

UNIVERSITY OF LONDON  
IMPERIAL COLLEGE OF SCIENCE, TECHNOLOGY AND MEDICINE

EXAMINATIONS 1997

MSc Degree in Computing Science  
for Internal Students of the Imperial College of Science, Technology and Medicine

*This paper is also taken for the relevant examinations for the  
Diploma of Membership of Imperial College*

PAPER M3.02

SOFTWARE ENGINEERING  
Wednesday, May 7th 1997, 2.00 - 4.00

*Answer THREE questions*

For admin. only: paper contains 4  
questions

**Section A**      *(Use a separate answer book for this Section)*

- 1a Briefly describe four methods of user interface evaluation, indicating when and why it is appropriate to use each one.
- b Briefly describe the Keystroke Level Model (KLM) of evaluation. Give one of the weaknesses of this model, and suggest an alternative model that addresses this weakness.
- c You have been asked to evaluate a library information service that answers queries on the availability and location of books in the library.

Briefly describe how you would evaluate this system, indicating the expected products of the evaluation and why they are useful for re-designing the system.

*The three parts carry, respectively, 40%, 30%, 30% of the marks.*

- 2a Briefly describe two factors that influence the choice of main input device (e.g., keyboard, mouse, joystick) for a graphical drawing package.

Would your choice differ if the application were a word processor? Why?

- b Consider the overall task of searching for information about a book using a computer-based library information system (e.g., searching for location of a specific book, books by a certain author, books on a specific topic).

In executing the above task, briefly state one advantage and one disadvantage of using the following dialogue styles. [*Hint: you may want to consider issues like the type of search, the information searched, and the type of user*].

- i) form-filling
  - ii) menus
  - iii) a command language
- c
    - i) Draw a Hierarchical Task Analysis (HTA) diagram for the joint task of finding book information/location using the library information system described in part b. Explain the notation you use.
    - ii) Briefly describe one way of modelling the executable threads of interaction with the library system using a different kind of notation. How is this related to your notation in part c(i)? *Note: you do not need to draw any further diagrams for this part.*

*The three parts carry, respectively, 30%, 30%, 40% of the marks.*

**Section B**      (*Use a separate answer book for this Section*)

- 3a    Define *quality*.
- b     Briefly describe the role of *quality profiles* in software development.
- c     Identify the two main classes of quality characteristic that are included in a quality profile. Briefly describe how characteristics of each class would be defined.

*The three parts carry, respectively, 10%, 50% and 40% of the marks.*

- 4     You work in the Information Technology Group of a large manufacturing company. You have just been appointed leader of a project that currently has only the following loose definition:

“to develop a new customer database for use by the company’s marketing staff, sales staff and management”.

Outline the activities that your team would need to undertake in the very early stages of the project (before they begin the detailed design) in order to gain a clearer understanding of what the project is to do and how it is to do it.

*End of paper*