

**Code No: 156FT****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech III Year II Semester Examinations, March - 2024****SOFTWARE ARCHITECTURE AND DESIGN PATTERNS****(Computer Engineering – Software Engineering)****Time: 3 Hours****Max. Marks: 75****Note:** i) Question paper consists of Part A, Part B.

ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.

iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

**PART – A****(25 Marks)**

- 1.a) What are module views in UML? [2]
- b) Explain the need for documenting software architecture. [3]
- c) Draw the process flow diagram for the CBAM. [2]
- d) Describe ATAM evaluation team roles. [3]
- e) Define architectural mismatch. [2]
- f) Explain about impact of components on architecture. [3]
- g) What are the known uses of Builder pattern? [2]
- h) Describe the motivation of Abstract Factory. [3]
- i) What are the known uses of Memento pattern? [2]
- j) Write a sample code of Command pattern. [3]

**PART – B****(50 Marks)**

- 2.a) Explain about component and connector views in UML.
  - b) Discuss about system quality attributes in detail. [5+5]
- OR**
- 3.a) How architecture manifests the earliest set of design decisions? Explain.
  - b) Describe documentation cross views in detail. [5+5]
4. What are steps of the evaluation phases in ATAM? Explain in detail. [10]
- OR**
5. Describe the details of CBAM case study of the NASA ECS project. [10]
- 6.a) What makes software product lines work?
  - b) What are techniques for detecting and avoiding interface mismatch? Explain briefly. [4+6]
- OR**
- 7.a) Describe Software Architecture in the future.
  - b) Explain about component-based design as search in detail. [5+5]

- 8.a) What is the catalog of Design Patterns? Explain.  
b) Write and explain the sample code of Factory Method pattern. [5+5]

**OR**

- 9.a) What is a Design Pattern? Explain elements of design pattern.  
b) Explain about Proxy pattern. [5+5]

10. Explain the following:  
a) Mediator pattern  
b) A case study in interoperability. [5+5]

**OR**

11. Explain the following:  
a) Strategy pattern  
b) A case study in designing for high availability. [5+5]

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Question Paper March-2024