



ECO.MIC14 Price Discrimination and the Theory of Contestable Markets

AQA 7136 · Calculators not allowed · about 85 minutes

Total Marks

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Name: _____ Date: ____ / ____ / ____

Answer all questions. Fully explain any diagrams you are asked to draw. Spend about 85 minutes in total.

Question 12 requires full sentence answers; other short questions may be answered in bullet points.

- 1** Multiple choice on the basic condition for price discrimination in a UK market context.
Context: a local rail operator considering different fares for commuters and leisure travellers.
- (a)** Tick the single best answer and give one short reason why the other options are **(1)**
incorrect, in the context of a rail operator setting different fares.

(Total for Question 1 is 1 mark)

- 2** Define the term 'price discrimination' in the context of markets such as rail fares or cinema tickets, naming the setting in your definition.
- (Total for Question 2 is 2 marks)**

- 3** Explain, with brief examples, the four conditions that must be present for a firm to practise successful price discrimination in a UK service market such as rail or cinema.
- (Total for Question 3 is 4 marks)**

- 4** Explain, with a clear example for each, the three standard degrees of price discrimination in markets such as rail fares, cinema tickets and retail: first-degree, second-degree and third-degree price discrimination. Name the degree with each example and the market setting.
- (Total for Question 4 is 6 marks)**

- 5 Diagram task. Context: A monopolist rail operator, BritRail, serves two market segments: Group A are commuters with relatively inelastic demand, Group B are leisure travellers with more elastic demand. Draw a diagram splitting the market into two segments to illustrate third-degree price discrimination. On your diagram label price and quantity axes, draw two separate downward-sloping demand curves D_A and D_B with D_A steeper than D_B , show a common marginal cost curve MC cutting across both markets, draw marginal revenue curves MR_A and MR_B below each demand curve, mark the points where $MC = MR_A$ and $MC = MR_B$, draw vertical lines up to the demand curves to show prices P_A and P_B , and indicate that $P_A > P_B$. Explain briefly in words the steps shown by the diagram and why P_A is greater than P_B .

Figure (to be drawn): Two separate demand curves D_A and D_B for Group A (less elastic, commuters) and Group B (more elastic, leisure). One common marginal cost curve MC and two marginal revenue curves MR_A and MR_B derived from the two demand curves. Mark where $MC = MR_A$ and where $MC = MR_B$, draw vertical dashed lines to the demand curves to show P_A and P_B , and indicate that $P_A > P_B$ when commuters are less elastic.

(Total for Question 5 is 6 marks)

- 6 Calculate and interpretation question. Context: A small cinema charges adults GBP 10 for a ticket and students GBP 7. A market study estimates that the price elasticity of demand for adults is -0.8 and for students is -1.6 at these prices. Explain whether the cinema is pricing optimally between the two groups in the sense of setting higher price where demand is less elastic. State the rule linking elasticity and mark-up over marginal cost in third-degree discrimination and explain in one sentence what the given elasticities imply about relative prices, assuming similar marginal cost across groups.

(Total for Question 6 is 8 marks)

- 7 State and briefly explain the meaning of 'sunk cost' in the context of contestable markets, using an example such as specialised platform investment for a new entrant rail operator.

(Total for Question 7 is 2 marks)

- 8 Explain the key features of a perfectly contestable market, naming hit-and-run entry and the role of sunk costs, and state one implication for an incumbent firm's pricing behaviour.

(Total for Question 8 is 4 marks)

- 9 Analyse question worth 8 marks. Context: BritRail, a dominant regional rail operator, is considering introducing student discounts and off-peak cheap fares. Analyse why BritRail might choose to practise price discrimination in these two ways. Include at least two reasons and brief evaluation of each reason.

(Total for Question 9 is 8 marks)

- 10 Define the 'limit pricing' strategy in the context of contestable markets, and explain one strength and one weakness of limit pricing as a deterrent to entry in a UK market such as regional transport.

(Total for Question 10 is 4 marks)

- 11** Short calculation/example. Context: A potential entrant faces an investment with GBP 2 million sunk cost and expected annual profit of GBP 0.5 million if the incumbent keeps price at a high level. Explain, using numerical reasoning, whether the presence of the GBP 2 million sunk cost makes quick hit-and-run entry attractive. Assume discounting is not required for this short-run decision.

(Total for Question 11 is 4 marks)

- 12** Essay, 25 marks. Evaluate the view that contestable markets always benefit consumers, using examples such as regional transport, retail and digital platforms. In your answer, analyse the assumptions of contestability, consider how real-world frictions such as sunk costs, regulation, and capacity constraints affect contestability, discuss implications for pricing behaviour, efficiency and innovation, and reach a supported judgement. Draw any diagrams you find helpful and explain them.

Evaluate the view that contestable markets always benefit consumers.

(Total for Question 12 is 25 marks)

Mark scheme · ECO.MIC14 Price Discrimination and the Theory of Contestable Markets

Question 1

- (a) **B1** selects the correct option: the firm must have some market power to set different prices
- (a) **Answer: The firm must have some market power to set different prices.**

Question 2

- **B1** a firm charging different prices to different consumers or groups for the same product or service
- **B1** the price differences are not explained by differences in production cost
- **Answer: Charging different prices to different consumers or groups for the same good or service in a market such as rail or cinema, where the price differences are not due to differences in the cost of supply.**

Question 3

- **B1** market power, e.g. some degree of monopoly so the firm can set prices above marginal cost
- **B1** ability to segment markets, e.g. separate peak and off-peak travellers or student versus adult ticket categories
- **B1** different price elasticities of demand between segments, e.g. commuters less price sensitive than leisure travellers
- **B1** prevention of resale between segments, e.g. non-transferable railcards or ID checks on student discounts
- **Answer: Market power; ability to split the market into segments; differing price elasticity of demand across segments; prevention of resale between segments. Examples: rail peak/off-peak segmentation, student ID required for discounted tickets.**

Question 4

- **B1** first-degree: charging each consumer their maximum willingness to pay, example given such as personalised auction or negotiated price for rare tickets
- **B1** second-degree: price varies with quantity or version, example given such as bulk-buy discounts in retail or off-peak lower fares for tickets sold in certain conditions
- **B1** third-degree: market split into groups with different elasticities, example given such as student or senior discounts in cinemas or trains
- **B1** each example states which consumers pay more and which pay less and why
- **B1** one development point linking the degree to how it can increase firm profit or affect consumer welfare in the example
- **B1** clear labelling of each degree as first, second or third
- **Answer: First-degree: personalised pricing such as auctions where each buyer pays their maximum willingness to pay. Second-degree: bulk discounts or off-peak lower fares where price varies by quantity or version sold. Third-degree: segmentation into groups with different price elasticities, e.g. student discounts for cinema tickets or peak commuter fares, where less elastic groups pay more.**

Question 5

- **B1** axis labels: Price on vertical axis and Quantity on horizontal axis correctly labelled
- **B1** two demand curves drawn and labelled D_A and D_B , with D_A steeper (less elastic) than D_B
- **B1** common MC curve drawn and labelled crossing the diagram
- **B1** two marginal revenue curves MR_A and MR_B drawn below respective demand curves and labelled
- **B1** points where $MC = MR_A$ and $MC = MR_B$ marked, with verticals to demand curves showing prices P_A and P_B
- **B1** brief explanation: correctly explains that firm sets output in each segment where MC equals the segment MR, reads price from the segment demand curve, and that the less elastic group faces a higher price $P_A > P_B$
- **Answer: Diagram showing D_A steeper than D_B , MC crossing both MR curves, $MC=MR_A$ and $MC=MR_B$ marked, verticals to prices P_A and P_B with $P_A > P_B$. Explanation: firm equates MC with each segment MR to choose Q_A and Q_B , then charges the price on each demand curve; less elastic group yields a higher price.**

Question 6

- **M1** states the pricing rule: $\text{markup } (P - MC)/P = -1/\text{elasticity}$ or price should be higher where demand is less elastic
- **A1** applies rule qualitatively: since adult elasticity -0.8 is less elastic than student elasticity -1.6 , adults should face a higher price relative to MC than students
- **M1** notes assumption: marginal cost is similar across groups so differences in price reflect differing elasticities
- **A1** concludes that charging adults GBP 10 and students GBP 7 fits the rule that the less elastic group (adults) pays a higher price
- **M1** optional numeric demonstration: rearrange rule to show $P/(P - MC) = -\text{elasticity}$ and note relative ratios without needing MC value
- **A1** states implication: with elasticities -0.8 and -1.6 , the adult group can bear a larger markup, so $P_{\text{adult}} > P_{\text{student}}$ is appropriate
- **B1** recognises caveat: other constraints such as preventing resale or legal restrictions or signalling may affect pricing
- **B1** clear concluding sentence linking elasticity differences to the observed price differential
- **Answer: Rule: $(P - MC)/P = -1/\text{elasticity}$, so less elastic demand supports a higher markup. With adult elasticity -0.8 and student -1.6 , adults should face a higher price than students, so GBP 10 v GBP 7 is consistent with optimal third-degree discrimination given similar MCs, subject to resale prevention and other constraints.**

Question 7

- **B1** defines sunk cost: a cost that cannot be recovered if a firm exits the market
- **B1** gives an example and brief explanation, e.g. bespoke platform signalling installed by an entrant that cannot be resold, so it deters hit-and-run entry
- **Answer: Sunk cost is a cost that cannot be recovered on exit, for example bespoke platform signalling or specially branded infrastructure paid for by a new rail entrant that cannot be resold, which makes entry less contestable.**

Question 8

- **M1** identifies perfect contestability features: absence of sunk costs, free entry and exit, and access to the same technology for entrants
- **A1** explains hit-and-run entry: potential entrants can enter when incumbents price above competitive level, make profit, and exit without loss
- **M1** links sunk costs: if sunk costs are zero entrants can exit without loss, making the market contestable
- **A1** implication for incumbents: they may set a price close to competitive price to deter entry, for example using limit pricing
- **Answer: Perfect contestability requires zero sunk costs, free entry and exit and equal access to technology; hit-and-run entry means entrants can exploit temporary supernormal profit and exit; therefore incumbents may set prices close to competitive levels to deter entry.**

Question 9

- **M1** identifies reason 1: increase total revenue by charging higher prices to less elastic groups (commuters) and lower prices to more elastic groups (students, leisure)
- **A1** develops with mechanism: additional sales in the elastic segment may increase total profits if marginal cost is low for extra seats
- **M1** identifies reason 2: capacity utilisation - off-peak discounts increase usage of otherwise empty seats, spreading fixed costs
- **A1** develops with mechanism: higher utilisation lowers average costs, improving profitability and consumer options
- **M1** identifies reason 3: competitive and strategic reasons, e.g. deter entry on peak routes or segment particular customers to reduce poaching
- **A1** develops with evaluation: may reduce scope for entrants if prices are tailored to remove profit opportunities, but could invite regulatory scrutiny
- **B1** provides brief counterpoint: administration costs, risk of arbitrage/resale, or customer resentment may limit gains
- **B1** concluding judgement weighing benefits against costs and constraints, e.g. likely profitable if resale prevented and marginal costs low
- **Answer: BritRail may price-discriminate to increase revenue from less elastic commuters while filling spare capacity with off-peak discounts, and for strategic deterrence; these raise profit but are limited by resale risks, administrative**

Question 10

- **B1** defines limit pricing: incumbent sets price low enough to make entry unprofitable for potential entrants
- **M1** states strength: it can deter entry without permanent reduction of output, maintaining incumbent's market position
- **A1** develops strength with example: in regional transport, below-peak fares or capacity discounts may remove short-run profit opportunity for entrants
- **B1** states weakness: legal or regulatory scrutiny and commitment problems, and if entrants have lower costs or access to finance, limit pricing may not deter them
- **Answer: Limit pricing is setting price low to make entry unprofitable. Strength: can deter entry and protect incumbent profits in the long run. Weakness: may be unsustainable or illegal, and entrants with low costs may still enter.**

Question 11

- **M1** states that entrant must recover the GBP 2 million sunk cost from expected profits to make entry worthwhile
- **A1** computes time to recover: $\text{GBP } 2 \text{ million} / \text{GBP } 0.5 \text{ million per year} = 4 \text{ years}$
- **B1** interpretation: 4 years to break even makes hit-and-run unattractive if incumbent can reprice quicker or if entrant cannot stay that long
- **B1** notes caveat: if sunk cost were zero or much smaller, hit-and-run would be more attractive; hence sunk costs reduce contestability
- **Answer: At GBP 0.5 million annual profit, it would take 4 years to recover the GBP 2 million sunk cost, making quick hit-and-run entry unattractive compared with zero-sunk-cost scenarios.**

Question 12

- **Level 1** (1-5): Basic statements about contestability or consumer benefits, limited explanation, few or no examples, little structure.
- **Level 2** (6-10): Some accurate description of contestable market theory and possible consumer benefits, limited analysis of assumptions or real-world frictions, few examples and limited judgement.
- **Level 3** (11-15): Clear explanation of contestability features and implications for pricing and efficiency, analysis of sunk costs and other frictions with relevant examples, starts to evaluate trade-offs, partial judgement supported by evidence.
- **Level 4** (16-20): Well-developed analysis of how contestability can benefit consumers through lower prices, efficiency and dynamic effects, balanced discussion of real-world limits such as sunk costs, regulation and capacity constraints, and good use of examples and diagrams.
- **Level 5** (21-25): Comprehensive evaluation: detailed analysis of theory and evidence, thorough consideration of assumptions and frictions, balanced discussion of implications for pricing, short-run and long-run welfare, innovation and market structure, and a well-supported, justified conclusion connecting theory to empirical or realistic examples.
- **Indicative content:**
 - Definition of a contestable market: free entry and exit, absence of sunk costs, hit-and-run potential.
 - How perfect contestability can force incumbents to price competitively, delivering allocative efficiency similar to perfect competition.
 - Role of limit pricing as a deterrent and how contestability can discipline conduct without many firms present.
 - Real-world frictions: presence of sunk costs, regulatory barriers, licensing, access to distribution or slot constraints in transport, which reduce contestability.
 - Examples: regional transport where infrastructure and regulatory access create sunk costs and capacity constraints; retail where shelf space or branding creates barriers; digital platforms where network effects and data create de facto sunk cost or switching costs.
 - Implications for consumers: potential lower prices and greater choice if contestability is high, but possible short-run losses if incumbents cut quality to deter entry.
 - Dynamic effects: contestable markets may encourage innovation if incumbents fear entry, but large fixed costs may favour incumbents investing in quality and innovation instead.
 - Distributional and welfare considerations: consumer surplus may rise but producer surplus may fall; potential for strategic behaviour and regulatory concern about predatory pricing.
 - Diagrams that may be used: simple representation of incumbent setting limit price at competitive level, or AD/AS style diagram is not needed; explanation of diagram points and labels.
 - Judgement: contestability can benefit consumers in ideal conditions, but in many real markets frictions mean benefits are limited or uneven; policy and regulation matter in making markets more contestable.