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Pune University - Sem - II : Software Architecture April 2010

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P1063**[3733]-203****M.Sc. - I****COMPUTER SCIENCE****CS - 203 : Software Architecture****(2005 Pattern (Old) & 2008 Pattern (New)) (Sem. - II)***Time :3Hours]**[Max. Marks : 80**Instructions to the candidates:*

- 1) *All questions are compulsory.*
- 2) *All questions carry equal marks.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Assume suitable data, if necessary.*

Q1) Attempt the following :**[8 × 2 = 16]**

- a) Define the term “Architectural styles”.
- b) What is a pattern?
- c) What do you mean by coupling?
- d) What are the types of responsibility?
- e) What makes a pattern?
- f) Briefly explain “Baracudda” framework.
- g) Give the features of “Cacoon” framework.
- h) What are the advantages of components?

Q2) Attempt the following (Any four)**[4 × 4 = 16]**

- a) What is the UML? How to apply UML?
- b) What is Software Architecture? What is not software architecture?
- c) Explain pipe and filter architectural style.
- d) How pattern meets the objectives of software architecture?
- e) What is a design pattern? What are the essential elements of a design pattern?

Q3) Attempt the following (Any four)**[4 × 4 = 16]**

- a) Consider a drawing editor that lets users draw and arrange graphical elements (lines, polygon, text, etc.) into pictures and diagrams. The drawing editor’s key abstraction is the graphical object, which has an editable shape and can draw itself.

P.T.O.

The interface for graphical objects is defined by an abstract class called shape. The editor defines a subclass of shape for each kind of graphical object : a lineshape class for lines, a polygonshape class for polygon, and so forth.

select the most appropriate design pattern to address the above problem. Give structure and participants to illustrate use of design pattern.

- b) With the help of example illustrate “Information Expert” GRASP.
- c) Explain intent and applicability of Singleton Design Pattern.
- d) What are the participants of Adaptor Design Pattern?
- e) Give structure and collaboration of Interator Design Pattern.

Q4) Attempt the following (Any Four) [4 × 4 = 16]

- a) What are the consequences and implementation issues of Command Design Pattern?
- b) Write a short note on Creator GRASP.
- c) Define the term framework. What are the characteristics of framework?
- d) Write a short note on MVC Model.
- e) Which are the scopes of resources in struts framework?

Q5) Attempt the following (Any Four) [4 × 4 = 16]

- a) With the help of diagram, explain client tier of struts framework.
- b) Explain the concept of container in struts framework.
- c) What are the different approaches for component based development?
- d) An online admission form contains information such as Name, Date of Birth, Qualification, Email Address, Mobile Number, and Course Name, Mobile No. is optional field.

Apply validation framework for the above application.

- e) The website contains a home page displaying information about Bikes. On clicking the Bike’VRL, a home page asks for model, type, and price range. When a page is submitted, an index page displays a list of bikes, and prices along with the link to the bike details.

Design a struts application along with the struts components needed to design the above application.

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