JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

MID SEMESTER EXAMINATION-2015

B.Tech VIth Semester

COURSE CODE: 10B22CI621　　　　　　　　　　　　MAX. MARKS: 30

COURSE NAME: Information Systems

COURSE CREDITS: 04　　　　　　　　　　　　　　MAX. TIME: 2 HRS

Note: *All questions are compulsory.*

Attempt the questions of a section together.

Section A　　　　　　　　　　　(Marks: 6x1 = 6)

1. Will missing the *@Remote* annotation in the remote interface lead to a syntactical error? Justify.

2. How can drill down technique provide decision support?

3. Is it possible for the presentation layer to contain all 3 components of MVC architecture?

4. A client logs into an entity bean based system at time t0. At time t1 the client finishes his 1st transaction. At time t2 (t2>>t1) the client starts his second transaction which ends at time t3. At time t4 (t4>>t3) the client logs out. Mention the expected states in which the entity bean would be during the time ranges <t0, t0-t1, t1-t2, t2-t3, t3-t4, >t4.

5. How can the function *EJBContext.getCallerPrincipal()* be useful in maintaining/tracking an EJB context?

6. Why do enterprise beans require registration with JNDI?

Section B　　　　　　　　　　　(Marks: 3x3 = 9)

1. Create an MVC model for a speaker that has buttons to play, pause, increase volume and decrease volume. (Create a class diagram of your model.)

2. Consider a vending machine that accepts coins of ₹5 and ₹10 and has only 1 type of items in it of ₹40 each. A person can enter 1 coin at a time. Whenever a person has entered coins of cumulative value equal to ₹40, an item is dispensed. Create a session bean for the vending machine. Also create the corresponding remote interface and client component.

3. Show the lifecycle of a Message Driven Bean. What does each state in the lifecycle represent? State some limitation of the JMS based message driven beans that lead to the need of the connector (JCA) based message driven beans.

Section C   **(Marks: 5x3 = 15)**

1. Consider an employee attendance system that has only 1 client component *capture attendance*. The attendance capture process works on 3 databases
    a. salary details (that saves details for calculating the employee salary every month),
    b. employee id details (that identifies the employee who marked that attendance),
    c. attendance log (log of all employees' attendance).

   The application supports the following transactional operations:
    a. verify employee,
    b. update log,
    c. add to salary, and
    d. display appropriate message.

   What changes and additions would you introduce to the system to make it a Transaction Processing System?

2. Consider an online treasure hunt game that maintains data of every player (player id, name, current level). The game provides the options of saving the progress (level no) and continuing the game at a later time. Create a JDBC based bean managed persistence for the treasure hunt game defined.

   Assume a function play() in the bean as the business processing logic of the game.

   (Create only 1 finder method that finds using the primary key.)

3. Write short notes on:
    a. 3-tier architecture vs MVC
    b. Hättenschwiler Taxonomy
    c. Decision Support System(DSS) architecture by Sparque-Carlson
    d. Management Information Systems(MIS) vs Executive Information Systems(EIS)
    e. Container multithreading support