

MANUFACTURING ENGINEERING TRIPOS PART II

Thursday 23 April 2009 9 to 12

PAPER 2

*Answer not more than **four** 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.*

There are no attachments.

STATIONERY REQUIREMENTS

20 page answer booklet

Rough work pad

SPECIAL REQUIREMENTS

Engineering Data Book

CUED approved calculator allowed

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

1 A profitable UK based manufacturer of capital consumer goods has R&D facilities, good design capability, and manufacturing and assembly sites. A significant proportion of manufacturing is outsourced to Eastern Europe and the Far East. The company was bought out two years ago, and as part of the new strategy there has been a strong emphasis on new product development in anticipation of the need to replace its successful, but mature, portfolio of products.

You were recently appointed to the main board as Director of Marketing. The management team are preparing for a series of strategy review meetings. There is a lot of concern about the effects of the current recession and the importance of cash flow, liquidity and investment management.

(a) Using your knowledge of New Product Development/Introduction and Product and Market Life Cycles, explain the implication of the current strategy on investment and cash flow. [20%]

(b) Explain how the Market Life Cycle can be linked to the BCG Matrix (market growth versus relative market share). [30%]

(c) There is a conflict between investment and cash preservation. "As in every downturn, who succeeds and who fails is likely to be determined not by what costs are cut, but how they are cut and above all which ones are not cut."
(The Economist, November 22nd 2008).

Explain how an understanding of marketing models and concepts can help the Marketing Director to highlight the key issues facing the business, and recommend possible courses of action in the current economic climate. [50%]

2 Describe and discuss the resource-based approach to strategy formulation. [40%]

Define what is meant by a company's competences. Describe how you would assess them and hence identify core competences. [60%]

Illustrate your answers with examples.

3 "Alliances with other organisations can help to offset the tendency to organisational inertia and promote innovations in established companies."

Discuss this statement, supporting your answer with examples. [100%]

4 "Automation and the relocation of industry to lower wage economies have taken the human resource issues that were once associated with lean production off the manager's agenda in advanced industrialised countries."

(a) What human resource issues have been raised in connection with lean production? [40%]

(b) Discuss the quoted assertion that recent developments have made these issues irrelevant. Explain your reasoning and supply detailed evidence in support of, or against, the statement. [60%]

5 (a) Compare and contrast the key features of India's manufacturing and service sectors. [40%]

(b) "India's economy could be larger than all but the US and China in 30 years" (GoldmanSachs (2003). *Dreaming with BRICs: The path to 2050*).

Discuss the challenges facing the growth of the Indian economy with specific reference to:

(i) Infrastructure

(ii) Education

(iii) Innovation [60%]

6 Technological development has underpinned the market growth of mobile telecommunications over the last 25 years, in areas such as batteries, displays, microprocessors and memory.

(a) Explain what is meant by the technology 'S' curve and how this concept might be used to help manage the application of technological developments such as those listed above. Illustrate your answer by applying the 'S' curve concept to two areas of technological progress relevant to mobile phones. [40%]

(b) Discuss how the practice of technology roadmapping might be applied to planning product succession in a mobile phone manufacturing business. Illustrate your answer with a sketch of a hypothetical technology roadmap for this case, identifying and explaining the key features of the roadmap. [40%]

(c) Explain how the application of the 'S' curve concept could support the roadmapping process, identifying any risks and limitations of this combined approach. [20%]

END OF PAPER