Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA INTEGRATED– SEMESTER IX- EXAMINATION –WINTER-2023

Subject Code:2698601   **Date: 01/12/2023**
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.
    4. Use of simple calculators and non-programmable scientific calculators are permitted.

Q.1	**(a)**	Answer the following	**07**
		1) What is design pattern?	
		2) List any two essential elements of design pattern.	
		3) In which situation the factory method is used?	
		4) List any two types of proxy pattern.	
		5) Explain observer in brief.	
		6) Draw the diagram that shows how builder and director cooperate with the client?	
		7) What is the use of visitor pattern?	
	(b)	Write a short note on delegation with its characteristics, advantages and disadvantages.	**07**
Q.2	**(a)**	Explain how design patterns solve design problems. Explain in detail.	**07**
	(b)	Describe the builder method. Discuss in which situation it is being used. Draw the structure of the builder method.	**07**
		OR	
	(b)	What is Lexi? List and explain the various problems that are associated with it.	**07**
Q.3	**(a)**	What is adapter pattern? State the importance of adapter pattern. Also discuss the issues to be considered while adapting the adapter pattern.	**07**
	(b)	Explain the following	**07**
		1) User operations Spelling checking 2) Hyphenation	
		OR	
Q.3	**(a)**	Discuss the various structural design patterns.	**07**
	(b)	Explain the flyweight pattern with its issues and importance.	**07**
Q.4	**(a)**	When is singleton pattern useful? Draw its common structure and explain how to implement it.	**07**
	(b)	Write a note on behavioral patterns.	**07**
		OR	
Q.4	**(a)**	Discuss about the façade pattern with its implementation and application scenarios.	**07**
	(b)	Discuss about the intent and consequences of chain of mediator and chain of momento.	**07**
Q.5	**(a)**	What are the basic expectations from design patterns implementation	**07**

(b) Describe the Template method pattern in detail. **07**

OR

Q.5 **(a)** What is abstract factory method? Where it should be applicable? Discuss the benefits and liabilities of an abstract factory method. **07**

(b) Explain in detail about the difference between the state pattern and the visitor pattern. **07**

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