

SD-103

October-2017

B.C.A., Sem.-IV

CC-211 : Object Oriented Analysis and Design

Time : 3 Hours]

[Max. Marks : 70

- Instructions :**
- (1) Figures to the right indicate full marks.
 - (2) Make and state any necessary assumptions.
 - (3) Draw diagrams wherever necessary.

1. (A) Answer the following questions : 8
- (1) What is the use of Feasibility Study ? List all types of Feasibility and explain any two in detail.
 - (2) Explain Spiral model in detail with diagram.

OR

Answer the following questions : 8

- (1) Explain the utility of fact-finding techniques. Explain in detail the Interviewing method of fact-finding and give its advantages.
- (2) Give difference between Waterfall model and Incremental model in detail with diagram.

- (B) What is Data Flow Diagram ? Draw and explain all symbols used in DFD. Draw the Context and Zero level DFD for a Library Management System. In the system, student and faculty can issue a book and return the book. When there is request for any book the Librarian checks for book availability and if the book is available, it is issued else a non-availability message is issued. 6

OR

Explain the advantages of Data Dictionary with example. 6

Draw Context and Zero level DFD for Online Hotel Booking System. The customer can search for the types of rooms, tariffs and services available with rooms. To book a room the customer registers and login. The customer can book different types of rooms. Customer can book one room or more rooms for family. Hotel gives discounts on bulk booking and corporate bookings. Payment can be done through different modes like cash, credit card and debit cards.

2. (A) Answer the following questions : 8
- (1) Explain Abstraction and Encapsulation with example.
 - (2) Give difference between Inheritance and Polymorphism.

OR

Answer the following questions : 8

- (1) Explain Classes and Objects with example.
- (2) Give difference between Cohesion and Coupling.

(B) What is UML ? Explain its goal and role in OOAD. 6

OR

Explain the phases of Object Oriented analysis. 6

3. (A) Answer the following : 8

(1) What are Use-Case Diagrams ? Give the advantages of using Use-Case Diagrams.

(2) Draw Use-Case Diagram for Online Ordering System.

The customer search for products on the company's website. To place order the customer has to register and login. When customers place orders on the company's website, the system checks to see if the items are in stock. The System's Admin sends a confirmation message to the customer and generates a shipping order to the warehouse. The customer can choose the type of shipping. When the order is shipped, the customer is billed against which the customer does payment.

OR

Answer the following : 8

(1) Explain the use of <<includes>> and <<extends>> relationships of Use-Case Diagrams.

(2) Draw the Use-Case Diagram for Appointment system for doctor's office :

A patient came to office, the receptionist get patient details. If the patient is new, the receptionist creates new patient record. The receptionist display list of possible appointments to patient. The patient chooses from the list of new appointments, modify appointments or cancel his appointments. The patient makes payment.

(B) Answer the following : 6

(1) Explain different types of relationships in Class Diagram.

(2) Draw the Object diagram for Publisher.

The publisher publishes different books. An author can write different books but for the same publisher. A contract is signed between publisher and the author. Reports such as the number of books sold, number of complimentary copies given, royalty amount paid to the author, etc. are generated from the system.

OR

Answer the following : 6

(1) Give difference between the Class diagram and Object diagram.

(2) Draw a Class diagram for an Information Modelling System for a College.

In a college there are one or more courses. Each course offers one or more subjects to the students. A particular subject will be offered by only one course. Each course has instructors and instructors can work for one or more course. Student can enroll in upto 5 subjects in a College. Instructors can teach upto 3 subjects. The same subject can be taught by different instructors.

4. (A) Answer the following questions :

8

(1) Draw the Sequence diagram for the following Apply for Loan Use-Case :

There is nationalized Bank which is offering Education loan to the students. All the students who want the loan have to fill the loan application form. The form is submitted to the application controller. The loan Officer will verify the application by checking the application details. If the details are correct the loan officer will send confirmation message and update the database for loans else send a rejection message to the applicant.

(2) Explain the elements and objects of the Collaboration Diagram. Give the guidelines for design of collaboration diagram.

OR

Answer the following questions :

8

(1) What is Sequence Diagram ? Give its advantages and explain how the objects of Sequence Diagram interact with other.

(2) Draw Activity diagram for Open Access Insurance System.

The purpose of Open Access Insurance system is to provide automotive insurance to car owners. Initially, the prospective customers fill out an insurance application, which provides information about the customer and his/her vehicles. This information is sent to an agent, who sends it to various insurance companies to get quotes for insurance. When the responses return, the agent then determines the best policy for the type and level of coverage desired and gives customer a copy of the insurance policy proposal and quote.

(B) Answer the following questions :

6

(1) Draw Collaboration Diagram for the following login Use-Case for Online Shopping Website.

(2) What is the use of Statechart Diagram ? Explain different states of a Statechart diagram in detail.

OR

Answer the following questions :

6

(1) Draw a Statechart diagram for Advertisement campaign of ABC Pvt. Ltd. The ABC Pvt. Ltd. company wants to start its advertisement campaign. The advertisement will be prepared. After the approval of the advertisement will be scheduled for publication. The advertisement will be published after scheduling is done.

(2) Explain the use of Activity Diagram. Explain 'fork' and 'join' flow of activity with example.

5. Do as directed :

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- (1) _____ model is appropriate to be used when it is too risky to develop the whole system at once.
- (2) _____ and _____ diagrams are a part of implementation phase.
- (3) _____ uses various symbols to show how the system transforms input data into useful information.
- (4) A _____ is the central storehouse of information about the system's data.
- (5) A _____ is the document containing a number of standard questions that can be sent to many individuals.
- (6) Feasibility study is a management-oriented activity. (True / False)
- (7) A Data Flow Diagram (DFD) shows how the system transforms input data into useful information. (True / False)
- (8) It should be avoided to have more than five swimlanes in a single activity diagram. (True / False)
- (9) In sequence diagram the focus is more on messages and more on the time order in which messages occur. (True / False)
- (10) The value of attributes of objects need not be captured to include in the object diagram. (True / False)
- (11) Which of the following techniques is most appropriate for gathering information from a Company's Director ?
 - (a) Observation
 - (b) Interview
 - (c) Survey
 - (d) Brainstorming session
- (12) Which of these diagrams shows interactions between objects ?
 - (a) Sequence diagram
 - (b) Component diagram
 - (c) Both (a) and (b)
 - (d) None of the above
- (13) Which of the following UML diagrams is used to show the flow of activities within a Use-case ?
 - (a) Sequence diagram
 - (b) Use-Case diagram
 - (c) Class diagram
 - (d) Activity diagram
- (14) _____ shows all the major high-level processes of the system and how they are integrated, as well as data stores, external entities and data flows among them.
 - (a) Context DFD
 - (b) Level-0 DFD
 - (c) Level-1 DFD
 - (d) Level-2 DFD