

B.Tech IV Year I Semester (R13) Supplementary Examinations June 2017

SOFTWARE ARCHITECTURE & DESIGN PATTERNS

(Common to CSE and IT)

Time: 3 hours

Max. Marks: 70

PART – A
(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- List any four goals of software architecture.
 - What are the design quality attributes.
 - What is principle of least knowledge?
 - What are the essential elements of a design pattern?
 - Describe a cursor.
 - What is an adapter?
 - What is a proxy?
 - Explain the purpose of an observer.
 - What is the functionality of a visitor?
 - Explain the concept of monoglyph.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

- 2 (a) What is software architecture? Explain.
(b) Explain the Architectural patterns, Reference models and Reference architectures.

OR

- 3 Draw the process flow diagram for the Cost Benefit Analysis Model (CBAM) and discuss with the help of an example.

UNIT – II

- 4 (a) Clearly bring out the difference between inheritance and composition along with their merits and demerits.
(b) What are the different approaches to select a Design Pattern? Explain.

OR

- 5 (a) Briefly explain Singleton Design Pattern.
(b) What are the consequences of Abstract factory Design Pattern?

UNIT – III

- 6 (a) Compare façade and flyweight patterns.
(b) Explain the significance of proxy patterns with an example.

OR

- 7 (a) Discuss in detail about the narrow interface implementation approaches.
(b) Draw and explain the structure of bridge pattern.
(c) Explain the implementation issues of a bridge pattern.

UNIT – IV

- 8 (a) List and explain the variants and alternatives of iterator pattern.
(b) What is the motivation for mediator pattern? Explain.

OR

- 9 (a) Give brief description about the implementation issues and consequences of chain of responsibility.
(b) Write a detailed note on collaborations, consequences and applicability of command pattern.

UNIT – V

- 10 (a) Give brief description about the strategy design pattern.
(b) Explain the role of template method in designing of the patterns.

OR

- 11 Explain the following in detail:
(a) Who is responsible for traversing the object structure?
(b) Structure of a state pattern.
(c) Applicability of strategy pattern.