

## JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, November/December - 2016

## DESIGN PATTERNS

(Common to CSE, IT)

Time: 3 Hours

Max. Marks: 75

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

Part A is compulsory which carries 25 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

(25 Marks)

1. a) What is Gang of Four *GOF*? [2]
- b) How to select a design pattern? [3]
- c) How many objects is the Singleton responsible for creating? [2]
- d) What are the consequences of the Abstract Factory pattern? [3]
- e) What is the basic problem being solved by the Bridge pattern? [2]
- f) What are the two variations of the Adapter pattern? [3]
- g) What is the intent of mediator pattern? [2]
- h) What are the consequences of Chain of Responsibility pattern? [3]
- i) What is Template method pattern? [2]
- j) What is the purpose of Visitor pattern? [3]

## PART-B

(50 Marks)

2. a) What are the different ways in which patterns and frameworks share similarities and in which they differ? Discuss.
  - b) Describe the consistent format for describing the design patterns. [5+5]
- OR
3. a) Give the step-by-step approach to apply a design pattern effectively.
  - b) What is the basis for classifying design patterns? Categorize and tabulate the design patterns. [5+5]
4. a) Discuss about Lexi's user interface and its design problems.
  - b) The Singleton uses a special method to instantiate objects. What is special about this method? [5+5]
- OR
5. a) What are the implementation issues of prototype design pattern? Discuss.
  - b) Can we use an abstract factory for supporting multiple window system in Lexi's design? Explain. [5+5]
6. a) Discuss in detail about the participants and consequences of Composite pattern.
  - b) What is the intent and motivation of Façade pattern? Explain. [5+5]
- OR
7. a) When can be a Flyweight pattern effectively be applicable? Explain.
  - b) What are the different language features that are exploited by proxy pattern? [5+5]
8. a) Write about the implementation issues of memento pattern.
  - b) Explain the motivation and applicability of observer pattern. [5+5]
- OR
9. What is Command Pattern? Describe in detail about structure, participants and collaborations of Command pattern. [10]
10. a) Discuss the implementation issues of Strategy behavioral pattern.
  - b) Explain what to expect from design patterns. [5+5]
- OR
11. a) Discuss about the structure and participants of state design pattern.
  - b) Write about Pattern community in brief. [5+5]