

Code: 19CS4601C

**III B.Tech - II Semester – Regular Examinations – JUNE 2022**

**DESIGN PATTERNS  
(COMPUTER SCIENCE & ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

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- Note: 1. This question paper contains two Parts A and B.  
2. Part-A contains 5 short answer questions. Each Question carries 2 Marks.  
3. Part-B contains 5 essay questions with an internal choice from each unit. Each question carries 12 marks.  
4. All parts of Question paper must be answered in one place.
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**PART – A**

1. a) What are the three categories of design patterns?  
b) What is the benefit of factory pattern?  
c) Explain composite pattern.  
d) Write the purpose of behavioral patterns.  
e) What are the five errors in using design pattern?

**PART – B**

**UNIT – I**

2. a) What are three reasons for studying design patterns? 6 M  
b) What is the relationship between "consequence" and "forces" in a pattern? 6 M

OR

3. a) What are the key elements in the description of a design pattern? 6 M  
b) Explain how design patterns solve design problems? 6 M

## UNIT – II

4. a) Write about the functionality of operations that are accessed indirectly through user operations. 6 M
- b) What are the implementation issues that are to be considered for builder pattern? 6 M

OR

5. a) What are the benefits of Singleton pattern? 6 M
- b) Discuss the implementation issues of singleton pattern in detail. 6 M

## UNIT-III

6. a) What is the basic problem being solved by the Bridge pattern? Explain. 6 M
- b) The Facade pattern and the Adapter pattern may seem similar. What is the essential difference between the two? Explain. 6 M

OR

7. a) What are two classic examples of decorators? How does the Decorator pattern help to decompose the problem? 6 M
- b) Why are the Bridge and Decorator patterns more correctly classified as structural rather than behavioral patterns? 6 M

## UNIT – IV

8. a) Discuss about the structure and participants of Interpreter pattern. 6 M
- b) What are the implementation issues to be considered in Chain of Responsibility pattern? Explain. 6 M

OR

9. a) Explain in detail about the applicability and structure of Command pattern. 6 M
- b) Describe the implementation issues of Memento pattern. 6 M

**UNIT – V**

10. How Bridge pattern is used in supporting Multiple window systems? 12 M
- OR
11. What is recursive composition? How composite pattern is used in designing document structure. 12 M