1. Answer the following questions in brief: (any eight) 16

(a) Write JPA entities to show the relationship between school, class and students.

(b) Write JPA entities to show the relationship between author, books and publishers.

(c) Explain the property of atomicity and isolation in bean managed transaction.

(d) Explain how STS helps in Single Sign on?

(e) Explain the difference between Queue and Topic.

(f) Explain the use of REST with suitable example.

(g) Explain the ways to access local and Remote EJBs programatically.

(h) Compare and contrast the functioning of RMI-IIOP and SOAP.

(i) What are Timers? Explain “One Time Expire” Timer with example.
2. Do as directed: (7,7,4)

(a) A business logic is developed for a Retail Application where one can purchase several items at a time. Decide what type of EJB you will select? Explain its life cycle in context with the application.

(b) Develop a remote business component which fetches the recent prices from the database everyday at every 5 minutes but not on Saturday and Sunday. A web application should display the recent stock prices. Use EJB and JSF.

(c) Explain EJB Schedulers with example.

3. Do as directed: (7,7,4)

(a) How disconnected data sets are realized in Java EE. Explain the internal process of data representation in the server side context. Explain objects and methods used to perform database operations.

   OR

(a) What is persistence context and how entities are mapped into it. Write a code to add, remove and retrieve the data from Many to Many Relationship entities and how Java EE maps it in the Persistence API.

(b) Explain the life cycle of EJBs dealing with asynchronous messaging. Write the steps of creating a client for using messaging services.

(c) How will you apply the JAAS security in EJBs?

4. Do as directed: (7,7,4)

(a) Explain all the building blocks of web services.

(b) What is role based security? How will you provide it to your enterprise applications using the details of registered users and groups stored in a database?

(c) Explain the steps to provide SSL security to a web service communication.