Seat No. : 250

AK-117

April-2016

BCA, Sem.-IV

CC-211 : Object Oriented Analysis and Design (OOAD)

Time : 3 Hours] [Max. Marks : 70

1. (A) (1) Define Fact Finding. Explain Questionnaire and Surveys method in detail. 8

(2) Explain Waterfall Model with advantages and disadvantages.

OR

(1) Explain Spiral Model with diagram, advantages and disadvantages. 8

(2) Explain Feasibility Study with all types.

(B) Draw the context and first level diagram for case given below. 6

Draw a DFD 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 complementary copies given, royalty amount paid to the author, etc., are generated from the system.

OR

Draw the context and first level diagram for case given below. 6

Jaybharat Ltd Co. needs an ideal mail order catalogue system that allows people to shop from home. When a customer receives the catalogue and wants to buy something, they can telephone, fax or email their order to the company. The company gets the order and sends the goods and an invoice. When the customer receives the goods with a delivery note, they send payment and receive a receipt for their payment.

2. (A) (1) Explain Cohesion and Coupling. 8

(2) Explain OOD.

OR

(1) Explain Abstraction and Encapsulation. 8

(2) Explain OOA.

(B) Explain the role and purpose of UML. 6

OR

Explain all the Pillars of Object-Oriented Analysis a..d Design. 6

3. (A) (1) Explain Elements of Class Diagram.

(2) Draw a Use Case Diagram for the case given below.

A student may register for classes during a specified registration period. To register, a student must see their advisor. The advisor must approve each course that the student has selected. The advisor will use the registration system to determine if the student has met the course prerequisites, is in good academic standings and is eligible to register. If the advisor approves the courses, the advisor enters the student's college id into the course registration system. The course registration number for each course is entered. The course description, course number and section for those courses will automatically display.

OR

(1) Explain Elements of Use Case Diagram.

(2) Draw a Use Case Diagram for the case given below.

A Financial Trading System is used by an accounting system for updating account. It allows analysis of trading risks by traders. The trading manager uses it to set limits on price deals. A trader arrives at price deals after checking with the valuation service of FTS. This valuation service is also used in the analysis of trading risks. A sales person uses the price deal to capture a deal with a trader. Capturing a deal may sometime need previously set limits to be exceeded.

(B) Draw the Class Diagram for case given below.

A bank system contains data on customers (identified by name and address) and their accounts. Each account has a balance and there are 2 type of accounts: one for savings which offers an interest rate, the other for investments, used to buy stocks. Stocks are bought at a certain quantity for a certain price (ticker) and the bank applies commission on stock orders.

OR

Draw the Object Diagram for case given below.

We want to model a system for management of flights and pilots. An airline operates flights. Each airline has an ID. Each flight has an ID a departure airport and an arrival airport: an airport as a unique identifier. Each flight has a pilot and a co-pilot, and it uses an aircraft of a certain type; a flight has also a departure time and an arrival time.

An airline owns a set of aircrafts of different types. An aircraft can be in a working state or it can be under repair. In a particular moment an aircraft can be landed or airborne.

8 (A) (1) Explain Activity Diagram. Describe 'Fork' and 'Join'.

(2) Draw a collaboration diagram for : Getting on a flight. Start at home, check in at the counter, go through security, and end up at the gate.

OR

(1) Explain Sequence Diagram with Objects and guidelines. 8

(2) Draw a state chart Diagram capturing the state transitions in a vending machine like., waiting, inserting, choose-item, get-item, get-changes, etc.

(B) (1) Explain Sequence Diagram with elements and Objects. 6

(2) Explain combined fragment.

OR

(1) Explain the use of State chart Diagram along with different states available in state chart diagram. 6

(2) Differentiate between sequence diagram and collaboration diagram.

Answer the following : 14

(1) The diagram that shows the scope of the system, indicating what elements are inside and which are outside the system, is called a :

(a) context diagram (b) level-2 diagram
(c) referencing diagram (d) representative diagram

(2) Data flow diagrams that concentrate on the movement of data between processes are referred to as :

(a) process models (b) data models
(c) flow models (d) flow charts

(3) What is full form of SDLC ?

(a) System Design Life Cycle (b) Software Design Life Cycle
(c) System Development Life Cycle (d) Software Development Life Cycle

(4) Inheritance in object-oriented system is used to

(a) create new classes from existing classes
(b) add new operations to existing operations
(c) add new attributes to existing attributes
(d) add new states to existing states

(5) What is that concept in type theory in which a single name may denote objects of many different classes that are related by some common super class referred to

(a) Object (b) Encapsulation
(c) Polymorphism (d) Generalization

(6) The process of compartmentalizing the elements of an abstraction that constitute its structure and behavior is called as
(a) Hierarchy
(b) Encapsulation
(c) Modularity
(d) Entity Abstraction

(7) What is multiplicity for an association ?
(a) The multiplicity at the target class end of an association is the number of instances that can be associated with a single instance of source class
(b) The multiplicity at the target class end of an association is the number of instances that can be associated with a number instance of source class
(c) All of the mentioned
(d) None of the mentioned

(8) Use case description contents includes
(a) Use case name and number
(b) Actors
(c) Stakeholder and needs
(d) All of the mentioned

(9) A class is divided into which of these compartments ?
(a) Name Compartment
(b) Attribute Compartment
(c) Operation Compartment
(d) All of the mentioned

(10) What is life line in sequence diagram ?
(a) It is a frame consisting of a rectangle with a pentagon in its upper left-hand corner.
(b) It is a rectangle containing an identifier with a dashed line extending below the rectangle.
(c) It is a name compartment; the interaction is represented inside the rectangle.
(d) None of the mentioned.

(11) _____ divide activity diagram in to sections.
(a) Fork
(b) Join
(c) Swimlanes
(d) Activity

(12) A _____ describe a State Machine.
(a) State Character Diagram
(b) State Flow Diagram
(c) State Chart Diagram
(d) State Machine Flow Diagram

(13) What is a lifeline ?
(a) It is a frame consisting of a rectangle with a pentagon units upper left-hand corner.
(b) It is a rectangle containing an identifier with a dashed line extending below the rectangle.
(c) It is a name compartment; the interaction is represented inside the rectangle.
(d) None of the mentioned.

(14) _____ show workflow of the entire system.
(a) Sequence Diagram
(b) Use case Diagram
(c) Activity Diagram
(d) Collaboration Diagram