 **ST.ANNE’S**

**COLLEGE OF ENGINEERING AND TECHNOLOGY**

ANGUCHETTYPALAYAM, PANRUTI – 607106.

**QUESTION BANK**

**JULY 2019 - NOV 2019 / ODD SEMESTER**

**BRANCH:** CSE **YR/SEM:** III/V **BATCH**: 2017 - 2021

**SUB CODE/NAME:** CS8592 - OBJECT ORIENTED ANALYSIS AND DESIGN

**UNIT I**

**UNIFIED PROCESS AND USE CASE DIAGRAMS**

 **PART – A**

1. What is Object-Oriented Analysis and Design? [NOV/DEC 2013, MAY/JUNE 2014, APR/MAY 2017]
2. What is object? (Dec-18)
3. What is UML? (Dec-14)
4. What are the goals of UML? (Dec-16)
5. What are the three ways and perspectives to Apply UML? [NOV/DEC 2015, NOV/DEC 2016, APR/MAY 2017, May-19]
6. What do you mean by unified process?(Dec-18)
7. What is Inception? [APR /MAY 2011]
8. What is the need for modeling? (May-14)
9. Why do we need object oriented systems development? (Dec-12)
10. Define Design class diagram. (May-16)
11. Define an object .Identify the portable attributes that will be modeld in a library database for the object book.(Dec-17)
12. What are the phases of UP?
13. List the relationships used in use cases.(May-12)
14. List out the steps for finding use cases.(Dec-12)
15. What is use case?(Dec-13,May-18,May-19)
16. What are Actors?[NOV/DEC 2011,APR/MAY 2018]
17. What is a scenario?
18. What tests can help find useful use cases? (May-16)
19. What are Three Kinds of Actors?
20. Outline the purpose of using use cases, to describe requirements.(Dec-17)
21. Define UML meta model.

**PART – B**

**Introduction to OOAD with OO Basics – Unified Process**

1. What do you mean by unified process in OOAD? Explain the phases with suitable diagrams? (13) (NOV/DEC 2015, MAY/JUNE 2016,NOV/DEC 2016, APR/MAY 2017, NOV/DEC 2017, May-19]
2. a) Define OOAD? Explain about OO Basics.(7) (Dec-17)

b) Explain about unified process phases. (6) (Dec-15)

**UML diagrams**

1. (a) Why the Unified process has emerged as a popular and effective software development process? (6) (Dec-17)

(b) What is UML and goals of UML? Explain about three ways of using UML? (7) (May-14)

1. List various UML diagrams and explain it. (16) Use Case –Case study – the Next Gen POS system [ MAY/JUNE 2014, NOV/DEC 2015,APR/MAY 2017]

**Use Case –Case study – the Next Gen POS system** **- Relating Use cases**

1. (a) Explain about Next Gen POS system.(6) (Dec-14)

(b) Expalin with an example a concrete use case and an abstract use case.(7) (Dec-17)

1. Explain with an example ,how use case modeling is used to describe functional requirements. Identify the actors ,scenarios and use cases for example.(13)(May-13,14,Dec-13,16)
2. Explain in detail about Relating use cases.(13)(May-19)
3. (a) Explain about when to use the Use cases. (6)

(b) By considering the library management system, perform the object oriented system development and give the use case model for the same. (7) (Dec-11, 12)

 9. For any scenario draw the use case diagram in detail and explain? (May/Jun 2015)

**PART – C**

1. (i)Analyze and Model a usecase diagram for the following scenario: Deepthi super market wants a subsystem to process supply orders via the web .the user will supply via a from their name ,passwords ,account no and list of supplies along with an indication of the quantities desired .the subsystems will validate the order number, expected shift date and the total cost of the order. If the validation step fails, the subsyste3m will generate an error message describing the cause of the failure.

(ii) ”A component represents a modular ,deployable and replaceable part of a system

that encapsulates implementation and expose a set of interfaces”.Elucidate with an

example. (Dec-17)

**UNIT II**

**STATIC UML DIAGRAMS**

 **PART – A**

1. Explain the include relationship.(May-17)
2. Explain the extend relationship.(May-17)
3. What is the generalization relationship.(Dec-18)
4. What is meant by POS system?
5. What do you mean by the term elaboration? (May-13,14,Dec-14)
6. Enlist various tasks that are involved in elaboration. (Dec-15,May-18)
7. What is domain model? (May-11,Dec-13)
8. Why domain model is referred as visual dictionary? (Dec-16)
9. How to create domain model? (Dec-15,16)
10. Define conceptual classes. (May-16)
11. What are description classes?
12. What is association?(May-19)
13. What is attributes? (Dec-18)
14. Define aggregation and composition.(May-14,Dec-13)
15. What is multiplicity on an association?
16. Differentiate single and multiple inheritances.(May-19)
17. Distinguish between method and message in object. (Dec-15)
18. When to create a subclass of superclass? (Dec-17)
19. How to create instance? (May-18)
20. Give a sample category list for identifying conceptual classes.

**PART – B**

**Elaboration – Domain Model - Finding conceptual classes and description classes**

1. (a) Write briefly about elaboration.(6)

(b) Define Domain model with suitable example. (7) (May-16)

1. Write briefly about elaboration and discuss the difference between Elaboration and

 Inception with example. (13) (May-14, 17, Dec-15,May-19)

1. Explain in detail about conceptual classes and description classes with an example.(13)
2. Explain three strategies to find conceptual classes with an example. (13) (Dec-16,May17)

**Associations – Attributes – Domain model refinement**

1. (a) For the Hospital Management system draw conceptual class diagram. (6)

(b) How to write attributes in a class? (7)

1. (a) What is multiciplicity of an association.Expalin with an example of different types of multiplicities(9) [NOV/DEC 2017]

(b) Explain about inheritance. (4)

**Aggregation and Composition**

1. (a)Explain with an example aggregation, composition. (8)(May-18,Dec-17)

(b)How to write methods in class? Explain about visibility. (5)

**Domain model refinement – Finding conceptual class Hierarchies**

1. (a) Expalin in Deatil about Domain Model Refinement.(6) (Dec-15)

(b) How will you find conceptual class Hierarchies? Give example. (7)(Dec-18)

**Relationship between sequence diagrams and use cases – When to use Class Diagrams**

1. Explain the UML notation for class diagram with example& Explain the concepts of link, association and inheritance**?** (13)[MAY/JUNE 2013 , MAY/JUNE 2016]
2. (a) Examine the UML Class diagram for Library Management system. (6)
3. When to use Class Diagrams?(7)

**PART – C**

1. Constructs the **design** for Library information system which comprises and following notations. (Dec-15,May-19)

(i) Aggregation and Composition.

(ii) Generalization and Specialization.

(iii) Associations

1. Model a class diagram for “Banking system” state the functional requirements you are considering.(Dec-17,18)

**UNIT III**

**DYNAMIC AND IMPLEMENTATION UML DIAGRAMS**

**PART – A**

1. What is UML activity diagram?
2. Define swimlane.
3. What is system sequence diagram (SSD)?(May-19)
4. What is the use of system sequence diagram?(Dec-14)
5. What is layer?(May-17)
6. Enlist various types of layers used in OO system.
7. Define state diagram.(May-14)
8. Give the meaning of event, state and transition.
9. What is state independent object?
10. What is UML deployment diagram?
11. Enlist the two types of nodes in deployment diagram.
12. What is the use of component diagram?(Dec-14)
13. Define component with an example.(May-19)
14. What is meant by system behavior? (Dec-15)
15. How to naming system events and operations? (Dec-16)
16. What are the strengths and weakness of sequence and collaboration diagram?(May-17)
17. Define system events and system boundary. (Dec-16)
18. Name the two types of UML interaction diagrams.(Dec-17)
19. When to use package diagram and collaboration diagram? (May-18)
20. What is the difference between class and an object? (Dec-18)
21. Draw a state diagram for elevator.
22. How to use the creating methods from interaction diagrams?(May-18)
23. Draw sequence diagram for login operation in ATM model.
24. When to use communication diagrams?

**PART – B**

**Dynamic Diagrams:**

1. Explain in detail about System sequence diagram. (13)
2. Illustrate with an example, the relationship between UML Sequence diagrams and use cases? (13)[ MAY/JUN 2014, NOV/DEC 2016, APR/MAY 2018,May-19]

**Collaboration diagram:**

1. Explain in detail about Collaboration diagram. (13)
2. (a) What is communication diagram?Explain about strength and weakness of sequence and communication diagram.(7)

(b) Draw a sequence diagrams that specifies the flow of control involved in initiating a simple, two party phone call. (8)

1. Explain about interaction diagram notation for inventory management system.(13) (Dec-15)
2. Apply interactive modeling for a payroll system in UML. (13) (Dec-16)

 **State machine diagram and Modelling**

1. What is the purpose of state chart diagram? How to draw state chart diagram? Explain. (13)(May-14,Dec-14)
2. Explain in detail about Activity diagram.(13)

**Implementation diagrams:**

1. Describe briefly about the UML package diagram. (13)
2. Draw a neat sketch of logical layered architecture of Next Gen application and discussthe components in detail. (13)

**Component and Deployment Diagrams**

1. Illustrateabout UML Deployment and Component diagram with suitable example.(13)(Dec-14,May-14)

**PART – C**

1. Evaluateand Model a state transition diagram for the following scenario. Here is what happens in a microwave oven :

•The oven is initially in an idle state with door open, where the light is turned ON.

•When the door is closed it is now in idle but the light is turned OFF.

•If a button is pressed, then it moves to initial cooking stage, where the timer is set and lights are ON and heating starts

•At any moment the door may be opened, the cooking is interrupted, the timer is cleared and heating stops.

•Also while cooking, another button can be pushed and extended cooking state starts, where the timer gets more minutes.at any moment door can be opened here also**.** (Dec-17)

1. Write a problem statement for Library Management System. Design the UML Use Case diagram, Activity diagram, Class diagram, Sequence diagram, State chart diagram, Package diagram, and Component and Deployment diagram. (13)

**UNIT IV**

**DESIGN PATTERNS**

**PART – A**

1. Define patterns (or) when to use patterns[MAY/JUN 2014, NOV/DEC 2015, NOV/DEC 2016]
2. What is GRASP? (May-13)
3. What is responsibility driven design (RDD)?
4. What is problem and solution of creator pattern?
5. Define coupling? (Nov/Dec 2013)
6. What is controller pattern?
7. What is design pattern?(May-14,Dec-13,Dec-17)
8. Define low coupling? [May/June 2014]
9. Determine the use of Design patterns? (Nov/Dec 2013) [Nov/Dec 2014]
10. Distinguish between coupling and cohesion.(Dec-16,17,May-17)
11. When to use patterns?(Dec-15,May-19)
12. Define object with an example.
13. List out the types of coupling [APR/MAY 2018,]
14. Mention the list of behavourial pattern used during design phase of software development [APR/MAY 2018]
15. What about pure fabrication?
16. What is facade?
17. What do you mean by high cohesion?
18. Define modular design.(May-16,17)
19. What is adapter?
20. What is problem and solution of singleton pattern?
21. When will the observer pattern be used?
22. Explain the factory pattern.(May-19)
23. What are Steps for Mapping Designs to Code? [MAY/JUNE 2015,MAY/JUNE 2015,MAY/JUNE 2016, MAY/JUNE 2017]

**PART – B**

**GRASP:**

1. Explain the design principles in object modeling. Explain about GRASP Patterns.(13) [MAY /JUN 2014,MAY/JUNE 2016, NOV/DEC 2016,APR/MAY 2017, APR/MAY 2018]
2. Determine the concepts of Creator, Low coupling, Controller and High cohesion, Information Expert. (13) [NOV/DEC 2015, NOV/DEC 2016, NOV/DEC 2017,MAY-19]
3. Compare cohesion and coupling with suitable example.(13) (Dec-15)
4. Explain creator and controller design patterns with examples.(13) (Dec-16)

**Design Patterns:**

1. (a) Write a short notes on patterns.(5)

 (b) Summarize and state the role and patterns while developing system

 Design. (8) (Dec-15)

1. (a) Explain in detail about the Factory pattern. Mention the Limitations and applications of Factory Pattern(13) [NOV/DEC 2015, NOV/DEC 2017]
2. Discuss In detail about Structural Patterns?(13) (Dec-15)
3. i)Differentiate Adapter and Bridge pattern. (6)

ii) Analyze how will you design the behavioral pattern. (7)

1. Write short notes on adaptor pattern and observer pattern (13) [APR/MAY 2018]
2. Describe about Strategy pattern and observer pattern. (13)
3. Explain on adapter, singleton, factory & observer patterns.(13)

[APR/MAY 2011, MAY/JUNE 2013, NOV/DEC 2013, MAY/JUN 2014]

1. Explain with a diagram Gang of Four (GoF) pattern summary and relationships.(13) (Dec-17)
2. List out Designing concepts on the Use-Case Realizations with GoF Design Patterns.(13) [ MAY/JUNE 2016]

**Mapping design to code:**

1. Explain in detail the design, artifacts to implementation code in an object oriented language [May- 2016,Dec- 16,May-19]

**UNIT V**

**TESTING**

**PART – A**

1. What are the issues in OO testing? (Dec-15,May-19)
2. What are the advantages of choosing class as a unit of testing in OO testing?
3. What is the implication of inheritance in OO testing? What is remedy?
4. Define Booch’s method.
5. What are all the methods in Object Oriented modeling?
6. Define Software Quality Assurance.
7. List out the SQA activities.
8. Compare system testing and integration testing. [MAY/JUNE 2016]
9. What is refactoring? (Dec-16)
10. What is regression testing? (Dec-16)
11. What is unit testing? (Dec-17)
12. Define test cases. Give example. (Dec-17,May-19)
13. What is refactoring and testing? (May-18)
14. What is OO testing? (Dec-18)
15. Define class testing.(Dec-18)
16. What is the use of test plan?
17. What is the structure of test plan?
18. Write the test case for sorting the list of numbers.
19. What are the implications of Composition and encapsulation in OO testing?
20. What are the implications of polymorphism in OO testing?
21. Enlist four levels of OO testing.

 **PART – B**

**Object Oriented Methodologies – Software Quality Assurance**

1. Explain in detail about Object Oriented Methodologies. (13)
2. Explain in detail about Software Quality Assurance. (13)

**Impact of object orientation on Testing**

1. Discuss briefly about the issues in OO testing?(13) (May-17,18)
2. What is OO testing? Explain in detail about the concepts of OO testing in OOAD.(13) (Dec-15,May-19)

**Develop Test Cases and Test Plans**

1. Explain in detail about Developing Test Cases and Test Plans. (13)
2. Explain in detail about Test Cases with any two examples.(13)
3. (a) Explain in detail about Test plan.(6)

(b) Explain the implication of inheritance, Composition and polymorphism in OO testing.(7)

**PART – C**

1. Assume a program for computing the roots of a quadratic equation. List out the test cases using equivalence partitioning method.