

Code No.: IT732PE/AI741PE

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H.T.No.

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CMR ENGINEERING COLLEGE: : HYDERABAD

UGC AUTONOMOUS

IV–B.TECH–I–Semester End Examinations (Supply) - December- 2025

DESIGN PATTERNS

(IT & CSM)

[Time: 3 Hours]

[Max. Marks: 70]

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 20 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A

(20 Marks)

1. a) What are the uses of design pattern? [2M]
- b) What is a Design Pattern? Explain. [2M]
- c) List out some problems associated in designing a document editor. [2M]
- d) How design patterns solve design problems? [2M]
- e) Describe uses of Prototype pattern. [2M]
- f) What is the benefit of Factory pattern? [2M]
- g) List the Consequences of Façade Pattern. [2M]
- h) Explain what is Composite pattern. [2M]
- i) Explain the structure of Strategy. [2M]
- j) Write about Applicability of Visitor Pattern. [2M]

PART-B

(50 Marks)

2. How a Design pattern solves the Design problem? Illustrate with an example. [10M]
- OR**
3. a) What are the key elements in the description of a design pattern? Discuss. [5M]
- b) How To Select a Design Pattern? Explain. [5M]
4. Draw and explain the interaction diagram for the spelling checking. [10M]
- OR**
5. a) Describe in detail about Document Structure. [5M]
- b) Explain about Multiple window system. [5M]
6. a) Write and explain the sample code of Singleton pattern. [5M]
- b) What are the implementation issues that are to be considered for builder pattern? [5M]
- OR**
7. What are the creational patterns? Discuss the usage of any two creational patterns. [10M]
8. a) What is the basic problem being solved by the Bridge pattern? Explain. [5M]
- b) Compare the adapter and bridge patterns. [5M]
- OR**
9. Write and explain sample codes of Decorator and Flyweight patterns in detail. [10M]

10. Discuss in detail about Chain of Responsibility pattern.

[10M]

OR

11. Discuss in detail about the following Patterns:

a) State.

[5M]

b) Template Method.

[5M]
