

## **CS8592 OBJECT ORIENTED ANALYSIS AND DESIGN**

### **IMPORTANT QUESTIONS AND QUESTION BANK**

#### **UNIT I - UNIFIED PROCESS AND USE CASE DIAGRAMS**

##### 2-Marks

1. What is an object? Give an example?
2. What is Analysis and Design?
3. Give the different formats of Use cases?
4. Define OOAD?
5. Classify the Three kinds of actors in use case?
6. Define Unified Process List the 4 phases in UP.?
7. Comparison between Include and Extend use case relationships?
8. Describe the Primary goals in the Design of UML?
9. Illustrate the relationship used in Use case?
10. Generalize the concepts of Use case Modeling and list the advantages of Use case Modeling?

##### Part-B

1. Explain briefly about the Four Major phases of Unified Process? What is UP?
2. By considering the Library management system, Perform the object oriented System Development and give the use case model for the same(use include, extend and generalization)?
3. Explain the Fully Dressed use case with an example? Explain the Guidelines for writing and finding use cases?
4. Examine the various sections in the Use Case template with example?
5. Classify the various Tests used to find useful use cases?
6. What artifacts may start in Inception? How much UML is required during Inception? Identify the major difference between Evolutionary and water fall requirements?
7. Describe the use case model for online Exam?
8. Generalize the concepts of Next Gen POS system? Briefly explain about Inception Phase?
9. Explain Use case modeling with example?
10. Give one Success scenario for ATM system? Give the steps to find actors and goals?
11. Describe a suitable example showing the various relationships used in Use Case and also give a short note on each relationship?
12. Explain with an example, how use case modeling is used to describe functional requirements, Identify actors, scenario and use cases for the example?

13. A Library lends books and magazines to member, who is registered in the system. It also maintains the purchase of new books and magazines for the Library. A member can reserve a book or magazine that is not currently available in the library, so that when it is returned or purchased by the library, that person is notified. The library can easily create, replace and delete information about the books, members, and reservation in the system. The books transactions are stored in the database. The fine list while the member returns the book after the due date must be generated. Design the use case diagram and discover the users and actors of this system, and the interactions between them must be depicted?
14. Explain the following terms
- UP Disciplines
  - OOA and OOD
  - Abstract and Base Use case
  - Reverse Engineering and Forward Engineering

## UNIT II - STATIC UML DIAGRAMS

### 2-Marks

- Define Class Diagram?
- Define attribute? List the types of attributes?
- Express why we call a domain model a Visual Dictionary?
- Illustrate the Relationships used in class diagram?
- List out the Components of Domain model?
- Illustrate the usage of Description class?
- Give the meaning of abstract conceptual class?
- Analyze the concepts of Association?
- Generalize the use of Sequence Diagram?
- Differentiate Class diagram and Interaction diagram?

### Part -B

- Describe the UML notation for class diagram with example?
- Describe the concepts of link, association and Inheritance ?
- What is Elaboration? Explain why elaboration is complex?
- Describe the strategies used to identify conceptual classes. Describe the steps to create a domain model used for representing conceptual classes?
- Write briefly about elaboration? Describe the difference between elaboration and inception with an example?
- Design the Class diagram for Airline Reservation System? Find and draw conceptual classes for the same?
- Analyze the concepts of Descriptions classes with the mobile phone Domain?
- Explain about association and formulate the guidelines to be followed with UML with suitable example?

9. Explain in detail about domain Model refinement?
10. Discuss the uses, concepts and notations are used in Sequence diagram?
11. Illustrate with an example relationship between sequence diagram and use cases?
12. Differentiate and benefits of Aggregation and Composition?
13. With a suitable example explain how to design a class. Give all possible representation in a class (such as: name, attribute, visibility, methods, and responsibilities)?
14. Classify the following Items and justify your answer? Ex; Bike, tiger, chair, man, dog, lion, child, spider, crocodile, fish, boat, aeroplane, mango, pineapple, deer, horse?

### **UNIT III - DYNAMIC AND IMPLEMENTATION UML DIAGRAMS**

#### **2-Marks**

1. What are the Common Notations in UML Interaction Diagram?
2. Illustrate the concepts and uses of Communication Diagram?
3. Compare Activity and state chart diagram? Mention the Elements of an Activity Diagram?
4. List out the Types of Interactions diagram?
5. Show the SSD for Borrow book scenario?
6. Differentiate the strengths and weaknesses of Sequence and Communication Diagram?
7. Interpret the meaning of event, state and Transition?
8. Define State Chart Diagram? When to use State Diagram?
9. Explain how Synchronous and asynchronous messages are depicted in communication diagram?
10. Analyze the use of UML Package Diagram?

#### **Part-B**

1. Compare sequence diagram and communication diagram with suitable example?
2. Explain the Concepts of frames in UML? What is SSD?
3. Create SSD for Library Management System?
4. Demonstrate the Interaction Diagram notations and explain it?
5. Illustrate about UML deployment and Component diagrams? Draw the diagrams for banking applications?
6. Describe UML state machine diagram and modeling?
7. When to use activity diagrams? Describe the situations with example?
8. Explain about activity diagram with an example?
9. Describe the logical architecture and UML package Diagram?
10. What are the system sequence diagrams? Differentiate the

relationship between system sequence diagrams and use cases? Explain with an Example?

11. Describe communication diagram with an example?
12. Discuss about UML deployment and component diagrams with suitable example?
13. Compare sequence versus collaboration diagram with suitable example?
14. Write a problem statement for Quiz System. Design the UML Use Case diagram, Activity diagram, Class diagram, Sequence diagram, State chart diagram and Package diagram?
15. What is Collaboration diagram? How does it differ from sequence diagram? Design the Collaboration diagram to model the details of a seminar. The display is to obtain the details of seminar and the courses enrolled in the seminar. Then it obtains the details of the seminar. The display is to obtain the details of seminar and the courses enrolled in the seminar. Then it obtains the details of the students enrolled in the seminar. It finds the number of seats left to enroll for the seminar?

## UNIT IV - DESIGN PATTERNS

### 2-Marks

1. Define Design Pattern?
2. Illustrate the concepts of GRASP?
3. "A system must be loosely coupled and highly cohesive"-Justify.
4. Define modular design?
5. Analyze the situation to use Factory method pattern and its advantages?
6. Generalize your view on creator?
7. Summarize the list of structural patterns used during design phase of software development?
8. Analyze the concepts of Coupling and Low coupling?
9. Interpret the need of Information Expert?
10. Distinguish between coupling and cohesion?

### Part-B

1. What is GRASP? Describe the design patterns and principles used in it?
2. Explain the design principles in object modeling? Explain in detail the GRASP method for designing objects with example?
3. Demonstrate in detail about the various categories of Design pattern?
4. Explain in detail about GOF Design pattern?
5. Discuss in detail about mapping design to code concepts in detail?

6. Illustrate your views about Structural patterns?
7. What is Visibility? Classify the ways of visibility and explain it?
8. Examine in detail about Behavioral pattern?
9. Describe the concepts of Singleton Pattern?
10. Explain about the implementation model (Mapping design to code) and give the NextGen POS program solution?
11. Analyze the Strategy pattern in detail?
12. Analyze and categories of Design pattern. Analyze the creational pattern by using with Maze game?
13. Generalize the design issues in implementation of Singleton pattern?
14. Create the observer pattern by using your own application and explain the sections of the design pattern?
15. Explain the GRASP pattern (Creator, Information Expert, Low coupling) by using Monopoly game?

## **UNIT V TESTING**

### **2-Marks**

1. List out the Myer's debugging principles?
2. Describe the term SQA?
3. Give the main tools of Quality Assurance?
4. Define the term Object interoperability?
5. Summarize the basic activities are performed in using debugging tools?
6. Define test plan? What are its components?
7. Why quality assurance is needed? Summarize it.
8. Give the Booch methodology diagrams?
9. Define block box testing?
10. Illustrate the different kinds of errors you might encounter when you run your program?

### **Part-B**

1. Explain Booch's methodology of object oriented analysis and design?
2. Explain Myer's debugging principles?
3. Describe the different types of testing strategies?
4. Illustrate the concepts of Continuous testing?
5. Sketch the guidelines for developing quality assurance Test cases described by Freedman and Thomas adapted for the UA?
6. What are the steps involved to make the testing successful? Illustrate it?
7. Compare and Contrast the object oriented methodology of Booch, Rumbaugh and Jacobson?

8. Explain about a Unified approach to software development?
9. Explain the method of booch Shaler/Mellor, Coad/Yourdon, Rambausch compared to booch briefly. In which aspect Booch analysis is successful?
10. Develop the test cases for the via Net bank ATM System?
11. Describe the following:
  - (i) Guideline for developing a user satisfaction test. (3)
  - ii) White box testing (4)
  - iii) Black box testing (4)
  - iv) Debugging
12. Describe the significance of the object oriented testing?
13. What is test cases? List the guidelines for developing quality assurance test cases?
14. Generalize the impact of an object orientation on testing?

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