Code No: 07A6EC09   **R07**   **Set No. 2**

III B.Tech II Semester Examinations,December 2010
OBJECT ORIENTED ANALYSIS AND DESIGN
Common to Information Technology, Computer Science And Engineering,
Computer Science And Systems Engineering

Time: 3 hours   Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. (a) What are interaction diagrams? What are their contents and common properties? Define semantic equivalence between two kinds of interaction diagrams.
   (b) Enumerate the steps to model flows of control by time ordering. [8+8]

2. (a) Explain briefly about usecase, sequence, component and deployment diagrams.
   (b) Explain the UML approach to SDLC. [8+8]

3. (a) What are the contents, common properties and common uses of use case diagrams?
   (b) Enumerate the steps involved in forward engineering and reverse engineering of use case diagrams. [7+9]

4. (a) Enumerate the steps to model the following:
      i. objects that migrate
      ii. distribution of objects
      iii. timing constraints.
   (b) Contrast the following:
      i. realtime system
      ii. distributed system.
   (c) Define event and signal. [11+3+2]

5. (a) Extend the library system to administrate the purchases of new items and draw the use case diagram
   (b) Draw activity diagram for purchases of new items and explain briefly
   (c) Draw sequence diagram for purchases of new items and explain brieflyy [4+6+6]

6. (a) Enumerate the steps to forward engineer and reverse engineer a component diagram.
   (b) Enumerate the steps to reverse engineer a deployment diagram.
   (c) Enumerate the steps to model a physical database schema. [6+5+5]

7. (a) Enumerate the steps to model different views of a system.
   (b) Enumerate the steps to model complex views.
   (c) Define idiom. Enumerate the steps to model structural relationships. [6+6+4]

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8. (a) Enumerate the steps to model simple collaborations.

   (b) Describe forward engineering and reverse engineering.

   (c) The cellular network must place the phone call correctly, and also schedule the receiving and conference calls. Draw a class diagram. [6+2+8]

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1. (a) Why is use case modeling useful in analysis?
   (b) Define actor. Contrast actor with user. How are actors identified?
   (c) What are the contents, common properties and common uses of use case diagrams.   [4+7+5]

2. (a) What is semantic equivalence between sequence and collaboration diagrams.
   (b) Explain the following illustrating interaction diagrams.
      i. Focus of control
      ii. object lifeline
      iii. path
      iv. Dewey decimal numbering.   [3+13]

3. (a) What are the five constraints applied to association relationships? Give a brief.
   (b) What are the visibility specifiers used for classes and packages? Explain.   [10+6]

4. (a) Illustrate the following modeling issues with class diagrams.
      i. Modeling simple collaborations
      ii. Modeling logical database schema.
   (b) Enumerate the steps to reverse engineer class diagrams.   [12+4]

5. (a) Enumerate the steps to forward engineer and to reverse engineer a deployment diagram.
   (b) What are the characteristics of a well-structured deployment diagram?
   (c) What are the common uses of deployment diagram.   [9+4+3]

6. (a) How is association modeled as a class?
   (b) Explain the antisymmetric and transitive properties of aggregation.
   (c) How is generalization/specialization contrasted with more code reuse? State Liskov's substitution principle.
   (d) What are the principles of modeling?   [4x4=16]

7. (a) Enumerate the steps to model the distribution of objects. Explain briefly considering a UML diagram.

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(b) Enumerate the steps to model interprocess communication.   [10+6]

8. (a) Draw and explain sequence diagram for the search facility of the objects, so that "wild card" characters can be used when searching for titles, authors, or borrowers.

(b) Write Java program for the search facility   [8+8]

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1. What are the common uses of use case diagrams? Consider any two modeling issues and draw relevant use case diagrams. Explain briefly. [16]

2. (a) What is sequence diagram? What is collaboration diagram? What are the features in each one?

   (b) What are the properties and common uses of sequence diagrams and collaboration diagrams? [10+6]

3. (a) Draw a sequence diagram for the Add title use case

   (b) For coding, the specifications are fetched from which diagrams in the design model? explain

   (c) Draw class diagram for use interface classes in the functions menu and explain [4+6+6]

4. (a) Enumerate the steps to model the following:

   　　i. Adaptable systems
   　　ii. Physical database
   　　iii. Source code

   (b) Enumerate the steps to reverse engineer a component diagram.

   (c) What are the common uses of component diagrams? [10+3+3]

5. (a) Explain the following with UML notation

   　　i. behavioral things
   　　ii. Grouping things
   　　iii. Annotational things

   (b) Define software architecture. Explain the 4+1 view model of systems architecture.

   (c) Define using relationship. Give UML notation. [6+7+3]

6. (a) Enumerate the steps to model interprocess communication (IPC).

   (b) Draw a UML diagram which models IPC in a distributed reservation system with processes spread across four nodes. Briefly explain.

   (c) What are the characteristics of a well-structured active class and active object? [5+5+6]

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7. Briefly explain any twelve stereotypes that may be applied to dependency relation-ships.   [16]

8. (a) Consider railway reservation system and draw class diagram.

   (b) What are the properties of a well-structured diagram.   [8+8]

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1. (a) How is recursion represented in a sequence diagram?
   (b) Explain the following with regard to interaction diagrams.
      i. Object life line
      ii. ≪create≫ and ≪destroy≫ messages
      iii. Focus of control
      iv. Dewey decimal numbering
      v. Nesting of tours of control
      vi. Semantic equivalence.   [4+12]

2. (a) Draw the use case diagram for the library system and explain the relationships.
   (b) What are the packages in the Library system? explain   [6+10]

3. (a) Define interaction. Briefly explain about links in interactions.
   (b) Enumerate the steps to model flow of control in interactions.
   (c) Briefly explain about use cases. Enumerate the steps to model the behavior of an element.   [5+5+6]

4. (a) Enumerate the steps to reverse engineer a class diagram.
   (b) Enumerate the steps to model object structures.   [6+10]

5. (a) What is generalization/ specialization hierarchy. Give an example diagram.
   (b) Give example diagrams for UML notation of various relationships in UML, one for each relationship.
   (c) Give an example diagram in UML that depicts all the four relationships.
   (d) Contrast: dependency Vs. association.   [4+6+4+2]

6. (a) Enumerate the steps to model a fully distributed system. Illustrate with a UML diagram.
   (b) Enumerate the steps to forward engineer a deployment diagram.   [10+6]

7. (a) What are the characteristics of a well-structured model with time and space properties.
   (b) Draw a collaboration diagram that models the migration of a web agent that moves from node to node, collecting information and bidding on resources in order to automatically deliver a lowest-cost travel ticket. Briefly explain.

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    (c) Enumerate the steps to model objects that migrate.   [4+8+4]

8. Briefly explain the following with UML notation wherever applicable.

    (a) Abstraction

    (b) Inheritance

    (c) Runtime Polymorphism

    (d) encapsulation

    (e) Realization

    (f) Liskov's substitution principle

    (g) Using relationship.   [16]

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