

Seat No. : \_\_\_\_\_

**ZD-129**

**May-2014**

**BCA (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 :

- (1) Define system. Explain different phases of SDLC. **4**
- (2) What do you understand by term feasibility ? Explain Economic feasibility. **3**

**OR**

Answer the following questions :

- (1) Differentiate between Waterfall Model, Incremental Model and Spiral Model. **4**
- (2) Define Interview and briefly explain its steps. **3**

(b) Answer the following questions :

- (1) Draw a DFD (0, 1, 2 Level) for a publisher who 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. **4**
- (2) How fact finding technique Questionnaires is useful for getting information ? **3**

**OR**

Answer the following questions :

- (1) Create a DFD (0, 1, 2 Level) for Hotel Management System where customer orders food and book rooms. Customer can book different types of rooms, having different tariffs. Customer can book one room individually also and more rooms for family. Hotel Management gives discounts on bulk booking and corporate bookings. At the time of payment customer can use different modes like cash, cheque, credit card. **4**
- (2) Explain the role of Data Dictionary and explain how it can be used in DFD. **3**

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2. (a) Answer the following :

Explain the purpose of UML and BPMN in detail.

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**OR**

Explain the features of Object oriented analysis and design.

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- (b) Answer the following questions :

(1) Differentiate between Generalization and Specialization.

3

(2) What is object oriented analysis ? Explain with example.

4

**OR**

Answer the following questions :

(1) Explain aggregation and composition with an example.

3

(2) What is object oriented design ? Explain with example.

4

3. (a) Draw a use case diagram for Appointment system for doctor's office. A patient comes 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 appointments. The patient makes payment. Explain the benefits of use case diagram.

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**OR**

Draw class diagram for a car rental application. The car rental agency has multiple offices. The customer visits the agency for enquiry and takes a test ride, then selects the car by signing "terms and conditions" form. The customer can also book the car through telephone, email and SMS. The agency checks the availability of the car and gives the status to the customer. The customer can avail the driver facility if required, by paying additional charges. The billing is done based on the type of vehicle and distance travelled.

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- (b) What are the elements of use case diagram ? Draw a use case diagram of banking system where customer opens account and use bank services like deposit cash, withdraw cash, check balance, issue cheque book/ATM card. Branch manager will be responsible for generating reports on quarterly basis. Also interest will be credited quarterly in customer's account.

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**OR**

Draw an object diagram for a publisher who 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. Explain types of relationships.

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4. (a) Answer the following questions :
- (1) What are objects in sequence diagrams ? Explain its types. 4
  - (2) Draw a collaboration diagram for an online Air Ticket Reservation System. 3

**OR**

Answer the following questions :

- (1) What does a state chart diagram represent and explain its purpose. 4
  - (2) What are combined fragments ? Explain its types. 3
- (b) Answer the following questions :
- (1) Differentiate between sequence diagram and collaboration diagram. 3
  - (2) Explain states in state chart diagram and its types. 4

**OR**

Answer the following questions :

- (1) Draw and activity diagram for the purpose of the Open Access Insurance System. They provide automotive insurance to car owners. Initially 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 the customer a copy of the insurance policy proposal and quote. 4
- (2) State any three guidelines for designing statechart diagram. 3

5. Do as directed : 14

- (1) DFD entities are known as \_\_\_\_\_.
- (2) Data elements are combined into \_\_\_\_\_ are also called data structures.
- (3) A link is a relationship among instances of \_\_\_\_\_.
- (4) \_\_\_\_\_ means the ability to take more than one form.
- (5) \_\_\_\_\_ model is appropriate to use when it is too risky to develop the whole system at once.
- (6) \_\_\_\_\_ model is appropriate to be used only when requirements and their implementations are very well understood.
- (7) When using a \_\_\_\_\_ link, the child classes have the option to override the operations in the parent class.
- (8) \_\_\_\_\_ and \_\_\_\_\_ diagrams are part of implementation phase.
- (9) In sequence diagram the focus is more on messages and more on the time order in which messages occur. (T/F)

- (10) The values of attributes of objects need not to be captured to include in the object diagram.(T/F)
  - (11) The two simple sets of DTD are \_\_\_\_\_ and \_\_\_\_\_ methods.
  - (12) A \_\_\_\_\_ is a document containing a number of standard questions that can be sent to many individuals.
  - (13) Object Oriented analysis is the process defining a problem in terms of \_\_\_\_\_.
  - (14) Compare Links and Association.
- \_\_\_\_\_

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