THE BRITISH COMPUTER SOCIETY

THE BCS PROFESSIONAL EXAMINATION
Diploma

SYSTEMS ANALYSIS

2nd May 2003, 10.00 a.m.-12.00 p.m.

QUESTION 1 is mandatory and receives 50% of the total marks available for this paper.
Candidates may select TWO of the remaining FOUR questions.
Time: TWO hours

*The marks given in brackets are **indicative** of the weight given to each part of the question.*

1. The Stylish Dancing School (SDS) runs classes in a variety of forms of dancing, such as ballroom, ballet, tap, salsa and so on. Clients book for a course of 10 classes, which are offered at the same time each week for 10 weeks. Each course is for dance of a particular type, such as 'ballroom for beginners', or 'advanced tap dancing'. There are many courses available for each type of dance.

   Enquiries are received from members of the public about the availability of dancing classes. When a client wants to book for a course, their name, address, phone number and email address (if they have one) are taken. Some clients book for more than one course; each booking has a unique booking number and a note is made of the date on which the client made the booking. Occasionally a course is cancelled (for example, if not enough clients have booked for it) and the School has to contact the clients who have made bookings for it.

   An information system is required to help manage the operation of the SDS. It is required to hold details of the types of dance classes offered, the courses that are running, the clients and the bookings they have made. A list of the clients who have booked for each course (a class list) needs to be printed off and given to the dance teachers; they will note who has attended each class. Every week the completed class lists will be used to update the system to show which clients have attended the weekly classes. Clients pay when they attend their first class; payments will not need to be handled by this information system, but it will need to record when payment for a booking has been made.

   a)   Draw a Top Level Current Logical Data Flow Diagram for the above scenario. **(20 marks)**

   b)   Produce an Entity Relationship Diagram (Logical Data Structure) and a set of normalised tables for the above scenario. You **DO NOT** need to show evidence of the normalisation process.

   (20 marks)

   c)   The models you have produced in your answers to part *a)* and *b)* of Question 1 represent process and data views respectively of the system.

   Identify a model that can be drawn to represent the time (dynamic) view of the system. Explain how that model would relate to the two models that you have produced. **(10 marks)**

2. *a)* Explain the main principles and activities of Soft Systems Methodology. **(17 marks)**
b) List FOUR advantages and FOUR disadvantages of Soft Systems Methodology. **(8 marks)**

3. The Requirements Analysis module in SSADM consists of two stages:
- investigation of current environment, and
- business systems options.

a) List FOUR activities that would be undertaken in BOTH of these stages. **(8 marks)**
b) Explain why these two stages are important in requirements analysis. **(17 marks)**

4. *a)* Identify THREE different groups of people, other than the users, that may be involved in an Information Systems Development project and briefly explain their role. **(9 marks)**

b) Explain the importance of involving user groups in an Information Systems Development project. Discuss, with reference to any appropriate methodologies, some of the ways in which user involvement can be achieved. **(16 marks)**

5. Explain, with an example of each, FIVE of the following terms as used in systems analysis:
a) Structured walkthrough **(5 marks)**
b) Structured English **(5 marks)**
c) Decision table **(5 marks)**
d) Systems documentation **(5 marks)**
e) State transition diagrams **(5 marks)**
f) <<extends>> use case association **(5 marks)**
g) Inheritance **(5 marks)**