

**UNIVERSITY OF LONDON**

**GOLDSMITHS COLLEGE**

**BSc Examination 2002 (WESTERN)**

**COMPUTING AND INFORMATION SYSTEMS**

**IS51005A (CIS105) Introduction to Information Systems**

Duration: 3 hours

Date and time:

- 
- *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.**

Write short notes on **five** of the following

- (a) Semi-structured and unstructured tasks.
- (b) Concurrent manufacturing.
- (c) The problems associated with Legacy systems
- (d) Process cycle time and the effect of bottlenecks
- (e) The relationship between consistency and total quality management (TQM)
- (f) The prototype approach to system development.

[25]

**Question 2.**

- (a) What is a computer database and why are they important in many Information Systems? [2]
- (b) What are the differences between the logical and physical views of a database system? [4]
- (c) Why is it useful to have this distinction? [2]
- (d) How do entity relationship diagrams help in the development of databases? [2]
- (e) Describe the relational data model. [4]

**Scenario: Mercy Hospital patient database**

The following are samples taken from the Mercy hospital database. Each patient is assigned a unique id number on admission, and their blood type, (A, B, AB or O), is subsequently entered into the database. Each patient is assigned a hospital ward, dependant on the treatment they require. Each ward has a surgeon associated with it. Below are relations held in the hospital database. The hospital realises the confidential nature and importance of the data it holds in this database, and have taken steps to ensure that only those so authorised can access the patient records.

Patient				
id	p-name	address	blood type	ward
100	Smith	London	A	cardiac
101	Jones	York	B	neuro
102	Patel	London	A	cardiac
103	Chan	Dover	AB	neuro

Surgeon	
s-name	ward
Goodman	Cardiac
James	Neuro

- (f) Given the above relations in the Mercy Hospital scenario give the result of applying
- (i) project *id p-name blood-type ward* from *patient* [3]
  - (ii) join *patient* and *surgeon* when *ward* = ' *cardiac*' [4]
- (g) Given the ethical problems associated with the possible misuse of this medical data base, what ethical issues should Mercy Hospital consider when using this Information System ? [4]

**Question 3.**

- (a) What is meant by the terms system and framework? [4]
- (b) What are the properties of the WCA that make it a useful framework for analysing business processes? [4]

**Scenario: Renting a video tape at a branch of Sunshine Videos**

*Sunshine video rental shops are a nation wide chain. They pride themselves on prompt efficient service to customers, and on always having sufficient stocks of popular videos available. Each shop is connected via a modem to a head office where the information of the day's rentals can be analysed to see if more copies of popular tapes need to be purchased for a branch. When a customer wants to rent a video the bar code on their membership card is read to ensure they are registered at the store. The shop assistant is then also able to call up the customers' prior rental history, and perhaps recommend a new tape the customer may like to view, but may otherwise be unaware of. This viewing of the customer history also ensures that the customer has no overdue videotapes before allowing them to rent another. The bar code on the empty video box selected by the customer is then read to see if the tape is in fact still available in the shop. The entire shop video inventory is held on a database on a computer in the shop. If the title is still available the appropriate videocassette is recovered from the stock room and is rented to the customer, who is charged appropriately for the rental. At the end of the day a list of all the videos rented at the branch is automatically sent to the head office for analysis.*

- (c) Draw a WCA diagram for the above video rental scenario [12]
- (e) What type of Information System is Sunshine Videos using? Explain your answer. [2]
- (f) It has been suggested that Sunshine videos should use a centralised computing architecture to support the information system detailed in the above scenario. What would this entail and what risks would be associated with this move? [3]

#### Question 4

- (a) What is a process architecture and why is it useful to describe a business process in terms of its architectural characteristics? [3]
- (b) What are inward and outward looking variables, and why is it useful to draw a distinction between the two when examining a Business Process? [4]
- (c) Describe the typical impact of the following architectural characteristics on a business process: [6]
  - (i) Too high a complexity
  - (ii) Too little attention to management issues
  - (iii) Too high a degree of structure

#### Scenario: Sunrise holidays

*Sunrise holidays is a company that specialises in cheap package holidays. They achieve this through the extensive use of Information Systems. Each branch of Sunrise is connected to the company's central database where the details of all the holidays available are stored. These holidays are the most popular, as determined by Sunrise through market research. A customer is matched as closely as possible to a holiday, but may have to compromise to fit in with what is available. Some customers have complained in the past that Sunrise will not, or can not, give them the holiday they actually want. However the board of management have decided that their present system works well for the majority, and keeps costs low.*

- (d) On the basis of the above information state *two product related variables* of which Sunrise, seen as a system, is likely to have too little, and explain your answer. [6]
- (e) On the basis of the above information state *one process related variable* of which Sunrise, seen as a system, is likely to have too little, and explain your answer. [3]
- (f) On the basis of the above information state *one architectural characteristic* of which Sunrise, seen as a system, is likely to have too little, and explain your answer. [3]

**Question 5.**

- (a) Describe four of the common flaws in the way people make decisions? [8]
- (b) What is a decision support system? What is the purpose of a decision support system? [5]
- (c) What do you understand by the term social context? [4]
- (d) What are some of the problems associated with using email and fax as methods of communication? [4]

**Scenario: Tomorrow's Globe**

*Tomorrow's Globe is a popular factual science programme broadcast on channel 7 television. The show's producer is responsible for finding the most interesting and topical scientific stories to fill the show. To do this she uses an email distribution list that she periodically sends to all the publicity departments of the county's universities. If the university has research work that they feel may be suitable, they email back with some details and a contact phone number. If the story seems interesting, the producer then calls the researcher to find out more. Once she has a range of possible stories a meeting is held at channel 7 and the short list for the programme is finalised. The producer often finds she has to leave messages on her busy colleagues answering machines when planning the date and place of the meeting. Once finalised the best stories are filmed and the videotapes are then used in the programme broadcast to the nation.*

- (e) In the above scenario identify the communication events and classify them in terms of place and time [4]

**END OF EXAMINATION**