

AP free-response is scored point by point against a published rubric, and the points are awarded for specific statements, not for overall quality. Each response below is written the way a full-credit answer is written – short, direct, correctly labelled – with the scoring points named. 本册按 AP 评分细则逐点标注, 答案短而准确即可满分。

Perfect competition

I A firm in a perfectly competitive market is earning positive economic profit. (a) Draw correctly labelled side-by-side graphs of the market and the firm, showing the profit. (b) Identify the firm's profit-maximising quantity. (c) Explain what happens in the long run.

(a) Market graph: supply and demand intersecting at price P, with axes labelled Price and Quantity. Firm graph: a horizontal demand curve at that same P, labelled $d = MR = P$, with MC cutting it from below at q, and ATC below P at q. The profit rectangle is shaded between P and ATC across q. (b) The quantity where $MR = MC$, labelled q on the firm's graph. (c) Positive economic profit attracts new firms into the market. Market supply increases, so the market price falls. Each existing firm's demand curve shifts down with it, and entry continues until price equals minimum ATC and economic profit is zero.

The rubric awards: correctly labelled axes on both graphs, the horizontal firm demand at the market price, $MR = MC$ identified, the shaded profit area, then in part (c) three separate points – entry occurs, market supply increases, price falls until profit is zero. The two graphs **MUST** show the same price level; a firm graph whose price does not line up with the market's loses a point even when both are individually correct.

I Explain why a perfectly competitive firm in long-run equilibrium is both allocatively and productively efficient.

It is allocatively efficient because it produces where price equals marginal cost, so the value consumers place on the last unit equals the cost of producing it. It is productively efficient because in long-run equilibrium price equals minimum average total cost, so the firm produces at the lowest possible cost per unit.

Two points, each requiring the *CONDITION* ($P = MC$, $P = \text{minimum ATC}$) plus its meaning. Naming the two efficiencies without their conditions earns nothing – the condition is the scored element. Note also that this is the answer to why a monopoly is neither, and the exam frequently asks the contrast.

Monopoly and market power

I A single-price monopolist maximises profit. (a) Identify the price and quantity. (b) Explain why the outcome is allocatively inefficient. (c) Identify the effect of a per-unit subsidy on its output.

(a) Quantity where $MR = MC$; price read UP from that quantity to the demand curve, not to MR. (b) At that quantity, price is greater than marginal cost. This means consumers value an additional unit more than it costs to produce, so mutually beneficial units are not being produced and there is a deadweight loss. (c) A per-unit subsidy lowers the firm's marginal cost, so MC shifts down, the intersection with MR moves right, and output increases while price falls.

Part (a) is the single most-lost point on the whole exam: reading the price off the MR curve instead of the demand curve. Part (b) must contain " $P > MC$ " explicitly – saying "the monopolist restricts output" describes the outcome without giving the efficiency condition, and the rubric requires the condition.

Factor markets and externalities

I Explain how a firm in a competitive labour market decides how many workers to hire, and what happens to hiring if the wage rises.

The firm hires workers up to the point where the marginal revenue product of labour equals the wage. Marginal revenue product is the additional output from one more worker multiplied by the price at which that output sells. If the wage rises, the firm hires fewer workers, because the marginal revenue product of the last workers hired is now below the new wage, so employing them reduces profit.

Two scored elements: the $MRP = \text{wage}$ rule, and the *DEFINITION* of MRP. The second half must explain the mechanism, not just state the direction – "hires fewer because MRP of those workers is now below the wage" is the point; "hires fewer because labour is more expensive" restates the premise.

I A factory generates a negative externality. Draw and explain the socially efficient outcome and the welfare loss at the market outcome.

On a graph with marginal private cost (MPC) and marginal social cost (MSC) above it, and demand as marginal social benefit: the market produces where $MSB = MPC$, at Q_{market} . The socially efficient quantity is where $MSB = MSC$, at $Q_{\text{efficient}}$, which is smaller. Between $Q_{\text{efficient}}$ and Q_{market} , the marginal social cost exceeds the marginal social benefit, so those units reduce total welfare. The welfare loss is the triangle between MSC and MSB over that range. A per-unit tax equal to the external cost would shift MPC up to MSC and move the market to the efficient quantity.

The rubric wants: MSC above MPC by the external cost, the two quantities identified, the welfare loss triangle shaded in the correct place, and the corrective tax equal to the *EXTERNAL* cost specifically – not to the total cost, and not simply "a tax". Every curve must be labelled with its abbreviation; an unlabelled upper cost curve loses the graph point even when its position is right.