



**Avinashilingam Institute for Home**

**Science and Higher Education for Women**

Deemed to be University Estd. u/s 3 of UGC Act 1956, Category A by MHRD (now MoE)

Re-accredited with A++ Grade by NAAC. CGPA 3.65/4, Category I by UGC

Coimbatore - 641 043, Tamil Nadu, India

**Master's Degree Examination – May 2025**

**II Semester**

**Class : I M.B.A.**

**Time: 3 Hours**

**Major : Information Technology and Systems Management**

**Max. Marks: 100**

**24MBMC15 System Analysis and Design**

**Course Outcomes:**

At the end of the Course the Students will be able to:

CO1: Understand and apply various software development life cycle models and methodologies.

CO2: Analyze and document system requirements using structured representation techniques.

CO3: Design and test software systems using appropriate design methods and testing strategies.

CO4: Apply object-oriented modelling techniques using UML for system development.

CO5: Design and develop effective user interfaces and system components using object-oriented methods.

**Part A**

**10 x 1 = 10**

**Choose the Correct Answer**

1. Which methodology is highly iterative and includes dynamic system development? CO1K1  
a. DSDM    b. PSP/TSP    c. Extreme Programming    d. Waterfall
2. Which process model is best suited for high-risk projects with evolving requirements? CO1K2  
a. Waterfall Model    b. Spiral Model    c. V-Model    d. PSP/TSP
3. A structured requirement representation technique is CO2K1  
a. Agile methodology    b. Data Flow Diagram (DFD)  
c. Waterfall Model    d. Object-Oriented Programming
4. The main objective of IEEE 830 is CO2K2  
a. Software testing methods    b. Software requirements specification (SRS)  
c. Software licensing terms    d. Agile software development framework
5. Which of the below is NOT a characteristic of a good software design? CO3K1  
a. High cohesion    b. Strong coupling    c. Low complexity    d. Modularity
6. Which testing technique focuses on analyzing the structure of the code and deriving test cases from it? CO3K2  
a. Black Box Testing    b. Regression Testing    c. White Box Testing    d. Acceptance Testing
7. A fundamental principle of Object-Oriented Programming (OOP) is CO4K1  
a. Encapsulation    b. Compilation    c. Interpretation    d. Decomposition
8. In UML, which diagram is used to represent the interaction between actors and use cases? CO4K2  
a. Class Diagram    b. Use Case Diagram    c. Sequence Diagram    d. Activity Diagram
9. Which UML diagram represents the dynamic behaviour of a system? CO5K1  
a. Class Diagram    b. Object Diagram    c. Package Diagram    d. Sequence Diagram
10. CRC Card stands for CO5K2  
a. Class-Role-Collaboration    b. Card-Role-Class  
c. Class-Responsibility-Collaboration    d. Component-Relation-Class

**Part B**

**5 x 6 = 30**

**Answer ALL questions**

**Each answer should not exceed 400 words or two pages**

- 11.a. Differentiate between Structured and Object-Oriented Software Development Methodologies. CO1K3  
(or)
- 11.b. Explain the Agile Software Development process and its advantages. CO1K4
- 12.a. Mention the process of requirements elicitation and the techniques used. CO2K3  
(or)
- 12.b. Describe the role of cardinality and optionality in ERD. CO2K4
- 13.a. Explain the concept of Coupling and Cohesion in software design. CO3K3  
(or)
- 13.b. What is Boundary Value Analysis in Black Box Testing? Explain with an example. CO3K2
- 14.a. Explain the Object/Message Paradigm in Object-Oriented Methodology. CO4K3  
(or)
- 14.b. Define Abstract Data Types and their importance in OOP. CO4K3
- 15.a. Describe the relationships in a Class Diagram with examples. CO5K4  
(or)
- 15.b. What are the key characteristics of an Object-Oriented User Interface (OOUI)? CO5 K3

**Part C**

**5 x 12 = 60**

**Answer ALL questions**

**Question No 20. Case is Compulsory**

**Each answer should not exceed 800 words or four pages**

- 16.a. Evaluate the phases of the Software Development Life Cycle (SDLC). CO1K4  
(or)
- 16.b. Compare and contrast the Waterfall Model and the Spiral Model in software development. CO1K4
- 17.a. Describe the IEEE 12207 software life cycle standard and its components. CO2K3  
(or)
- 17.b. Discuss the different structured requirement representation techniques with examples. CO2K4
- 18.a. Identify the process of Mapping from Analysis to Design in software development. CO3K5  
(or)
- 18.b. Explain the different Levels of Testing in detail. CO3K3
- 19.a. Describe the basic principles of Object-Oriented Programming (OOP). CO4K4  
(or)
- 19.b. Compare and contrast inheritance and aggregation with suitable examples. CO4K5
20. **Case Study:(Compulsory question)** CO5K6

A University Library Management System allows students to borrow and return books.

Use CRC Cards and Sequence Diagrams to model this system.

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