

Code No: MC2023/20

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY-GURUJADA VIZIANAGARAM
MCA II- Semester Regular& Supplementary Examinations, June- 2025
SOFTWARE ENGINEERING AND DESIGN PATTERNS

Time: 3 Hours

Max. Marks: 70

Question Paper consists of FIVE units, each carrying 14 marks
Each unit has TWO questions; either of them should be answered
All parts of a question must be answered at one place.

UNIT-I

Marks

1. a) What are software myths? Give examples of management, customer, and developer myths. 7M
b) Discuss the step involved in Waterfall Model with suitable diagram. 7M

(OR)

2. a) Describe the steps involved in project management process in software engineering. 7M
b) Compare and contrast the following software development process models. 7M

UNIT-II

3. a) Describe the key activities involved in the requirements process. 7M
b) What is effort estimation? Describe any one estimation technique COCOMO. 7M

(OR)

4. a) Describe detailed scheduling. What tools or techniques can be used for scheduling? 7M
b) Explain the difference between functional and non-functional requirements. Give examples. 7M

UNIT-III

5. a) Elaborate the Role of software architecture in software engineering. 7M
b) Differentiate between white box and black box testing with examples. 7M

(OR)

6. a) Explain the difference between component and connector in C&C architecture. 7M
b) Define Software Testing and Explain the verification and validation. 7M

UNIT-IV

7. a) Give the step-by-step approach to apply a design pattern effectively. 7M
b) Explain the consequences of the Abstract Factory pattern and Builder patterns. 7M

(OR)

8. a) Explain about singleton pattern. What are the benefits of singleton pattern? 7M
b) How a Design pattern solves the design problem? Illustrate with an example. 7M

UNIT-V

9. a) Briefly explain about structural patterns. Explain about the uses of any two structural patterns. 7M
b) What are the implementation issues of Façade pattern? Explain with sample code. 7M

(OR)

10. a) Discuss the implementation issues of Strategy behavioral pattern. 7M
b) When can be a Flyweight pattern effectively be applicable? Explain. 7M