

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

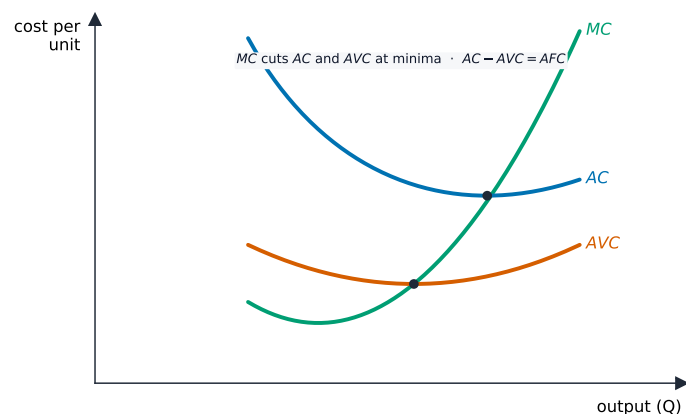
Build the skills to answer exam questions on **costs, revenue and profit** 成本、收益与利润 — short-run and long-run costs, **diminishing returns** 边际报酬递减, **economies of scale** 规模经济, and **normal and supernormal profit** 正常与超常利润.

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 ($MR = MC$)

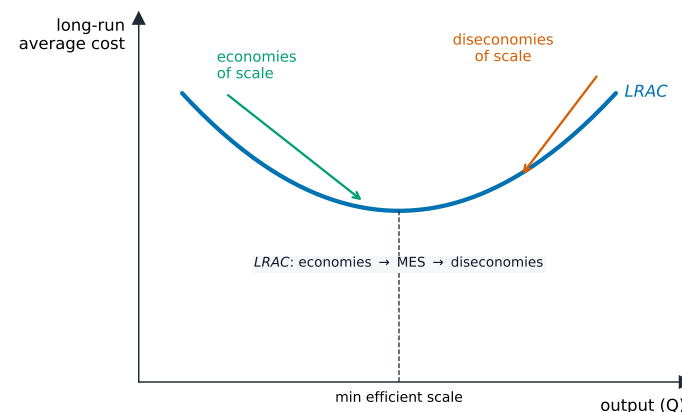
1 Worked examples

■ Short-run cost curves



Diminishing returns make marginal cost rise

- $AC = TC/Q$; $MC = \Delta TC/\Delta Q$. **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 of scale** 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 1 + 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) $\rightarrow$ the cost of each extra unit rises $\rightarrow$ MC rises $\rightarrow$ 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.