



**SHRI ANGALAMMAN COLLEGE OF ENGINEERING & TECHNOLOGY**  
(An ISO 9001:2008 Certified Institution)  
SIRUGANOOR, TRICHY-621105.



**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**Year/Sem:IV/VII**

**CS 1301-OBJECT ORIENTED ANALYSIS AND DESIGN**

**UNIT I- FUNDAMENTALS**

**PART-A**

1. Differentiate between the traditional and object oriented views of software.
2. Are messages different from function calls? Justify your answer.
3. “Object orientation supports abstraction at a higher level when compared to the top down approach”. Do you agree? Justify your answer
4. Differentiate between messages and function/subroutine calls.
5. Define an Object  
(Or) What is an Object? Give Example  
(Or) Define Object. What is its significance?
6. Give the characteristics of Object Oriented systems
7. What is a prototype? Explain its types
8. What is the purpose of object persistence and object ID?  
(OR)What is Object persistence?
9. Why is object orientation required?
10. What is dynamic binding?
11. What is meant by software development methodology?
12. Differentiate between Unified approach and UML.
13. What is dynamic inheritance?
14. What is an instance? Give an example.
15. Explain object relationship and associations.
16. What do you mean by consumer-producer association?
17. Define collaboration
18. What do you mean by information hiding?
19. Write briefly about inheritance with its types.
20. Write the 80-20 rule
21. Write about CBD and RAD

## PART-B

1. Give a brief overview on development of object oriented systems.
2. Describe the various Object oriented concepts? And its advantages
3. Explain in detail the processes in systems development using object oriented approach. Illustrate with example.
4. Explain object oriented philosophy.
5. Explain the following: (i) Object Identity (ii) Dynamic Binding (iii) Object persistence (iv) Meta-Classes.
6. Draw the class hierarchy for the following items: Man, cat, lion, tricycle, table, jeep, crow, computer hardware, computer software.
7. What is meant by Inheritance? Explain with a suitable example
8. Explain Polymorphism and its advantages with an example
9. Explain in detail the various types of object relationships and class relationships. Illustrate by giving suitable examples
10. Explain Structure oriented Approach.
11. Explain and develop the payroll system using the steps of object oriented approach
12. List the reasons to explain why objects are so powerful in programming.
13. List the characteristic features of object oriented approach  
(OR) Discuss the advantages of Object oriented Approach.
14. How can we build a high quality Software? Explain.
15. Give a brief discussion on object oriented system life cycle  
(OR) How is software development viewed? What are the various phases of OOSD Life cycle? Explain in detail.  
(OR) Describe the Object oriented Systems Development life cycle – a use case driven approach.

## UNIT II- OBJECT ORIENTED METHODOLOGIES

### PART-A

1. What are the models described in OMT approach? Describe its role/functionalities
2. What is the purpose of OMT functional diagram?
3. What are the diagrams used in Booch methodology?
4. What are the primary symbols used in Data Flow Diagrams?
5. What is the need for micro-level in Booch methodology
6. Explain the steps involved in Macro and Micro development process.
7. What is the purpose of state transition diagram of Booch method?
8. State how a use case is represented.
9. Write short note on Objectory. Or What is Objectory
10. Give a note on patterns and its necessity. (or) What do you mean by design patterns?
11. What is an Antipattern? Should a pattern or anti pattern be analyzed?
12. Differentiate Pattern from Framework.
13. Why is unified approach needed? List its components
14. What are the advantages of modeling
15. What is the use of UML in object oriented approach?
16. What do you mean by object diagram
17. Differentiate between Sequence diagram and Collaborations diagrams.
18. What are the uses of UML component diagram?
19. What is a Package?
20. What is a meta-model? Is understanding a meta-model important?

### PART-B

1. Explain the following: Object Modeling Technique(8), Compare Aggregation and Composition with a suitable example(8)
2. Discuss Booch's Object oriented Analysis and Design Methodology.  
(OR) What are the components of Booch methodology? Explain with examples.

(OR) Explain the Macro and Micro development process of booch methodology in detail

3. Give a detailed account of Jacobson methodology?
4. Compare the three object oriented methodologies in detail (Rumbaugh, Booch, Jacobson)
5. Describe patterns and the various pattern templates?
6. Explain in detail the different processes and components of the unified approach with a block diagram.

(OR) What is unified approach? Explain (OR) Explain the methods and technology employed in unified approach

7. Summarize briefly the different UML diagram types that are focused on a different way to analyze and define the system
8. Construct and explain object model(UML Class diagram) for an automatic washing machine
9. What are the elements of a class diagram? Explain with examples.

(OR) Describe the purpose, function and UML notation of the class diagram

10. Prepare a class diagram to show atleast 10 relationships among the following classes: expression, constant, variable, function, argument list, relational operator, term, factor, arithmetic operator, program, statement
11. Construct a use case diagram for hotel reservation system
12. Describe the use of the following diagrams in UML with an example of a Video Rental System (i) Activity Diagram (ii) Class Diagram
13. Consider a digital library system. Draw the following UML diagrams for the above mentioned system and explain:
  - (i) Use Case Diagram (4)
  - (ii) Activity Diagram (4)
  - (iii) Sequence Diagram (4)
  - (iv) State Chart Diagram (4)
14. Compare and contrast between sequence and collaboration diagrams with the help of example diagrams

## **UNIT III -OBJECT ORIENTED ANALYSIS**

### **PART-A**

1. Why analysis is a difficult activity?
2. What do you mean by business object analysis?
3. Define Use Cases
4. What is the purpose of analysis?
5. What is a use case model?
6. Differentiate Between (i) Uses and Extends Relationships (ii) Actor and User
7. List out the steps for finding use cases?
8. What is meant by railroad paradox? What do you infer from railroad paradox?
9. What do you mean by an actor in a use case?
10. Why is documentation an important part of analysis?
11. What is classification?
12. Name some sources of difficulties for collecting requirements.
13. List the approaches for identifying classes
14. What do you mean by relevant, fuzzy and irrelevant classes?
15. How would you select candidate classes for the list of relevant and fuzzy classes?
16. What is the common class patterns strategy? Give the list of patterns used.
17. Why are Classes, Responsibilities and Collaborators useful?
18. Give the guidelines for naming a class.
19. What is an association? What are the various types of associations?
20. What are some common associations?
21. How to eliminate unnecessary associations? How would you know it?
22. What guidelines would you see to identify a-part-of structures?
23. Give the hint to identify the attribute of a class?
24. Why do we need methods and messages in object-oriented system?

### **PART-B**

1. What is object oriented analysis? Explain various steps involved
2. What is a Use case? Explain its uses in analysis
3. Write down guidelines for finding use cases and developing effective documentation

4. For the ATM system of your college bank, identify the actors and use cases and explain in detail
5. What is classification? Describe briefly the different approaches to identify classes
6. Explain about how to identify classes using Noun Phrase approach.
7. Explain the method of identifying the classes using the common class approach with an example.
8. What is CRC? How it is used to identify classes? Explain with an example.
9. Explain about naming classes
10. Discuss how objects can be related in other ways than by inheritance and aggregation
11. How is super-subclass identified? Explain with an example

## UNIT IV- OBJECT ORIENTED DESIGN

### PART-A

1. What are the main activities in design process?
2. What is the purpose of axiom?
3. Define axiom along with its types **(OR)** What is meant by axiom
4. List the object oriented Design axiom and corollaries
5. What is the relationship between coupling and cohesion
6. Define cohesion with its types.
7. What is coupling? List its types
8. Differentiate between (i) stamp and data coupling (ii) Cooperative and distributed processing
9. What do you mean by degree of coupling?
10. How will you define UML object constraint language?
11. What do you mean by expressions? Give the syntax for some common expressions.
12. What are public and private protocols? What is the significance of separating these 2 protocols?
13. What is Encapsulation Leakage?
14. What are the various attribute types?
15. How do you present UML attribute?
16. Define Persistence.
17. What are the different types of methods provided by a class?
18. Define transient data? Give some transient data?
19. What are client/server computing? Give 2 applications which work on this basis?
20. What is concurrency policy?
21. What do you mean by distributed object computing?
22. Write a short note on CORBA?
23. Differentiate object-oriented databases and traditional databases?
24. Describe reverse and forward engineering?
25. Define object-relation mapping?
26. Define neutralization (homogenization).

27. What are the activities involved in access layer design process?

28. What is a Metaphor?

### **PART-B**

1. What are OOD axioms and corollaries? Explain their significance in detail  
(OR) Discuss different types of corollary and axioms  
(OR) Describe about Design Axioms
2. With a suitable example explain how to design a class. Give all possible representation in a class (name, attribute, visibility, methods, responsibilities)
3. Describe about Access layer  
(OR) What is the purpose of an access layer? Explain the steps in design of access layer classes with an example  
(OR) What is the purpose of an access layer? Explain in detail the process of creation of access layer classes with an ATM example
4. Design the access layer for the student's information management which includes personal, fees and marks details.
5. Write a note on object storage
6. Write short notes on Database models(6), Client server computing(5) ,  
Cooperative processing (5)
7. Discuss in detail how object interoperability is achieved
8. What is the need for multi database system? Explain object relational system
9. Distinguish between various object oriented databases and traditional databases  
(8)



## **UNIT V -SOFTWARE QUALITY AND USABILITY**

### **PART-A**

1. Give the three UI design rules.
2. Mention the purpose of view layer interface
3. Give the guidelines for designing forms and data entry windows/designing dialog boxes and error messages/command button layout/designing application windows/using colors/using fonts.
4. Why do you need to prototype the user interface
5. What are the three general steps in creating a user interface object?
6. List any two aspects of software quality.
7. What is quality?
8. What kinds of errors are encountered when you run a program?
9. What is the purpose of debugging?
10. Discuss Error-based testing?
11. What is scenario based testing (usage based testing)?
12. List the testing strategies
13. What is Black box testing
14. What is white box testing? List its types
15. What is Top-down and Bottom up testing
16. What is the Impact of Object orientation on Testing?
17. What is the purpose or objectives of testing?
18. List the guidelines for developing QA test cases
19. What is the necessary of a test plan? Or what is a test plan
20. Define Regression testing
21. Give the guidelines for developing test plan
22. Give the Myers's debugging principles
23. How will you define validation?
24. List the steps in designing view layer classes.
25. Define Usability? And what is Usability testing?
26. What is the principal objective of user satisfaction testing?
27. List the guidelines for developing user satisfaction test
28. Explain COTS and USTS?

## **PART-B**

1. What is the task of view layer? Explain in detail the process of designing view layer classes with an example.
2. What are interface objects? Explain how to design them.
3. Explain the issues and objectives for SQA in detail
4. Explain the various testing strategies
5. What is a test plan? Explain in detail the guidelines to be followed in developing a test plan.
6. Discuss how a software quality is assured to a user
7. Give the use cases that can be used to generate the test cases for the Bank ATM application
8. Write about system usability and measuring user satisfaction  
(OR) Describe the distinct aspects of system usability.
9. Explain Usability testing with appropriate example.
10. Describe User Satisfaction test in detail  
(OR) Perform the satisfaction test for any client/server application.
11. Explain Myers's Debugging principles