B.Tech. || CSE || 8ᵗʰ Sem
Object Oriented Analysis and Design
Subject Code: BTCS-906

Reg / RP.

Paper ID:

(for office use)

(2011 onward)

Time allowed: 3 Hrs

Max Marks: 60

Important Instructions:

- **All questions are compulsory**
- **Assume any missing data**

PART A (2×10)

Q. 1. Short-Answer Questions:

(a) What is a class? How is it different from an object?

(b) Define abstraction. Also mention its different types.

(c) What do forks and joins represent in an activity diagram?

(d) Differentiate between sequence diagram and communication diagram.

(e) Explain the concepts of state and transition.

(f) What are the three classifications of patterns according to Gang of Four (GoF)?

(g) How does the factory method pattern fit in with other factories?

(h) Explain decorator design pattern. Does it operate on object level or class level?

(i) What is meant by domain modeling?

(j) Explain the system-level testing in the object-oriented context.

PART B (8×5)

Q. 2. What is the unified process? With a schematic, explain the core workflows and four different phases of the unified process.

OR

What is meant by object-oriented analysis and design? Compare object-oriented analysis and design paradigm with the structured analysis and design paradigm.

Q. 3. What is Unified Modeling Language (UML)? Where can it be used? Explain briefly the building blocks of UML.

OR

How does use case modeling help to describe the functional requirements of a system? Illustrate with an example. Also identify different components of use case model in the same example.

Q. 4. What is the purpose of a class diagram in UML? Draw a class diagram for hotel management system.

OR

Consider a book purchase web-based application which is deployed in a clustered environment using several servers. The user is connecting to the application and the control is flowing from the caching server to the clustered environment. Draw a deployment diagram for this online shopping system.

Q. 5. What is a singleton pattern? What is its applicability? Explain the structure and implementation of singleton pattern with the help of an example.

OR

What is meant by GRASP design patterns in object-oriented design? Explain briefly the different patterns and principles used in GRASP.

Q. 6. Explain in detail how design artifacts are mapped to code in an object-oriented language? Which UML diagrams created during design provide the necessary input for generating the code?

OR

What are CASE tools? Describe the typical components of a comprehensive CASE environment. Also list the general functions of CASE tools.