

THE BRITISH COMPUTER SOCIETY

THE BCS PROFESSIONAL EXAMINATIONS Diploma

SYSTEMS ANALYSIS

25th April 2006, 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. “Entertainers Incorporated” (EI) is a successful agency that manages the bookings for more than 100 entertainers. They provide entertainers for an increasing range of events such as children’s and adult parties, corporate events, small theatre productions, clubs and restaurants. As the business has increased the task of matching entertainers to events has become difficult. They have requested a new information system to support the ‘booking system’. A booking is usually carried out in the following manner:
- Someone telephones with a request for one or more entertainers. We get the details of the number and types of entertainers they want, the date, location, start and end times. We record the name, address and telephone number of the enquirer so that we can call them back.
 - Then we search through our files for entertainers that meet their needs.
 - If we find suitable entertainers we check the list of current bookings to see if they are available. If they are not available, we look for other entertainers that may be available.
 - If we do have an entertainer that meets the customer requirements we telephone the customer and give them the details of the entertainment packages and the cost.
 - If we cannot find suitable entertainers we call the enquirer to tell them that we cannot meet their needs. We keep their details for marketing purposes.
 - If the booking is agreed we then check if the client has booked with us before. For new customers we create a new customer form with their full name, address and contact details.
 - We record the details of the new booking on a ‘Booking’ form which includes details of which entertainers are assigned to the booking, client details, agreed cost, date, time, location and details of any special requirements. Bookings are guaranteed by a credit card, the details of which we store securely and separately from the other forms.
 - Two weeks before the booking is scheduled take place, or straight away if the event date is less than two weeks away, we print and send the ‘Booking Notification’ form to all the entertainers who then confirm receipt of the notification. If we do not get confirmation we telephone the entertainer to confirm that they received the form.
 - When the entertainers have finished the booking they get the ‘Booking Notification’ form signed to confirm that the service has been provided. They then return this form to the office so that payment can be arranged.
 - Once we are in receipt of the signed ‘Booking Notification’ we set the booking to completed and pass a notice to our finance department so that payment can be sought.
- 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** have to show evidence of the normalisation process. **(20 marks)**
- c) The two models developed in response to Q1a and Q1b above are known as the process and data models respectively. What is the third model that the systems analyst may develop to compliment the process and data models? How can it be used to check the process and data models? **(10 marks)**

Turn over]

2. a) Explain what is meant by the term 'stakeholder' in the context of Information Systems Development. **(5 marks)**
- b) Identify the key stakeholders in the scenario presented for Question 1 and discuss the ways in which the project manager can ensure that they are involved in the systems analysis stage of the project. **(20 marks)**
3. a) Identify what you would expect to find in a Requirements Specification. **(12 marks)**
- b) Explain the role that a Computer Aided Software Engineering (CASE) tool can play during the systems analysis phase of a project. **(13 marks)**
4. a) Describe the kinds of situation in which it might be appropriate to use Soft Systems Methodology (SSM). **(5 marks)**
- b) Two key techniques used in SSM are the Rich Picture and Root Definitions. For each technique:
- i) explain its purpose; and
 - ii) provide a description of the technique. **(20 marks)**
5. Briefly explain, using an example or a diagram where appropriate, any FIVE of the following terms as applied to object oriented analysis models:
- a) Class
 - b) Object
 - c) Inheritance
 - d) Aggregation
 - e) Actor
 - f) Association
 - g) Operation.

(5 x 5 marks)