G 1334   (Pages : 2)   Reg. No..................................

Name..................................

B.TECH. DEGREE EXAMINATION, MAY 2016

Seventh Semester

Branch : Computer Science and Engineering

CS 010 704—OBJECT-ORIENTED MODELING AND DESIGN (CS)

(New Scheme—2010 Admission onwards)

[Improvement/Supplementary]

Time : Three Hours   Maximum : 100 Marks

Part A

Answer **all** *questions.*

Each question carries 3 marks.

1. Define a class. Give example.

2. Explain the need for modeling state-dependent behavior of individual objects.

3. "Decomposing a system into subsystems reduces the complexity developers have to deal with." How ? Discuss.

4. What are frameworks ? Discuss.

5. Explain the purpose of modeling component diagrams.

(5 × 3 = 15 marks)

Part B

Answer **all** *questions.*

Each question carries 5 marks.

6. What is inheritance ? Give example.

7. Explain event, state and operation with example.

8. What are boundary conditions ? How to handle them ? Discuss with example.

9. What is an association class ? Give example for a binary association with an association class with multiplicity many to many.

10. Explain with an example the use of fork in an activity diagram.
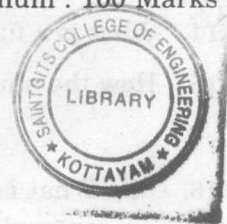
(5 × 5 = 25 marks)

Part C

Answer **all** *questions.*

Each question carries 12 marks.

11. (a) How does object oriented methodology differ from other programming methodologies ?
    Discuss.

(8 marks)

Turn over

(b) What is the difference between an actor, a class and an instance ? Discuss with example.

(4 marks)

Or

12. (a) What is generalization and specialization ? Explain overriding for extension and overriding for restriction with example. (8 marks)

(b) What is multiple inheritance ? Give example. (4 marks)

13. What is a dynamic model ? How a dynamic model can be used to specify aspects of a system that change over time ? Explain with example.

Or

14. What is a functional model ? How to construct a functional model ? Discuss with an example.

15. How the analysis models influence system design ? Discuss with example.

Or

16. (a) What is a subsystem ? How to decide allocation of subsystems to processors ? Discuss with example. (8 marks)

(b) What is a persistent object ? How a persistent object can be realized ? Discuss. (4 marks)

17. How to combine object model, dynamic model and functional model to obtain operations on classes ? Discuss with example.

Or

18. How associations and relationships among objects are implemented ? What is multiplicity of an association ? Discuss with example.

19. Model a class diagram for the following scenario :

The Office of the Controller of Examinations of St. John's College of Engineering, an autonomous institution has to keep track of the following details in its database.
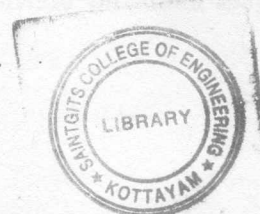
Students are admitted to branches. Branches are offered by departments. The attributes of student include roll number, name, date born and gender. The attributes of branch include branch code and branch name. The attributes of department include department number and department name. Each branch has a set of courses a student must complete to be eligible to receive the degree. The attributes of course include course code, course name and credits. Departments offer courses. A department can offer many courses. A course is offered only by one department. Students enroll for courses. A student can enroll for any number of courses. The session of enrollment (For Example: Session can take the values APRIL 2016, NOVEMBER 2016 ...) and the marks obtained have to be kept track.

Or

20. Consider the following use cases for a library management system application :

(a) Borrow Book ; (b) Return Book.

Model Sequence diagram for the above two use cases.

[5 × 12 = 60 marks]