



**SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR**  
Siddharth Nagar, Narayanavanam Road – 517583

**QUESTION BANK (DESCRIPTIVE)**

**Subject with Code :** Design Patterns (16MC842)

**Course :** MCA

**Year & Sem:** III-MCA I-Sem

**Regulation:** R16

**UNIT –I**

**Introduction to Design Patterns**

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|---|-----|
| 1. a) Distinguish between object oriented software and design pattern.              | 6M  |
| b) Give brief description about the object implementations.                         | 6M  |
| 2. a) What is design pattern?   | 6M  |
| b) Explain design patterns in Smalltalk MVC.  | 6M  |
| 3. a) Describe in detail about the essential elements of the design pattern.        | 6M  |
| b) Describe the design patterns using a consistent format.                          | 6M  |
| 4. a) Explain the role of pattern elements in design of a particular problem.       | 6M  |
| b) Describe how to use the design patterns.   | 6M  |
| 5. What is a catalog? Explain catalog pattern.                                      | 12M |
| 6. What is Design pattern? How it support to develop the applications?              | 12M |
| 7. Explain details about Catalog of Design pattern & organizing the Design pattern? | 12M |
| 8. How to Design pattern  |     |
| i) Solve the design problem & Select the design pattern                             | 6M  |
| ii) Use a design pattern.   | 6M  |

**UNIT –II****Design Patterns Case study**

1. a) Write and explain the various components present in the document structure. 6M  
b) What is meant by intersection of functionality and union of functionality? Explain. 6M
2. a) Explain the supporting Multiple Window Systems. 6M  
b) Explain the Embellishing the user interface. 6M
3. a) Explain the various problems associated with Lexi's design. 6M  
b) Describe the monoglyph in detail. 6M
4. What is Lexi? List and explain the various problems that are associated with it. Describe about the Hyphenation. 12M
5. a) What is a design problem? Explain document structure. 6M  
b) Explain supporting and multiple look-and-feel standards. 6M
6. What are considered to Design the application?
  - i) User Operations Spelling Checking 6M
  - ii) Hyphenation. 6M
7. Consider any application of Case study? How to support the Document editor design patterns? 12M
8. Write short notes on Design a Document editor? 12M

**UNIT –III**  
**Creational Patterns**

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| 1. Explain details about the prototype design pattern                 | 12M |
| 2. Explain abstract factory design pattern.                           | 12M |
| 3. a) List and explain the implementation issues of factory method.   | 6M  |
| b) Give brief description about the singleton creational pattern.     | 6M  |
| 4. a) Explain the role of creational patterns in design of a pattern. | 6M  |
| b) Describe details about the prototype design patterns.              | 6M  |
| 5. a) Explain creational patterns for abstract factory.               | 6M  |
| b) What is a singleton creational pattern?                            | 6M  |
| 6. Describe the Builder Design pattern?                               | 12M |

**UNIT –IV**  
**Structural patterns**

1. a) In what way structural pattern differs from creational pattern? Explain in detail. 6M  
b) Draw and explain the structure of a composite pattern. 6M
2. a) Mention the uses and related patterns of bridge design pattern. 6M  
b) What is a bridge pattern? Explain the functions of each. 6M
3. a) What is the motivation for adapter pattern? Explain it in detail. 6M  
b) Explain the applicability and structure of a bridge design pattern. 6M
4. a) Why we are using the wrapper patterns? Draw and explain the structure of it. 6M  
b) List and explain the problems that are solved by the bridge pattern. 6M
5. What is a structural pattern? Explain composite design patterns. 12M
6. a) What is the motivation for the flyweight pattern? Explain in detail. 6M  
b) Mention the consequences and implementation issues of the façade design pattern. 6M
7. a) What is a Proxy design pattern? 6M  
b) Explain Flyweight design pattern. 6M
8. a) Draw and explain the structure and object diagram for flyweight pattern. 6M  
b) Describe briefly about the implementation issues of a proxy pattern. 6M
9. a) Discuss about the consequences and implementation issues of a proxy pattern. 6M  
b) Write short notes on decorator pattern. 6M
10. What is Decorator Design pattern? Explain with example? 12M

**UNIT –V****Behavioral patterns**

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|--|-----|
| 1. a) List and explain the implementation issues of a Iterator pattern.  | 6M  |
| b) How to avoid coupling the sender of request to its receiver? Explain it in detail.                                    | 6M  |
| 2. a) What is a Iterator design pattern?   | 6M  |
| b) Explain behavioral patterns for chain of responsibility pattern.  | 6M  |
| 3. a) Write short notes on chain of responsibility.  | 6M  |
| b) Explain the collaborations of a command pattern.  | 6M  |
| 4. a) Briefly explain about the issues that should be considered while implementing the chain of Responsibility pattern. | 6M  |
| b) Discuss in detail about the applicability of a command pattern.   | 6M  |
| 5. a) Explain command design pattern.  | 6M  |
| b) Explain interpreter design pattern.   | 6M  |
| 6. Explain the role of memento pattern in design of a particular pattern.  | 12M |
| 7. a) Explain Memento pattern.   | 6M  |
| b) What is a Observer design pattern?  | 6M  |
| 8. a) Discuss in detail about the implementation issues of an observer pattern.  | 6M  |
| b) Draw and explain the interaction diagram for memento pattern.   | 6M  |
| 9. a) Which design pattern encourages the distribution behavior among objects? Explain.                                  | 6M  |
| b) Give brief description about the publish – subscribe design pattern.  | 6M  |
| 10. a) Explain memento design pattern.   | 6M  |
| b) Explain mediator design pattern.  | 6M  |
| 11. a) Objects for state & Benefits of strategy design pattern.  | 6M  |
| b) Applicability of template method.   | 6M  |
| 12. What is a visitor pattern? Discussion about behavioral patterns.   | 12M |
| 13. Explain in detail about the visitor object behavioral pattern.   | 12M |
| 14. a) Decoupling sender and receiver.   | 6M  |
| b) Implementation issues of visitor pattern.   | 6M  |
| 15. a) Explain template method design pattern.   | 6M  |
| b) What is a strategy? Explain strategy pattern.   | 6M  |

