

EGT3  
ENGINEERING TRIPOS PART IIB

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Thursday 8 May 2025      9.30 to 11.10

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**Module 4E4**

**MANAGEMENT OF TECHNOLOGY**

*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

Engineering Data Book

**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) Explain the technology management process framework (ISAEP) and its applications. [30%]

(b) Describe the *Industrial Emergence Framework* and explain how it can be used by a startup developing advanced battery technology. [40%]

(c) For innovation management in the context of new product development (NPD), discuss the differences (including strengths and weaknesses) between:

(i) the *Waterfall* or *Stage-Gate*® model and

(ii) *Agile* methodologies.

Provide examples to support your answer and explain in what contexts each approach might be more appropriate. [30%]

- 2 (a) Discuss how a small or medium-sized enterprise (SME) in the food manufacturing sector could apply technology management tools and techniques to respond to the emergence of automation technologies. [50%]
- (b) If a company is deciding between two projects — one involving the development of a new product for a growing but competitive market and another focused on incremental improvement of an existing product in a well-established market — how would the *opportunity and feasibility method* guide the decision-making process? [30%]
- (c) Explain what *scenario planning* is and how it is used for strategic planning. [20%]

- 3 (a) Discuss, providing examples, the different business models for bringing a technology to market. [20%]
- (b) (i) Explain how patents work. [10%]
- (ii) For each of the five (ISAEP) *technology management processes*, provide one example that explains the importance of patents or patent data for the related technology management decisions. [30%]
- (c) You are the CTO of a company that wants to upgrade its operations to reduce its carbon footprint. As a result of a technology intelligence exercise you have identified a group of suitable software technologies available from different providers that might help monitor and optimise resources. Using the *technology acquisition process*, discuss what needs to be considered to prepare for the acquisition of the software technology from different technology providers. [40%]

**END OF PAPER**