1.10 Revenue, Profit and the Profit-Maximising Level of Output

Total Marks

AQA 7136 · Calculators not allowed · about 60 minutes · Write-in edition

Name: _____ Date: ____ / ____ / _____

Answer all questions. Full sentences required for extended answers and explanation questions. No calculator allowed. Show simple working for calculations.

1 Explain briefly one reason why a firm might decide NOT to produce at the short-run profit-maximising output (MC = MR) even if that output would give higher profit, in a generic short-run context.

(Total for Question 1 is 1 mark)

2 Extended response: Analyse why a firm might not always aim to maximise profit in the short run. Context: use generic firm incentives, costs, market conditions, objectives and practical constraints; you should include diagrams, use the MC = MR idea without applying it to a specific market structure, discuss alternative objectives and constraints, and reach a supported conclusion.

(Total for Question 2 is 25 marks)

3 Define average revenue for a firm and explain its relationship to price in a generic selling situation.

(Total for Question 3 is 1 mark)

4 Define marginal revenue for a firm, using the change-in concept in a generic market context.

(Total for Question 4 is 1 mark)

5 Numerical revenue schedule for a generic firm. The firm faces the following price schedule: Output (units) Q = 0,1,2,3,4,5. Price per unit P = 0,10,9,8,6,3 respectively. Calculate for each output level the firm's total revenue TR, average revenue AR, and marginal revenue MR. Show workings. Context: simple arithmetic only, no calculator.

(Total for Question 5 is 5 marks)

6 State the profit-maximising rule for output choice for a firm using marginal cost and marginal revenue, in a generic market.

(Total for Question 6 is 2 marks)

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7 Diagram task: draw a generic cost and revenue diagram on price and output axes showing MC, AC, AR and MR curves, indicate the profit-maximising output where MC = MR, label the equilibrium output Q*, show the price AR at Q*, and shade the rectangle representing any supernormal profit. Context: generic firm, do not assume or label a specific market structure.

(Total for Question 7 is 5 marks)

Mark scheme · 1.10 Revenue, Profit and the Profit-Maximising Level of Output

Question 1

one valid reason, for example capacity constraints, short-term liquidity problems, contractual obligations, regulatory limits, or managerial objectives such as revenue or market share targets — **B1**

Answer: For example, the firm may lack the short-run capacity to expand to the MC = MR output, or it may face cash flow constraints that make producing at that level unfeasible.

Question 2

Level 1 Basic statements about profit maximisation with limited analysis. May recall MC = MR and one or two simple reasons why a firm might not maximise profit, with little or no development or diagrammatic support. — **1-5**

Level 2 Clear analysis of several reasons a firm might not maximise profit in the short run. Includes reference to MC = MR, some development of constraints or alternative objectives, and at least a simple diagram or example. Evaluation is limited. — **6-10**

Level 3 Detailed analysis and balanced evaluation. Explains multiple reasons such as managerial objectives, capacity constraints, liquidity/cash flow problems, risk aversion, regulatory or contractual restrictions, strategic pricing, and consideration of time horizons. Uses diagrams effectively, weighs strengths and weaknesses of the profit-maximising objective, and reaches a reasoned conclusion supported by evidence or examples. — **11-15**

Level 4 Comprehensive analysis with strong application and evaluation. Demonstrates deep understanding of short-run constraints, differing objectives across firms, and the interaction between cost structures and revenue. Offers nuanced diagrams, considers who benefits and who loses from maximising profit, and discusses conditions under which profit maximisation remains appropriate or not. Provides a balanced judgement with clear supporting reasoning. — **16-20**

Level 5 Excellent, well-developed analysis and critical evaluation. Integrates multiple perspectives including behavioural, financial, and strategic reasons for not maximising profit short term, assesses policy and ethical implications, considers empirical or realistic examples, and synthesises these into a cogent, justified conclusion. Diagrams are correctly used and linked to argument, and limitations of the MC = MR rule are explicitly addressed. — **21-25**

Indicative content:

- Explain the profit-maximising rule MC = MR in the short run and how it identifies a candidate output for maximum profit.
- Capacity constraints: physical limits on production mean the firm cannot produce at MC = MR if that requires additional short-run capacity or capital.
- Liquidity and cash flow problems: even if additional units raise profit, the firm may lack working capital to fund production or purchase inputs.
- Managerial objectives and utility maximisation: managers may pursue revenue growth, sales maximisation, market share, or career concerns rather than pure profit maximisation.
- Strategic considerations: firms may sacrifice short-run profit to deter entry, sustain long-run market power, or build customer loyalty, for example through loss-leading pricing or investment in reputation.
- Risk aversion and uncertainty: when future demand or costs are uncertain, firms may choose safer, lower-profit outputs to avoid potential losses.
- Contracts and regulation: contractual obligations, minimum production quotas, or regulatory constraints may prevent operating at the MC = MR level.
- Price discrimination, dynamic pricing and multi-product firms: profit across multiple products may be maximised differently than single-product MC = MR; average revenue and marginal revenue relationships differ by context.
- Short-run versus long-run trade-offs: an output choice that maximises short-run profit may harm long-run profitability, for example by damaging brand or reducing investment in capacity.
- Ethical and stakeholder considerations: firms may limit profit-seeking for reputational reasons or to satisfy workers, customers or community expectations.
- Diagram use: a generic MC/AC/AR/MR diagram showing a profit-maximising point and how constraints shift or prevent reaching it; shading for profit and for foregone profit under constraints.
- Evaluation: weigh how common each reason is, which firms are more likely to forgo short-run profit (e.g. startups, regulated firms), and conclude whether profit maximisation is a universal guide or context-dependent.

Question 3

average revenue is total revenue divided by quantity and, for a firm selling each unit at the same price, equals the price — **B1**

Answer: Average revenue = total revenue / quantity; when price per unit is constant AR = price.

Question 4

marginal revenue is the change in total revenue from selling one more unit of output — **B1**

Answer: Marginal revenue is the change in total revenue from selling one additional unit.

Question 5

TR values: Q0=0, Q1=10, Q2=18, Q3=24, Q4=24, Q5=15	**M1**
AR values: Q1=10.0, Q2=9.0, Q3=8.0, Q4=6.0, Q5=3.0 (and Q0 undefined or 0)	**M1**
MR values calculated as change in TR: MR1=10, MR2=8, MR3=6, MR4=0, MR5=-9	**M1**
correct working shown for at least TR and MR calculations for multiple rows	**B1**
final table correctly presented or equivalent correct list of TR, AR, MR for each Q	**B1**

Answer: TR: 0,10,18,24,24,15 for Q=0..5. AR: Q1=10, Q2=9, Q3=8, Q4=6, Q5=3. MR: MR1=10, MR2=8, MR3=6, MR4=0, MR5=-9.

Question 6

identifies the rule MC = MR as the condition for profit maximisation	**B1**
adds that the firm should produce where MR falls to equal MC and where MC is rising through MR to ensure a maximum	**B1**

Answer: Produce where MC = MR and ensure MC is rising through MR so the chosen output gives a maximum profit.

Question 7

correct axes labelled Price (vertical) and Output (horizontal) and curves MC, AC, AR and MR present	**B1**
MR drawn below AR and sloping downwards where AR slopes downwards, and AR positioned above AC at Q* if supernormal profit shown	**B1**
MC intersects MR at the chosen profit-maximising output Q* and this point is marked	**B1**
price at Q* shown as height on AR curve, and AC at Q* indicated so profit area can be defined	**B1**
rectangle representing supernormal profit shaded between AR and AC at Q* (width = Q*, height = AR - AC)	**B1**

Answer: Diagram should show MC = MR at Q*, AR above AC at Q*, and shaded rectangle between AR and AC at Q* representing supernormal profit.