

**Fifth Semester B. E. (Computer Science and Engineering)
Examination**

DESIGN PATTERNS

Time : 3 Hours]

[Max. Marks : 60

Instructions to Candidates :—

- (1) Due credit will be given to neatness.

1. Solve any Two :

- (a) The interface segregation states that no client should be forced to depend on methods it does not use. Elaborate. 5 (CO 1)
- (b) Instead of making a class X a subset of class Y(because X happened to be Y) the X class might reuse the behavior of Y. How is this possible? Illustrate with the help of example. 5 (CO 1)
- (c) Explain in brief how to Select and Use a design pattern to solve design problems. 5 (CO 1)

2. (a) Construct the solution for following :

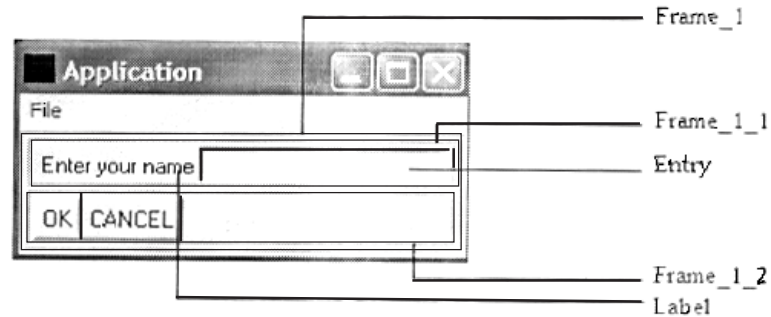
- Client can avail health insurance or home insurance
- Insurance company provides insurance from only two companies LIC and SBI
- Client is forced to avail home insurance only from LIC
- Client is force to avail home insurance only from SBI

Identify which design pattern will be best suited for this application. Implement the same. 5 (CO 2)

- (b) Discriminate the creations design patterns Abstract Factory, Builder and Prototype. 5 (CO 2)

3. Solve any **Two** :

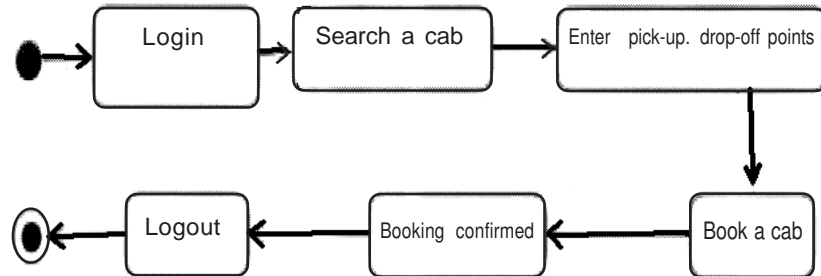
- (a) Differentiate between composite and decorator design patterns. 2 (CO 2)



For the given dialog box how composite and decorator design patterns will be suitable ? 3

- (b) List any three applications of facade pattern. Explain structure and participants of facade pattern with applicable example. 5 (CO 2)
- (c) A protection proxy controls access to the original object. Protection proxies are useful when objects should have different access rights. Construct java code for any one application. 5 (CO 2)
4. (a) Illustrate the use of Interpreter design pattern to handle the language grammar. Build java code using Interpreter design pattern to evaluate only following statements as TRUE.
- Bob is male
 - Alice is a married women
- 5 (CO 3)
- (b) Which design pattern structures handler passing technique ? How ? 5 (CO 3)

5. (a) Which behavioral design pattern will be best suitable for online cab reservation system when system asserts actions to be followed as shown in given state diagram for reservation ? Explain the primitive method.



5 (CO 3)

- (b) Explain intent, structure, participants and consequences of Memento design pattern. 5 (CO 3)
6. (a) Explain different problems to be handled in designing Lexi editor. 5 (CO 4)
- (b) How strategy pattern has been used in Lexi WYSIWYG editor design ? 5 (CO 4)