

EGT2
ENGINEERING TRIPOS PART IIA

Thursday 7 May 2026 14.00 to 15.40

Module 3E1

BUSINESS ECONOMICS

*Answer not more than **two** questions.*

All questions carry the same number of marks.

*The **approximate** percentage of marks allocated to each part of a question is indicated in the right margin.*

*Write your candidate number **not** your name on the cover sheet.*

STATIONERY REQUIREMENTS

Single-sided script paper.

SPECIAL REQUIREMENTS TO BE SUPPLIED FOR THIS EXAM

CUED approved calculator allowed.

10 minutes reading time is allowed for this paper at the start of the exam.

You may not start to read the questions printed on the subsequent pages of this question paper until instructed to do so.

You may not remove any stationery from the Examination Room.

1 A pharmaceutical company assumes two types of markets: $P = 60 - Q$ (North Market) and $P = 40 - Q$ (South Market). Provide your reasoning/calculations when answering the questions below.

(a) Assume that the marginal cost of producing the drug is £10. If the monopolist is forced to charge the same price in each market (uniform pricing), calculate the equilibrium price, quantity, profit, consumer surplus, producer surplus and total surplus. Illustrate your answer using a diagram. [25%]

(b) Assume that the marginal cost of producing the drug is still £10. What happens compared to (a) if the company is allowed to charge a different price to each market (price discriminate), instead? [25%]

(c) The company is now required to pay a tariff which increases its marginal cost to £35. If the monopolist is forced to charge the same price in each market (uniform pricing), calculate the equilibrium price, quantity, profit, consumer surplus, producer surplus and total surplus. What happens if the firm can price discriminate? [40%]

(d) What have you learned from (a) – (c) about price discrimination? [10%]

2 Two firms produce auto seat covers: Northwest Seat Covers (NW) and J&J Seat Cover Company (J&J). The market demand for these seat covers is represented by the inverse demand function: $P = 100 - Q$, where Q is the total quantity produced by both firms. Each firm has a cost function given by $C(q) = 10q$, where q is the quantity produced by an individual firm.

(a) Construct a 2x2 matrix for the two firms, assuming that the options for each firm are either to collude or to compete by choosing quantities simultaneously. [50%]

(b) Using your results from (a) explain why cartels (collusions) exist despite them being highly unstable. [20%]

(c) Assume that NW is a more sophisticated firm and chooses quantity before J&J does. Determine price, quantities produced by firms and profits. Using your results from (a) and (c), explain how the order of play (simultaneous vs sequential) impacts profits? [30%]

3 Discuss **three** types of market failure. In your answer include what is meant by each, provide real life examples and explain the consequences of each in terms of efficiency/welfare effects for society. Discuss ways to mitigate each type of market failure. You may use diagram(s) in your answer. [100%]

END OF PAPER