

A 1162

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2007.

Seventh Semester

Computer Science and Engineering

CS 433 — OBJECT ORIENTED SYSTEM ANALYSIS AND DESIGN

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What do you mean by cardinality in association relationship?
2. Distinguish between static and dynamic binding.
3. List three different parts of models in Object Modeling Techniques (OMT).
4. List various steps in micro development process of Booch methodology.
5. Distinguish between abstract use case and concrete use case.
6. Write two major properties of aggregation (a-part-of) relationship.
7. Distinguish between coupling and cohesion.
8. What is the style of UML attribute presentation?
9. Summarize the impacts of object orientation on testing.
10. What are the requirements of ISO definition on usability?

PART B — (5 × 16 = 80 marks)

11. (a) Categorize the following relationships into inheritance, aggregation, or association. Beware, there may be ternary or n-ary associations in the list, so do not assume every relationship involving three or more object classes is an inheritance relationship. (16)

- (i) A country has a capital city.
- (ii) A dining philosopher is using a fork.
- (iii) A file is an ordinary file or directory file.
- (iv) Files contain records.
- (v) A polygon is composed of an ordered set of points.
- (vi) A drawing object is text, a geometrical object, or a group.
- (vii) A person uses a computer language on a project.
- (viii) Modems and keyboards are input/output devices.
- (ix) Object classes may have several attributes.
- (x) A person plays for a team in a certain year.
- (xi) A route connects two cities.
- (xii) A student takes a course from a professor.
- (xiii) A student may be a part-time or full-time student.
- (xiv) An origination has many departments.
- (xv) A student can undergo many courses simultaneously.
- (xvi) You and I are the members of this organization.

Or

- (b) (i) Explain briefly about the three macro processes of the object oriented software development life cycle. (8)
- (ii) Identify at least four classes, at least two attributes and two operations on each of the four classes in a typical college environment. (8)

aggregation, or
variations in the
or more object
(16)

12. (a) Briefly explain four phases and three parts of Rumbaugh et al.'s Object Modeling Technique (OMT). (16)

Or

- (b) Brief about the following with respect to patterns :
- (i) Generative and non-generative patterns. (3)
 - (ii) Patterns template. (6)
 - (iii) Anti-patterns. (3)
 - (iv) Capturing patterns. (4)

13. (a) (i) Draw the use-case diagram for on-line shopping system. Assume suitable actors such as customer, system. etc. Use system boundaries in your diagram. (8)
- (ii) Draw the use-case diagram for the scenario, "Enrolling students in a university". Use at least one extend and one include relationships in your diagram. (8)

Or

- (b) (i) The following is a list of candidate classes for scoring system. Prepare a list of classes that should be eliminated. Give a reason for each elimination. If there is more than one reason, give the main one :

address, age, age category, average score, back, card, child, child's name, competitor, compute average, conclusion, contestant, corner, date, difficulty factor, event, figure, file of team member data, group, individual, individual prize, judge, league, leg, list of scheduled meets, meet, net score, number, person, pool, prize, register, resistant, raw score, routine, score, scorekeeper, season, station, team, team prize, team name, trail, try, water ballet. (12)

- (ii) List the guidelines for identifying association and eliminating unnecessary associations. (4)

14. (a) Explain briefly about various steps involved in designing classes. Also, brief about the impact of object orientation on testing. (16)

Or

- (b) Mention about various guidelines to be followed when designing a view layer interface. (16)

15. (a) Briefly describe about various testing strategies in objected-oriented system design. (16)

Or

- (b) (i) Mention about various guidelines for developing the test plans. (6)
- (ii) Mention about various guidelines for developing usability testing and user satisfaction test. (10)
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