



DHARMSINH DESAI UNIVERSITY, NADIAD

FACULTY OF TECHNOLOGY

B.TECH – SEMESTER – VI, IT

SUBJECT: [IT 618] DESIGN PATTERNS & APPL. FRAMEWORKS

Examination : Second Sessional
Date : 12/02/2018
Time : 12:00 to 1:15 PM

Seat No. :
Day : Monday
Max. Marks : 36

INSTRUCTIONS:

1. Figures to the right indicate maximum marks for that question.
2. The symbols used carry their usual meanings.
3. Assume suitable data, if required & mention them clearly.
4. Draw neat sketches wherever necessary.

- Q.1 **Do as directed.** [12]
- (a) Write AJAX code (in Div element) to display the content of a text file present on the server. [2]
 - (b) Write jQuery that displays the value of a Textbox (having id 'Tb1') as alert message that is popped on a click of a button. [2]
 - (c) What is bootstrap? Write its major applications and its features. [2]
 - (d) Write Java code to iterate a list of numbers using imperative style of programming and declarative style of programming. [3]
 - (e) Write differences between Proxy design pattern and Façade design pattern and discuss in brief how you decide which one to choose [3]
- Q.2 Attempt **Any Two** from the following questions. [12]
- (a) Create an application using AJAX in which registered userIDs are stored in database. At the time of registration, a user can enter possible userID inside the TextBox. As soon as the user changes the focus from the TextBox, the entered userID should be checked for availability on the server side. If the userID is available, the page should display the message that "Available" in green color font, else it should display the message "Unavailable" in red color font. [6]
 - (b) a) Write a jQuery code that can manipulate image size on user's action. When a user brings the mouse pointer on the image, then Height and width of image should be doubled and when take away the cursor from image, then the image should be restored to its original size. [6]
b) Create an HTML page that displays the Table as responsive based on the content.
 - (c) Draw and discuss the architecture of AJAX call. Also list steps for requesting the data from server, receiving response, and handle it. Also discuss the XMLHttpRequest object and its methods along with the arguments. [6]
- Q.3 Attempt **ALL** from the following questions. [12]
- (a) Write a Java application using applicable design pattern to solve the following problem: For a student of DDU, we would like to *notify* summary of student's performance (session #, attendance-percentage, pass/fail status) for sessional exams to interested entities, such as Student and Student's Parent. Implement following classes for this application: StudentPerformanceSummary, Student, and Parent. Also create Main class that can simulate working of all these entities. Show output of the application to notify scores of at least two teaching sessions. [5]
 - (b) Draw class diagrams of template solutions for the following design patterns, use suitable example/usecase: [4]
 1. Intercepting Filter
 2. Data Access Object
 - (c) Write Java code to create strategy design pattern using Lambda expression. Assume the following two strategies: (1) add all even numbers, (2) add all odd numbers. List of numbers is stored in List<Integer>. [3]
- OR
- Q.3 Attempt **ALL** from the following questions. [12]
- (a) Write a console based Java application using applicable design pattern to solve the following problem: Suppose, you would like to design a dynamic computerized brochure for one site of a construction company. The company provides three types of houses: Row-House, Bungalow, and Twins-Bungalow and under each category of house, the company provides selection of plastic paint or wall tiles on external walls. Write appropriate classes with appropriate methods so that depending upon the selection done by the user, appropriate house can be *rendered*. [5]
 - (b) Using suitable examples discuss about choosing between Factory design pattern and Abstract Factory design pattern. Write method prototypes for creating an object for both patterns. [4]
 - (c) Draw and *discuss in brief*, why diamond problem due to multiple inheritances is not possible in Java 8. [3]