

Code No: **RT41052**

R13

Set No. 1

IV B.Tech I Semester Regular/Supplementary Examinations, Oct/Nov - 2018

UML AND DESIGN PATTERNS

(Common to Computer Science and Engineering and Information Technology)

Time: 3 hours

Max. Marks: 70

Question paper consists of Part-A and Part-B

Answer ALL sub questions from Part-A

Answer any THREE questions from Part-B

PART-A (22 Marks)

1. a) Write the benefits of iterative development. [4]
b) Write the scope of the use case model. [3]
c) List out the advantages of domain modeling [3]
d) Which design pattern addresses the privacy issues? [4]
e) How do you identify states in a state chart diagram? [4]
f) Define association and aggregation among classes. [4]

PART-B (3x16 = 48 Marks)

2. a) Discuss various phases in a unified process. [8]
b) Elaborate the goals of a good design. [8]
3. a) Explain different elements in use case diagram with an example. [8]
b) Discuss various elements of supplementary specification. [8]
4. a) Explain the steps of mapping designs to code. [8]
b) Draw the sequence diagram for performing any ATM transaction. [8]
5. a) What is the intent of facade pattern? And also discuss its applicability? [8]
b) Compare and contrast pure fabrication and indirect fabrication. [8]
6. a) Draw the state chart diagram for railway management system. [8]
b) What are the types of components in UML? Write the differences between component and deployment diagrams. [8]
7. a) Explain in detail the relationships in UML for use case. [8]
b) Write short note on the following
(i) Domain model refinements (ii) Conceptual super classes
(iii) Association classes. [8]

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Time: 3 hours

Max. Marks: 70

Question paper consists of Part-A and Part-B

Answer ALL sub questions from Part-A

Answer any THREE questions from Part-B

PART-A (22 Marks)

1. a) Mention the goals of a good design. [4]
- b) What are the three common use case formats? [3]
- c) What is a sequence diagram and why it is important? [3]
- d) Write the objective of fabrication design pattern. [4]
- e) What is the goal of a component diagram? [4]
- f) Write the importance of generalization relationship. [4]

PART-B (3x16 = 48 Marks)

2. a) Explain the phases of a Unified Process with a neat sketch. [8]
- b) Discuss how UML artifacts and SDLC phases can be mapped. [8]
3. a) Write about the elements of supplementary specification. [8]
- b) Write the significance of FURPS model. [8]
4. a) Draw and explain the class diagram for online shopping cart [8]
- b) Explain the sequence of steps for creating methods from interaction diagrams by taking an example. [8]
5. a) Explain the need of Publish-Subscribe design pattern. [8]
- b) Discuss the motivation and applicability of factory design pattern with an example. [8]
6. a) Elaborate the need of fork and join in an activity diagram with example. [8]
- b) Draw and explain the sequence diagram for banking management system. [8]
7. a) Explain in detail about the dependency relationships in use case along with rotations by taking a suitable example. [8]
- b) Write short note on the following [8]
 - (i) Conceptual classes
 - (ii) Abstract conceptual classes.

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Set No. 3

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Time: 3 hours

Max. Marks: 70

Question paper consists of Part-A and Part-B

Answer ALL sub questions from Part-A

Answer any THREE questions from Part-B

PART-A (22 Marks)

1. a) Write the typical activities in OOAD. [4]
- b) Write the purpose of Inception phase. [3]
- c) Write the differences between sequence and collaboration diagrams. [3]
- d) Write the significance of indirection design pattern. [4]
- e) List out the differences between class and object diagrams. [4]
- f) Define aggregation and composition. [4]

PART-B (3x16 = 48 Marks)

2. a) Explain the role of OOAD and UML in project development. [8]
- b) Discuss various goals for a good design. [8]
3. a) Explain how the requirements are organized in UP artifacts. [8]
- b) Discuss about the three types of use cases with examples. [8]
4. a) Write about different strategies to find the conceptual classes. [8]
- b) Draw the sequence diagram for hospital management system. [8]
5. a) Explain how singleton helps in communication. [8]
- b) Write about principles, control indication and relative pattern of fabrication in detail. [8]
6. a) Discuss the artifacts to be identified for drawing component diagram. [8]
- b) Draw a state chart diagram for airline management system. [8]
7. a) Explain the architecture of a domain model with a neat sketch. [8]
- b) Discuss about aggregation and composition relationships in detail. [8]

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Set No. 4

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Time: 3 hours

Max. Marks: 70

Question paper consists of Part-A and Part-B

Answer ALL sub questions from Part-A

Answer any THREE questions from Part-B

PART-A (22 Marks)

1. a) What are the different types of workflows in OOAD? [4]
- b) Write about the different categories of requirements in UP. [3]
- c) Write the importance of elaboration. [3]
- d) List out the objectives of factory pattern. [4]
- e) Define events, states and transitions. [4]
- f) When to create conceptual subclass and conceptual super class? [4]

PART-B (3x16 = 48 Marks)

2. a) Elaborate MVC architecture with an Example. [8]
- b) Discuss about the steps to select a design pattern. [8]
3. a) Explain the elements and sections of a use case diagram. [8]
- b) Draw a use case diagram for library management system. [8]
4. a) Discuss about the importance of GRASP design patterns. [8]
- b) Explain how to create a domain model with an example. [8]
5. a) Write the significance of indirection pattern with an example. [8]
- b) Explain about structure, implementation and design issues of facade design pattern. [8]
6. a) Explain the uses and basic elements of a deployment diagram with neat diagram. [8]
- b) Discuss about various common modeling techniques for component diagram. [8]
7. a) Explain how generalization is used in use case model with an example. [8]
- b) Write the significance of association classes. What are the guidelines to add association class? [8]