Code No: **R1641052** **R16** Set No. 1

IV B.Tech I Semester Regular Examinations, October/November - 2019
SOFTWARE ARCHITECTURE AND DESIGN PATTERNS
(Computer Science and Engineering)

Time: 3 hours   Max. Marks: 70

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B
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PART–A *(14 Marks)*

1. a) What do you mean by Software Architecture? [2]
   b) Compare between Planned and Unplanned Evaluation. [2]
   c) List the essential elements of Design Pattern. [3]
   d) List the known uses of Adapter. [3]
   e) Define Chain of Responsibility. [2]
   f) What do you mean by World Wide Web? [2]

PART–B *(4x14 = 56 Marks)*

2. a) Explain the Architecture Business Cycle in detail. [7]
   b) List and explain the must have common quality attributes of a Software Architecture. [7]

3. a) What is CBAM? Elaborate in detail. [7]
   b) List and discuss the factors for Evaluating Architecture. [7]

4. a) Name the patterns along with their intents that are included in the catalog of Design Pattern. [7]
   b) How would you select and use Design Patterns? Explain briefly. [7]

5. a) Describe the implementation and Structure of Bridge design pattern [7]
   b) Explain the Intent, Structure, Participants and related patterns of Proxy pattern. [7]

6. a) Describe in detail about Interpreter Design pattern. [7]
   b) Write about the useful technique for implementing State Design pattern. [7]

7. a) Explain Air Traffic Control – a case study in designing for high availability. [7]
   b) Explain Multiple Look-and-Feel Standards in detail. [7]

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Set No. 2

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Max. Marks: 70

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B
*****

PART–A*(14 Marks)*

1. a) List the factors which affect the influence on Software architecture.   [2]
    b) Draw the diagram for context of CBAM.   [2]
    c) Define Design Pattern.   [3]
    d) List any two participants of Bridge structural pattern.   [2]
    e) Write any two applications of Template method Design pattern.   [3]
    f) How to analyze the requirements for a case study?   [2]

PART–B*(4x14 = 56 Marks)*

2. a) Explain Reference Models and Reference Architectures in detail.   [7]
    b) Explain about Quality Attributes and Architectural means for achieving quality.   [7]

3.   Explain the product lines architecture and discuss the reasons that makes software product lines difficult.   [14]

4. a) Explain the Structure and implementation of Abstract Factory creational Pattern.   [7]
    b) Summarize the Builder Creational Pattern in detail.   [7]

5. a) Explain the Adapter Design pattern in detail.   [7]
    b) Explain with an example how Flyweight Design pattern can be implemented.   [7]

6. a) Explain the Intent, Motivation, Structure, Participants and Implementation of iterator Design Pattern.   [7]
    b) State the consequences and implementation of Chain of responsibility behavioral pattern.   [7]

7. a) Explain the World Wide Web - a case study in Interoperability.   [7]
    b) How the A-7E Process Structure Achieves Quality Goals? Explain.   [7]

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Set No. 3

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Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B
*****

PART−A(14 Marks)

1. a) Define Static Quality Attributes.   [2]
   b) State the Participants of ATAM.   [3]
   c) List the intents of Creational pattern.   [2]
   d) Sketch the Structure of Façade Design Pattern.   [3]
   e) When to use a Mediator design pattern?   [2]
   f) List any two Constraints of document structure.   [2]

PART−B(4x14 = 56 Marks)

2. a) Write a note on Hybertsson's three views for software architecture.   [7]
   b) Explain Documenting software architectures, Reconstructing Software
      Architecture.   [7]

3. Draw the process flow diagram for the Cost Benefit Analysis Model (CBAM)
   and discuss the case study of NASA ECS project.   [14]

4. a) Explain the applicability, participants and consequences of Abstract Factory
      creational Pattern.   [7]
   b) Describe the patterns role in solving design problems.   [7]

5. a) Explain the implementation and Structure of Composite design pattern.   [7]
   b) Explain with an example how Proxy Design pattern can be implemented.   [7]

6. a) Describe in detail about Command Design pattern.   [7]
   b) Explain the implementation of memento pattern with a real time example.   [7]

7. a) Write about the user operations on Document editor.   [7]
   b) Explain about Spelling Checking and Hyphenation.   [7]

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Code No: **R1641052**   **R16**   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 FOUR questions from Part-B
*****

PART–A*(14 Marks)*

1. a) Define Dynamic Quality Attributes   [2]
   b) What do you mean by Software Product Line?   [2]
   c) List the advantages Design Patterns.   [2]
   d) Define Proxy Design Pattern.   [3]
   e) When to use STATE pattern?   [3]
   f) What is Multiple Window Systems?   [2]

PART–B*(4x14 = 56 Marks)*

2. a) Describe the role of Software Architect.   [7]
   b) Explain Software Architecture business life cycle and Architectural patterns.   [7]

3. a) How software architecture can control the future of software.   [7]
   b) Explain the roles and responsibilities involved in ATAM evaluation.   [7]

4. a) With neat sketch explain Factory Method creational Pattern Structure.   [7]
   b) Discuss in detail about Singleton creational pattern.   [7]

5. a) Explain the Intent, Structure, Participants and related patterns of Bridge design
      pattern.   [7]
   b) Describe Bridger and Adapter Design patterns with an example each.   [7]

6. a) Explain the Structure, Participants and Implementation of Strategy Design
      pattern.   [7]
   b) Describe in detail about observer Design pattern with a real time example.   [7]

7. a) Write in detail about the three views of Celsius Tech architecture case study   [7]
   b) Discuss the Supporting Multiple Look-and-Feel Standards of document editor.   [7]