



Date: 03.01.2008

Time: 1.00 pm – 3.30 pm

Answer **FOUR** questions **ONLY**

(01)

- (a) State the six properties that a *software product* should consist of.
- (b) What is the purpose of a *feasibility study* and why is it so important in systems development?
- (c) When do we carry out and what aspects do we consider in a *feasibility study* in the development of software?
- (d) Very briefly describe the idea behind *Computer Aided Software Engineering (CASE)* tools.
- (e) Why is the term *Version* a necessity in the software development process?

(02)

- (a) Explain the relationship between *Prototyping*, *Joint Application Development (JAD)* and *Rapid Application Development (RAD)* approaches of systems development.
- (b) What is the difference between RAD approach and the *Evolutionary* approaches?
- (c) Develop *Entity Relationship (ER)* diagrams for the following:
 - (i) Vehicles are owned by persons.
 - (ii) People work in projects
 - (iii) Employee manages a department

Indicate clearly the *attributes*, *primary key(s)* and *connectivities* using *Chen ER notation*. State clearly any assumptions that you make if only necessary.

- (d) What is a software *acceptance test*? When is this test performed?
- (e) What are the objectives of *software maintenance*? What is the difference between *system maintenance* and the development of a *new system*?

(03)

- (a) A *Data Flow Diagram* is needed that describes a system to satisfy *user* requests for spare parts of sewing machines. Whenever a spare part request is received, a search is made to determine whether the part is available in store. If so, the spare part is dispatched together with a dispatch notice. Otherwise, a non availability notice is sent.
- (b) The following is the process for issue of personal cheque books to customers in banks.
- Customer fills the cheque book issue form at the counter. In the form he fills his account type, account No., name, No. of cheque leaves and signs it.
 - The clerk validates the account and checks the customer signature. If any of the information is not correct, he verifies with the customer and if not satisfied returns the form.
 - If details are correct, he picks the required cheque book from the stock, enters the numbers of cheque leaves against the customer account and issues the cheque book.

Draw a *structure chart* to explain the above scenario.

(04)

- (a) When do we use *decision tables* and *decision trees* to represent system logic?
- (b) The following narration describes a process that determines whether a customer is to be given credit. The process chooses one of the three possible actions (*allow credit, refuse credit or refer to manager*). The chosen action depends on whether customer's payment history.

Note that, credit is allowed if the credit level has not been exceeded. If the credit limit has been exceeded, then a customer's credit history and amount of credit are examined. Customers with a bad credit history are refused credit. Customers with a good credit history can be allowed a further credit of up to Rs. 50,000/- at the discretion of a manager.

Represent the above logic using a *Decision Table* and a *Decision Tree*.

(05)

An organization wants a program written to enable it to obtain selective listings of various categories of its employees. An Employee file contains a record for each employee consisting of the employee's name, classification code and annual salary.

The program is to request a classification code from an operator at a terminal. It is then required to read serially through the Employee file and print a report listing all of the employees with that code. At the end of the report, the program is to print the total annual salary of the employees selected.

Draw a *structure diagram* for this program.

(06)

A serial file consists of batches of transactions. Each batch begins with a batch header record and ends with a batch trailer record. Within each batch are a number of transaction records. A report is required. For each batch the report is to appear as follows:

- A blank line
- A batch header
- Formatted transaction lines
- A blank line
- A batch summary line

Each page of the report is to have a heading consisting of the report name and a page number. Each page is to have a page footing. A page can accommodate 40 lines.

Draw the *input and output data structure diagrams*.

*** All Rights Reserved ***