-style questions

3.1 In long-run equilibrium, a perfectly competitive firm earns: [1]

- A supernormal profit
- B normal profit only
- C subnormal profit
- D zero revenue

3.2 Using a diagram, explain how a monopoly can earn supernormal profit. [8]

3.3 Discuss whether a monopoly is always worse for society than perfect competition.[12]

Solutions

Economics answers are marked by **level of response** against the assessment objectives: award **AO1** knowledge, **AO2** application, **AO3** analysis and **AO4** evaluation.

2.1 any two of: very many firms; no barriers to entry; identical (homogeneous) product; firms are price takers; perfect information (1 + 1).

2.2 charging different consumers different prices for the same good (2 for a clear definition; 1 for a partial idea).

2.3 because high barriers to entry stop new firms competing the profit away (1).

3.1 B. Free entry competes profit down to normal in the long run.

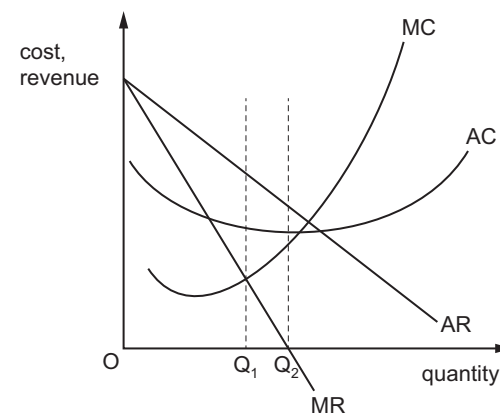
3.2 [8] AO1 1 + **AO3 diagram up to 4** (AR/MR, MC, ATC; output where $MC = MR$; price read off AR above ATC; supernormal profit shaded) + AO2/AO3 up to 3 — the monopoly produces where $MC = MR$, then charges the higher price buyers will pay → price exceeds average cost → the firm earns supernormal profit, protected by barriers to entry.

3.3 [12] AO1/AO2/AO3 up to 8 + AO4 up to 4. **Against monopoly:** higher prices, lower output, allocative and productive inefficiency, possible complacency. **For monopoly:** economies of scale can lower costs, supernormal profit can fund research (dynamic efficiency), and a natural monopoly avoids wasteful duplication. Judgement: monopoly is not *always* worse — it depends on whether economies of scale and innovation outweigh the higher price and inefficiency, and on regulation.

Name:

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3 The diagram shows that a producer increases output from Q_1 to Q_2 .



What will be the result?

	total profit	total revenue
A	increased	increased
B	increased	reduced
C	reduced	increased
D	reduced	reduced

5 What is most likely to lead to a Pareto-optimal outcome?

- A** offering bulk-buy discounts to customers who join a loyalty scheme
- B** switching labour from producing low-priced products to producing high-priced products
- C** switching production from labour-intensive products to capital-intensive products
- D** training low-skilled workers to operate machinery effectively

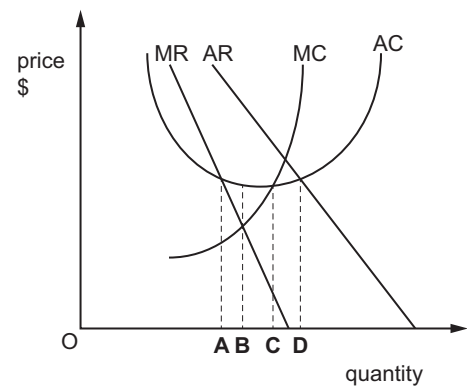
4 A firm has very high fixed costs but low marginal costs of production. It experiences continuous economies of scale so that the minimum efficient scale is not reached until the firm is very large in relation to total market demand.

In which type of market structure would the firm operate?

- A monopolistic competition
- B monopsony
- C natural monopoly
- D oligopoly

7 The diagram shows the cost and revenue curves for a monopolist.

Which level of output represents sales maximisation?



8 What might help achieve allocative efficiency?

- A differentiated products
- B government subsidies
- C monopsony
- D supernormal profits

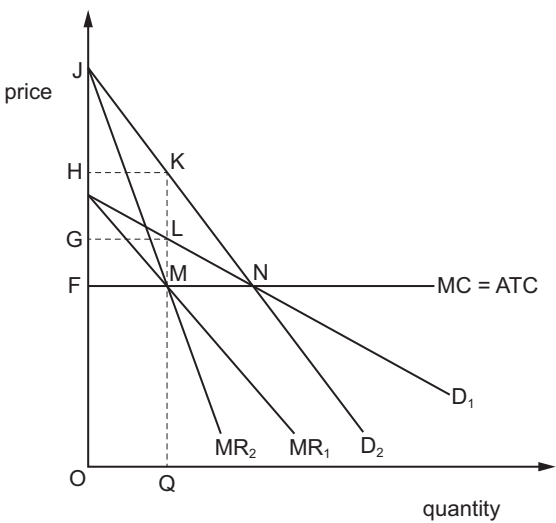


2 A firm has set a low price in the short run to act as a barrier to entry for new firms entering the market.

This is an example of which pricing strategy?

- A limit pricing
- B predatory pricing
- C price discrimination
- D price leadership

5 The diagram shows the effect of a demand curve shift from D_1 to D_2 for a profit maximising firm.



What has happened to the firm's total revenue and the deadweight welfare loss?

	total revenue	deadweight welfare loss
A	decreases to OGLQ	decreases by KLN
B	decreases to OGLQ	increases by KLN
C	increases to OHKQ	decreases by KLN
D	increases to OHKQ	increases by KLN



- 1 What will act as a barrier to collusion between firms?
- A an ability to detect price cuts by rivals
 - B the abolition of anti-trust measures
 - C the existence of a small number of firms in the industry
 - D unstable demand conditions for products
- 8 What is a potential benefit of the privatisation of a country's railway services?
- A higher levels of competition
 - B higher costs passed on in the form of higher prices
 - C opportunity for government regulation
 - D potential for a private monopoly

A-LEVEL ECONOMICS • EXERCISE SHEET

7.7 Growth and survival of firms

Name: _____ Class: _____ Date: _____ Total: 24 marks

KEY WORDS integration 一体化 • vertical 纵向 • horizontal 横向
• horizontal integration 横向一体化 • vertical integration 纵向一体化

Objective

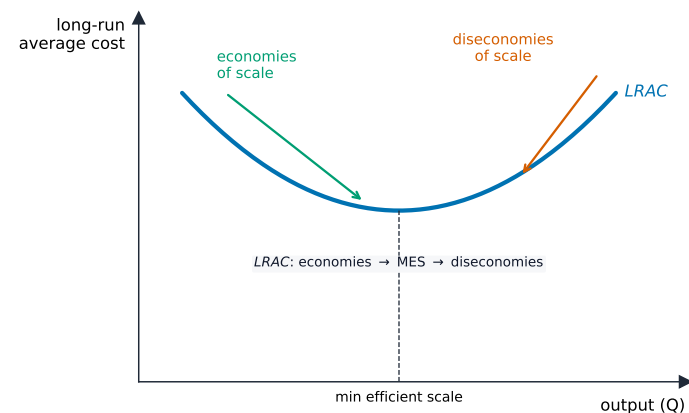
Build the skills to answer exam questions on **the growth and survival of firms** 企业的成长与存续 — **internal and external growth** 内部与外部增长 (**integration** 一体化), why some firms stay small, and **barriers to entry and exit** 进入与退出壁垒.

You must be able to:

- distinguish internal from external growth and the types of integration
- explain why some firms stay small
- analyse barriers to entry and exit

1 Worked examples

■ How firms grow



Firms grow to gain economies of scale — but small firms survive too

- **Internal growth** 内部增长 (organic): sell more. **External growth** 外部增长: a merger 合并 / takeover.

- **Horizontal** 横向 (same stage), **vertical** 纵向 (different stage), **conglomerate** 混合 (different industry → spread risk).



Growth moves a firm along the spectrum, toward fewer rivals and more market power

- **Stay small:** small/local market, owner wants control, few economies of scale, **niche** 利基.
- **Barriers to exit** 退出壁垒 (e.g. costly machines) can trap a firm in a loss-making market.

Answer shapes: AO1 + AO2 + AO3 (analysis) + AO4 (a supported judgement *in context*).

2 Practice

2.1 State the difference between internal and external growth. [2]

2.2 Define the term *vertical integration*. [2]

2.3 State one reason why a firm might stay small. [1]

3 Exam-style questions

3.1 A car manufacturer buying a tyre producer is an example of: [1]

- **A** horizontal integration
- **B** vertical integration
- **C** conglomerate integration
- **D** internal growth

3.2 Explain two reasons why many small firms are able to survive in a market dominated by large firms. [6]

3.3 Discuss whether all firms should aim to grow as large as possible.

[12]

Solutions

Economics answers are marked by **level of response** against the assessment objectives: award **AO1** knowledge, **AO2** application, **AO3** analysis and **AO4** evaluation.

2.1 internal growth is a firm growing bigger by selling more itself; external growth is joining with another firm through a merger or takeover (2 for a clear difference; 1 for a partial idea).

2.2 joining with a firm at a different stage of the same production process (e.g. a maker buying a supplier) (2 for a clear definition; 1 for a partial idea).

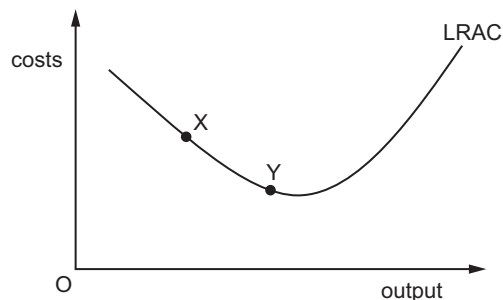
2.3 any one of: the market is small/local; the owner wants to keep control; there are few economies of scale; it serves a niche (1).

3.1 B. Joining a firm at a different stage is vertical integration.

3.2 [6] For **each** of two reasons: AO1 1 + AO3 up to 2 — e.g. *niche/personal service*: small firms serve a specialised market the giants ignore → loyal customers → they survive. *Few economies of scale*: in some industries large size brings little cost advantage → small firms compete on equal terms. Maximum 3 each.

3.3 [12] AO1/AO2/AO3 up to 8 + AO4 up to 4. **For growth:** economies of scale lower costs, more market power and profit, and survival. **Against:** diseconomies of scale raise costs beyond the optimum, growth needs finance and is risky, and many owners value control or serve a niche better when small. **Judgement:** growth suits firms that gain real economies of scale, but staying small is rational for niche or owner-controlled firms — it depends on the industry and the owner's aims.

- 2 A small European airline currently produces at point X on its long-run average cost curve (LRAC). It wants a bigger share of the European airline market and proposes to merge with another small European airline. The newly merged firm would produce at point Y on the long-run average cost curve, as shown.



Why might the newly merged firm be able to produce at point Y?

- A The new airline can negotiate discounts when buying fuel.
- B The new airline has many layers of management.
- C The new airline is unable to hire enough pilots.
- D The workforce of the new airline lacks morale and is demotivated.

- 3 What is an example of forward vertical integration?

- A A firm manufacturing computers merges with a firm that manufactures furniture.
- B A firm manufacturing computers merges with a firm that manufactures silicon chips for computers.
- C A firm manufacturing computers merges with a retail outlet that sells computers.
- D A firm manufacturing computers merges with another firm that also manufactures computers.

7.8 Differing objectives and policies of firms

Name: _____ Class: _____ Date: _____ Total: 24 marks

KEY WORDS satisficing 满意化 • revenue maximisation 收益最大化
 • sales maximisation 销售最大化 • divorce of ownership from control 所有权与控制权分离
 • profit maximisation 利润最大化

Objective

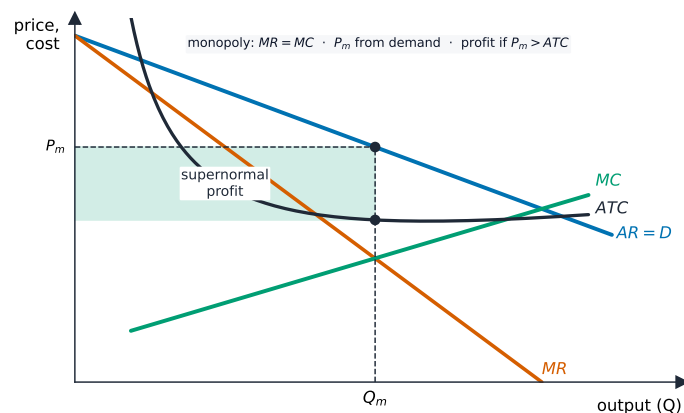
Build the skills to answer exam questions on the **differing objectives of firms** 企业的不同目标 — **profit, revenue and sales maximisation** 利润、收益、销售最大化, **satisficing** 满意化, and the **divorce of ownership from control** 所有权与控制权分离 (the **principal-agent problem** 委托代理问题).

You must be able to:

- describe the alternative objectives of firms
- explain the divorce of ownership from control
- analyse why firms may not maximise profit

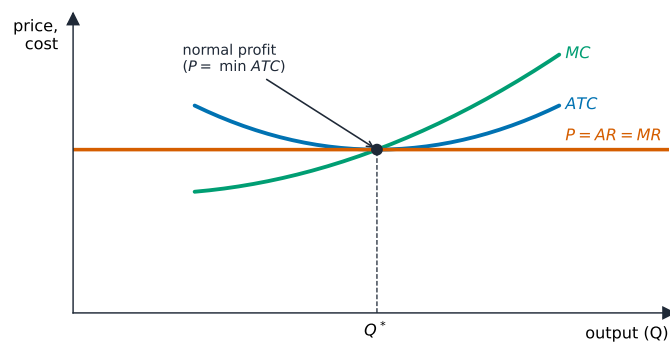
1 Worked examples

- What firms aim for



Profit maximisation is the traditional aim — but not the only one

- **Profit maximisation** 利润最大化: produce where $MR = MC$. **Revenue maximisation** 收益最大化: where $MR = 0$.
- **Sales maximisation** 销售最大化: largest output while still making normal profit. **Satisficing** 满意化: “good enough” for all stakeholders.



long-run PC: $P = AR = MR = \min ATC$ · normal profit

Market structure limits the objective: under perfect competition only normal profit is possible

- **Divorce of ownership from control** 所有权与控制权分离: managers $\neq$ owners → the **principal-agent problem** 委托代理问题 (managers pursue their own aims).

Answer shapes: AO1 + AO2 + AO3 (analysis) + AO4 (a supported judgement *in context*).

2 Practice

2.1 State the output condition for *profit maximisation*. [1]

2.2 Define the term *satisficing*. [2]

2.3 Define the term *divorce of ownership from control*. [2]

3 Exam-style questions

3.1 A firm that aims for **revenue maximisation** produces where: [1]

- A marginal revenue equals marginal cost
- B marginal revenue equals zero
- C price equals average cost
- D average cost is at its minimum

3.2 Explain how the divorce of ownership from control can lead to the principal-agent problem. [6]

3.3 Discuss whether firms always aim to maximise profit. [12]

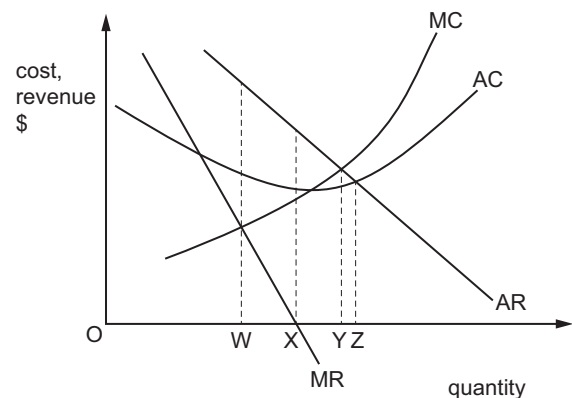
Solutions

Economics answers are marked by **level of response** against the assessment objectives: award **AO1** knowledge, **AO2** application, **AO3** analysis and **AO4** evaluation.

- 2.1** produce where marginal revenue equals marginal cost ($MR = MC$) (1).
- 2.2** aiming for results that are “good enough” to keep owners, workers and customers reasonably satisfied, rather than maximising any one thing (2 for a clear definition; 1 for a partial idea).
- 2.3** when the owners (shareholders) of a firm are different people from the managers who control its day-to-day decisions (2 for a clear definition; 1 for a partial idea).
- 3.1 B.** Revenue is maximised where marginal revenue equals zero.
- 3.2** [6] AO1 1 + AO3 up to 5 — owners (principals) want maximum profit, but managers (agents) control decisions and have their own aims (higher salaries, an easier life, bigger firms) → because owners cannot fully monitor managers, managers may pursue their own goals instead of profit → the firm does not maximise profit.
- 3.3** [12] AO1/AO2/AO3 up to 8 + AO4 up to 4. **For profit max:** profit funds survival and rewards owners, and competition forces firms towards it. **Against:** the divorce of ownership and control lets managers satisfice or pursue sales/revenue growth, and firms may pursue ethical or market-share aims. Judgement: profit maximisation is a useful baseline, but in large firms with separated ownership, other objectives often dominate — it depends on the firm’s ownership and the strength of competition.

- 1 What is likely to lead to the principal-agent problem?
- A a manager of a business makes decisions on behalf of the owner
 - B music festival tickets are purchased by a person who intends to sell them at a large profit
 - C the government is the only buyer of a pharmaceutical product
 - D there is only one firm that manufactures the product

- 7 The diagram shows the cost and revenue curves of a firm.



The firm changes its objective from revenue maximisation to sales maximisation.

What will be the effect on quantity produced?

- A it will decrease from Y to W
- B it will decrease from Z to W
- C it will increase from X to Y
- D it will increase from X to Z

- 9 What is the essential feature of nudge theory?

- A the aim of satisficing
- B the establishing of a legal requirement
- C the existence of a contestable market
- D the idea of persuasion