

UNIVERSITY OF LONDON

GOLDSMITHS COLLEGE

BSc Examination 2003

COMPUTING AND INFORMATION SYSTEMS

**IS51010A (CIS108) Information Systems:
The Foundation of E-Business**

Duration: 3 hours

Date and time:

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- *Do not attempt more than FOUR questions on this paper. Full Marks will be awarded for complete answers to FOUR questions.*
 - *Electronic calculators are not needed for this examination and therefore should not be used.*

**THIS EXAMINATION PAPER MUST NOT BE
REMOVED FROM THE EXAMINATION ROOM**

Question 1.

- a) Define a Framework, a Model and a Work system and describe the relationship between each of these information systems concepts.

[6 Marks]

- b) The work system framework described in the course identifies eight elements needed to understand a work system. Identify each of these elements in a work system for registering at University for a place on a course.

[8 Marks]

- c) What is the difference between an information system and a project? Explain why each is a special type of work system.

[6 Marks]

- d) Why are constraints and priorities important in systems analysis?

[5 Marks]

Question 2.

- a) Data flow diagrams (DFD) may be used to describe how data is passed between various business processes and sub-processes. Describe the four symbols that comprise a DFD and what they represent.

[4 Marks]

- b) Outline two reasons why a systems professional would use a flow chart or structured English to describe a business process, as opposed to a DFD.

[6 Marks]

Scenario: Renting a video tape at Tina's Video Shop

Tina's video rental shop uses an Information System to control and track her stock of videos. When a customer wants to rent a video they must first provide their membership card, which carries their full name and address, and also indicate the title of the video they wish to borrow. Tina must first check the membership card to see if the customer has an account at the shop. The video title selected by the customer is then used to form a video request which is used to recover the video ID number from her video inventory data base. Tina then uses the video ID number to find the correct tape in the extensive stock behind the shop counter. The cost of hiring videos depends on their popularity, popular films cost that little bit more to rent. The video inventory database contains the costs of hire for each video. The shop prints both the cost of video rental and the customer's name on the bill, to give a more personalised service.

- c) What is a context diagram? Draw the context diagram describing the above video rental scenario.

[7 Marks]

- d) Draw the level-1 data flow diagram for the above video rental scenario

[8 Marks]

Question 3.

- a) Define each of the seven process performance variables discussed in the course and for each state how an information system can be used to improve a process's level of performance.

[7 Marks]

- b) A key activity of a systems professional is to manage business processes in an effective and an efficient way. What is the difference between efficiency and effectiveness, and how is this related to the work system framework discussed in the course?

[6 Marks]

- c) Provide six examples of waste that may result from a badly designed business process used to manufacture cars.

[6 Marks]

- d) Describe differences between structured, semistructured, and unstructured tasks. Provide an example of each.

[6 Marks]

Question 4.

- a) Describe the Human-Centered Design and Machine-Centered Design approaches. **[6 Marks]**

- b) List 6 strengths that machines have over humans. **[6 Marks]**

- c) Explain what is meant by information privacy. Illustrate your answer providing two examples. **[7 Marks]**

- d) Describe the characteristics of a user-friendly information system that are presented in the course. **[6 Marks]**

Question 5.

- a) Describe the units of measure and their multiples for: amount of data, rate of data transfer and speed of executing instructions. Illustrate each category with one example. **[9 Marks]**

- b) Describe the basic ideas behind distributed computing. Provide an example of this computing approach. **[6 Marks]**

- c) Describe what is meant by the term 'middleware'? **[4 Marks]**

- d) Explain the basic ideas behind personal computing. Enumerate the advantages and disadvantages of this computing approach. **[6 Marks]**

Question 6.

- a) Define the IP Telephony and state the technology it is based on. Mention a main disadvantage it has, and justify it. **[4 Marks]**

- b) Describe the four phases of the approach to building information systems using prototypes. **[14 Marks]**

- c) What are the advantages and disadvantages of the Traditional System Life Cycle approach to building information systems, that are presented in the course? **[7 Marks]**