

**ENTERPRISE APPLICATION IN JAVA EE
(CSEN 3232)**

Time Allotted : 3 hrs

Full Marks : 70

Figures out of the right margin indicate full marks.

*Candidates are required to answer Group A and
any 5 (five) from Group B to E, taking at least one from each group.*

Candidates are required to give answer in their own words as far as practicable.

**Group – A
(Multiple Choice Type Questions)**

1. Choose the correct alternative for the following: **10 × 1 = 10**
- (i) What is not a feature of JSF?
 - (a) Component-Based Framework
 - (b) Support HTML5 & Internationalization
 - (c) Ease and Rapid Web Development.
 - (d) Lack of rich set of API and tag libraries.
 - (ii) What is not the duty of Web server?
 - (a) Providing Http socket connections to web client
 - (b) Can process data
 - (c) Sending web-pages to web-client
 - (d) Can receive user inputs from browser.
 - (iii) In an enterprise application a common task is how to store and retrieve information in a database. What is the name of API in Java EE which is used to easily map the application data to RDBMS and store the data in the database and retrieve the database records?
 - (a) The Java Persistence API (JPA)
 - (b) JDBC
 - (c) EJB
 - (d) All of them.
 - (iv) Which of the following container type in the J2EE specification is not server-side container?
 - (a) An applet container
 - (b) An EJB container to manage EJB components.
 - (c) A Web container to manage servlets and JavaServer Pages.
 - (d) All of the above containers
 - (v) What is the full form of JMS?
 - (a) Java Message Server
 - (b) Java Messaging Service
 - (c) Java managed server
 - (d) None of the above options.

- (vi) In MVC pattern what are the functions of the Controller?
(a) Controls UI data displaying
(b) Updates the model object state
(c) Accepts the user input and calls the model and view to complete the user demand
(d) All of them.
- (vii) JDBC 4.0 API provide a package named java.sql which contains classes and interface to perform almost all JDBC operation such as creating and executing SQL Queries. Which class/interface is used for executing stored procedure?
(a) java.sql.CallableStatement (b) java.sql.Statement
(c) java.sql.PreparedStatement (d) java.sql.procedure.
- (viii) JSF technology is based on Model View Controller (MVC) architecture. It provides a special servlet to perform the role of controller. What is the name of that servlet?
(a) JSFServlet (b) FaceServlet
(c) FacesServlet (d) ControllerServlet
- (ix) Which option needs a separate OS process to handle each request in server?
(a) CGI program (b) Servlet (c) both (a) and (b) (d) None
- (x) How many ServletConfig object(s) will be create when 40 servlet objects are being executed in the container?
(a) None (b) 1 (c) 40 (d) 80

Group – B

2. (a) Define Web application and Desktop Application and state at least five advantages and few disadvantage of both category of applications.
- (b) What is the Multitier architecture which is the de facto standard for most Java EE applications? Describe two tier and three tier architecture.
- (c) What is Application Server? Give name of five popular Application server. Briefly describe the function of Model, View and Controller in MVC Architecture. Suggest the name of the components available in Java EE which are used to implement the function of model view and controller.
- 3 + 5 + 4 = 12**
3. (a) What is Java Servlet ? State the major tasks performed by servlets. Describe servlet life-cycle methods indicating who invokes these methods and when. How many instances of a particular servlet are available in a server when more than one client takes the service of the same servlet simultaneously?
- (b) Develop a HTML form as shown below to collect student feedback. The HTML FORM tag includes many GUI components like textbox, radio buttons, SELECT drop down lists etc. to capture various feedback parameters from student. After submitting this page a servlet will get all this parameters and display a response data in a tabular format. To read all the FORM fields, `getParameterNames()` of `HttpServletRequest` can be used. You have to write the Html Page and servlet code to generate the response.

Student Feedback Form

Student Name :

Student Email

How do you know the Institute

Your Feedback ☐ Poor ☐ Good ☐ Very Good ☐ Excellent

(1 + 2 + 3) + 6 = 12

Group – C

4. (a) What are the six different phases of JSF request processing life cycle ? Explain the function of first two phases?
At which phase component values are bound to backing bean properties?
- (b) Briefly describe the JSF Navigation System.
You have to develop the JSF application which will accept order from customer using a page PlaceOrder.xhtml. If the order is placed successfully, the application will display ConfirmOrder.xhtml page. If there is any error OrderError.xhtml page will be displayed and when retry it will allow the user to place order by displaying PlaceOrder.xhtml. Write the navigation rules for this application in appropriate configuration file.
5. (a) What is the purpose of managed bean in JSF?
Give an example of registering a managed bean using @ManagedBean annotation. What are the different types of scope annotations used while registering managed bean?
- (b) Develop a simple JSF page as shown below to accept user information. Service Level list control can contain only Basic, Medium, Premium items and user can choose any one of them. Develop also the managed bean which will act as a model for this page.

(2 + 4 + 1) + 5 = 12

First Name:

Last Name:

Sex: ☒ Male ☐ Female

Date of Birth:

Email Address:

Service Level:

4 + 8 = 12

Group – D

6. (a) What are the new features available in JDBC 4.0.

Define briefly steps to connect a Java Application to Database.

- (b) Following are some important classes and interface of java.sql package. Describe briefly the function of each :
 java.sql.CallableStatement, java.sql.ResultSet, java.sql.Statement,
 java.sql.PreparedStatement
- (c) Develop a simple web application to greet a user using session bean. Accept the user name using html form and after submission it will call the servlet to generate response by calling the session bean method. Write the code for session bean, servlet and html page.

(2 + 2) + 2 + 6 = 12

7. (a) Describe the salient features of EJB technology.
 What are the different Types of EJB?
- (b) What is EJB Containers? Mention at least five common vertical services provided by a EJB containers?
- (c) Explain the function of different types of session beans (stateless, stateful, singleton) with examples.

(2 + 2) + (2 + 3) + 3 = 12

Group – E

8. (a) What is ORM? Name at least four ORM tools used in Java EE?
- (b) What is Entity in JPA? What are the requirements to be followed while defining any entity?
 Say you have database table name Activitygroup to store information of ActivityGroup which have fields such as AgNo (integer), AgDescription (varchar), Point (integer), MaxPoint (integer) and Id as auto-generated primary key. Define the entity to represent the row of that table in JPA.

3 + (4 + 5) = 12

9. (a) What is Persistent-Unit in JPA?
 Define entityManager in JPA and write the command to create entity manage using EntityManagerFactory.
- (b) Write a code snippets to insert an employee record in employee table using JPA and then display that information of employee by fetching that record from employee table. We can choose few fields for employee record for this purpose.

(2 + 3) + 7 = 12

Department & Section	Submission Link
CSE	https://classroom.google.com/c/MzA3NDI2MzAzOTIy/a/MzY0NTE1NjcyNTE5/details