

Code: 9F00505c**MCA V Semester Supplementary Examinations May 2019****DESIGN PATTERNS**

(For 2009, 2010, 2011, 2012 (LC), 2013, 2014, 2015 & 2016 admitted batches only)

Time: 3 hours

Max. Marks: 60

Answer any FIVE questions
All questions carry equal marks

- 1 (a) Draw the interaction diagram for the "SpellCheck" object. Using Smalltalk MVC code.
(b) Explain the step-by-step approach for effectively applying an appropriate design pattern while solving object-oriented applications.
- 2 (a) Define a "Command" class with single abstract method called "Compute". Create subclasses called "Add", "Subtract". Using aggregation show the relationship between these commands in a "Calculator".
(b) Explain about various 'Look-and-Feel' methods in user interface design.
- 3 (a) Discuss about the participants and collaborations of builder pattern.
(b) Which are the situations that support an object that can be used as a prototype?
- 4 (a) When do we need bridge pattern? List out consequences of its implementation.
(b) Explain the design steps involved in using adapter pattern.
- 5 (a) Make a brief note on storage savings and issues related to flyweight pattern.
(b) Design a façade class called "Programming Environment" that defines operations such as inspectObject and inspectClass for accessing the browsers.
- 6 (a) Suppose the following grammar defines the regular expressions:
Expression ::= literal | sequence | repetition |
'(' expression')'
Sequence ::= expression '&' expression
Repetition ::= expression '**'
Literal ::= 'a' | 'b' | 'c' | ...{ 'a' | 'b' | 'c' | ... }*
Using interpreter pattern implement the classes required for the above grammar rules.
(b) Explain the iterator pattern for solving set of repeated tasks.
- 7 (a) Design a panel that generates user responses using observer pattern.
(b) List out the advantages, disadvantages and features of memento pattern.
- 8 (a) Using visitor pattern, schematically explain the user interactions in a site.
(b) Apply the principles of state transitions for a online registration application.
