UNIVERSITY OF LONDON

GOLDSMITHS COLLEGE

BSc Examination 2004

COMPUTING AND INFORMATION SYSTEMS

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

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

a) Define what is meant by the terms *system* and *subsystem* in the context of E-business. Explain the relationship between systems and subsystems using a real world example.

[5 Marks]

b) Briefly define each of the following terms that may be used when discussing systems:

1. Purpose
2. Boundary
3. Environment
4. Inputs
5. Outputs

[5 Marks]

c) What is a business process? Include in your answer an example that clearly illustrates the scope of the business process and the creation of value for its customers.

[5 Marks]

d) Systems in organisations are built and maintained by a set of processes that are described in terms of four phases: initiation, development, implementation and maintenance. Describe in detail the role played by Business profession in each of these four phases.

[10 Marks]

Question 2

a) Describe a particular issue that is a challenge for most organisations, trying to introduce new and innovative technologies. Explain why the issue you have chosen is a challenge and what organisations can do about it.

[5 Marks]

b) What is organisational inertia? Can it be solved by merely changing an information system?

[5 Marks]

c) Compare and contrast a framework, a model and a work system. Include in your answer an explanation of the relationship between frameworks and models.

[7 Marks]

d) What are the eight elements needed to understand a work system using the work system framework. Identify each of these elements in a work system for registering a place on a course.

[8 Marks]

Question 3

a) Define and describe process modelling. Include in your answer three examples of process modelling techniques.

[5 Marks]

b) Discuss in detail the usefulness of Data flow diagrams (DFDs). Your answer should include a definition of their use, the symbols they comprise, the diagrams you can create and the limitations of using DFDs.

[10 Marks]

c) What is a flowchart? Explain why they are required even when data flow diagrams have been created.

[5 Marks]

d) Using and example, define Structured English (Pseudo Code) and explain its usefulness to programmers.

[5 Marks]

Question 4

a) Define digitising and explain what determines how closely a digitised picture resembles the original. Illustrate your answer by an example.

[6 Marks]

b) Describe data compression and provide two examples of compression standards.

[6 Marks]

c) What is data encryption and why is it important? Provide an example of its application.

[5 Marks]

d) Describe the concept of distributed computing. List two advantages and two disadvantages of this computing approach.

[8 Marks]

Question 5

a) Describe the difference between application software and system software, providing an example of the two types of software.

[5 Marks]

b) Compare two types of errors that can be found by debugging a program. Give an example of each.

[5 Marks]

c) What is the difference between procedural and nonprocedural programming languages? Illustrate your answer providing an example of instructions/queries corresponding to each of the two approaches.

[5 Marks]

d) Define machine and data independence, and explain why they are important.

[6 Marks]

e) Explain the difference between machine languages, assembly languages, third generation, and fourth generation languages.

[4 Marks]

Question 6

a) What is the difference between circuit switching and packet switching in networks? On which of the two is the data transfer on the Internet based? Explain your answer.

[4 Marks]

b) What are the main characteristics of the star, ring, and bus topologies in Local Area Networks?

[3 Marks]

c) Identify up to four roles of IS professionals in building and maintaining information systems, and describe them very briefly.

[4 Marks]

d) Describe the approach to building information systems using prototypes. Explain every phase of this approach.

[14 Marks]