

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**MCA INTEGRATED– SEMESTER IX- EXAMINATION –WINTER-2022**

**Subject Code: 2698601****Date: 28/12/2022****Subject Name: Design Pattern****Time: 10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make Suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 (a)** Answer the following (Any 7) **07**
- 1) What do you understand by façade?
  - 2) Give the difference between a bridge and an adaptor.
  - 3) Give the difference between abstract class and concrete class in design patterns.
  - 4) What are the key participants in Abstract Factory pattern?
  - 5) Which structural pattern is also known as wrapper?
  - 6) What is the intent of using chain of responsibility pattern?
  - 7) Draw the structure of the Prototype pattern.
  - 8) What are the benefits of the singleton method?
- (b)** Define Design pattern. “Design patterns solve many day-to day problems object-oriented designers face, and in many different ways” Justify and explain this statement. **07**
- Q.2 (a)** What are the steps to be followed to use a design pattern after a design pattern is selected? **07**
- (b)** Explain prototype pattern. Explain where it is applicable? Discuss the benefits and liabilities of the prototype pattern. **07**
- OR**
- (b)** Illustrate and explain the Singleton method in detail with its structure, area of applicability and its implementation. **07**
- Q.3 (a)** List out the various problems in Lexi’s Design and explain any 4 in detail. **07**
- (b)** Write a note on creational design patterns. **07**
- OR**
- Q.3 (a)** What is proxy pattern? Explain the types of proxy pattern and explain its importance. **07**
- (b)** What is decorator problem? What are all the issues to be considered while implementing Decorator pattern. **07**
- Q.4 (a)** Compare and contrast state pattern and strategy pattern. **07**
- (b)** Discuss about the expectations from the design patterns. **07**
- OR**
- Q.4 (a)** Discuss about the implementation issues of interpreter and mediator. **07**
- (b)** What do you understand by a behavioral pattern? List out various behavioral patterns. Discuss about chain of responsibility. **07**
- Q.5 (a)** What is a factory method? Discuss its importance and how you can implement it in different ways? **07**
- (b)** Explain with appropriate diagram how builder and director cooperate with the client. **07**
- OR**
- Q.5 (a)** Explain how the user interface can be embellished? **07**
- (b)** “A flyweight is a shared object that can be used in multiple context simultaneously”. Discuss this statement. Also explain the intent and consequences of flyweight pattern. **07**

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