THE BRITISH COMPUTER SOCIETY

THE BCS PROFESSIONAL EXAMINATION
Diploma

SYSTEMS ANALYSIS

2nd May 2001 – 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. Mansfield Court is a large house that offers conference facilities to companies and organisations. The facilities include one large and one smaller lecture hall and a range of seminar rooms. The house can be booked for the exclusive use of a large conference or training event taking place over several days; alternatively, one or more lecture halls and rooms can be booked by the half-day for smaller events. The lecture halls and rooms are equipped with standard equipment such as overhead projectors and whiteboards but additional equipment such as video playback machines and computers can be booked if required.

    When a booking enquiry is received, the Mansfield Court administrator first checks to see whether the required facilities (lecture halls and/or seminar rooms) are available on the required dates. If they are available, a provisional booking is made. A record is kept of the name and address of the client company or organisation and the name, telephone number and email address of the person who is responsible for the booking. The required facilities and any additional equipment are allocated. A provisional booking confirmation is posted together with a request for a deposit.

    On receipt of the deposit, the booking becomes confirmed. The client can later request changes to the booking (such as a change in the number of rooms or the additional equipment required) and where possible, these changes will be made. Two weeks before the booking start date, the administrator sends a request for the balance of the booking payment.

    An information system is required to support the booking procedures. (Note that all details of accommodation and meals have been deliberately excluded from this scenario.)

    a) Draw a Top Level Current Logical Data Flow Diagram to represent the Mansfield Court conference booking system described above. **(20 marks)**

    b) Prepare an Entity Relationship Diagram (Logical Data Structure) and produce the resulting tables. **(20 marks)**

    c) In your answers to *a)* and *b)* you have used two structured analysis techniques to model the process and the data views of the system.

        Explain what difference it would have made had you, instead, prepared an Object-Oriented model of the system. **(10 marks)**

2. a) Identify and briefly describe the main fact-finding techniques used in systems analysis. **(10 marks)**

    b) Evaluate the extent to which each technique could contribute, or not, to the fact-finding process of the Mansfield Court system as described in Question 1. **(15 marks)**

3. 'Modern information systems need to be developed using modern methodologies'.

Evaluate the validity of this statement. Your answer should include references to specific information systems methodologies and types of systems whose development they best support. **(25 marks)**

4. Explain how each of the following are used in Object Oriented Systems Analysis. Illustrate your answers with diagrams as appropriate:

a) Class, Collaboration and Responsibility Cards (CRC Cards) **(8 marks)**
b) Essential Use Cases **(8 marks)**
c) Sequence Diagrams (using the business classes only) **(9 marks)**

5. *a)* What are Computer Assisted Software Engineering (CASE) tools and how do they differ from Fourth Generation Languages (4GLs)? **(10 marks)**

b) Evaluate the potential of CASE tools in supporting the systems analysis process. **(15 marks)**