ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)
Department of Computer Science and Engineering (CSE)

Quiz 03 & 04   **SUMMER SEMESTER, 2020-2021**
DURATION: 45 MINUTES   **FULL MARKS: 30**

CSE 4635: Web Architecture

Conform to the rules of the examination. Violation of any of the rules may result in termination.
Answer **all the questions**.
Write Student ID and Page Number on all pages. The first page should contain Student ID and Name.
Figures in the right margin indicate marks and CO-PO mapping.

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1. i.   What do you mean by marhsaling and unmarshaling? In RMI, which class is responsible for performing the marshaling and unmarshaling process?
    ii. Assume you have the information of a list of bank account transactions stored in your database. This information is stored as a static `ArrayList` object under the name `transactionList`. Information related to each transaction are as follows: (transactionId, accountId, customerId, transactionType, transactionDate, transactionAmount).
         Now, write down the code to create a RESTful endpoint that takes a customer id, and two dates as query parameters and returns the list of transactions made between those two dates by that customer as an array list of JSON objects.

2. i.   How does Dependency Injection solve the problem of "Hard Dependency"? Explain with appropriate examples.
    ii. Why do we need to use the Data Access Object design pattern?
    iii. Suppose, you are working on a web application that has a stateful session bean for handling database operations. When the application is going to be terminated, you need to make sure that the database connections are closed. Now, which lifecycle method should be called on this stateful session bean to perform the tasks of closing the database connections?
    iv. Suppose, you have been hired to develop a hotel management system for a hotel. For now, you are working on implementing three features:
         - The "Hotel Room Booking" feature of the application allows customers to book any room in the hotel based on availability and pricing.
         - You are also working on a feature called "Latest Deals", that sends information about different offers on hotel rooms to registered customers.
         - Whenever the web application starts up, you need to ensure that all the database connections are opened and can be accessed by any EJB that needs to perform some business logic on your backend database.
         Now, which kind of session beans should you use to implement the aforementioned features and why?