

CAIRO UNIVERSITY

Faculty of Computers and Artificial Intelligence

Course: Advanced Software Engineering Tools Lab

Date: 13th April 2022

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Allowed Time: 60 minutes

Name: _____ ID: _____

Q1) Choose the correct answer [10 Marks]:

1. J2EE is an extended version of _____

- a) **J2SE**
- b) J2ME
- c) J2SM
- d) J2MM

2. EJB applications utilize the _____ to look up for references to utilize all EJB-based functionality.

- a) **JNDI**
- b) Remote EJB interfaces
- c) Home EJB interfaces
- d) EJB JavaBeans

3. java EE, the Java Enterprise Edition, is _____

- a) an improved version of the Java Standard Edition for business professionals.
- b) **a development environment, designed for creating enterprise applications.**
- c) a platform for enterprise class level, distributed application.
- d) a replacement of the Java Virtual Machine for running internet applications

4. Given this pom.xml file, 1 refers to _____

- a) The Packaging method
- b) The Project Name
- c) **The Java Package**
- d) The Project Version

```
<?xml version="1.0"?>
<project xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://
maven.apache.org/xsd/maven-4.0.0.xsd"
  xmlns="http://maven.apache.org/POM/4.0.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <modelVersion>4.0.0</modelVersion>
  <groupId>com.redhat.training</groupId> 1
  <artifactId>example</artifactId> 2
  <version>0.0.1</version> 3
  <packaging>war</packaging> 4
  <name></name>
  <dependencies> 5
    <dependency>
      <groupId>org.richfaces.ui</groupId>
      <artifactId>richfaces-components-ui</artifactId>
      <version>4.0.0.Final</version>
    </dependency>
```

5. Which of the following is/are true about J2EE?

- a) J2EE stands for Java 2 Enterprise Edition
- b) J2EE is an environment for developing and deploying enterprise applications
- c) J2EE specification is defined by Sun Microsystems Inc
- d) The J2EE platform is one the best platform for the development and deployment of enterprise application e. both a and b
- e) both b and c
- f) **All**

6. Which of the following statements about Java SE and Java EE applications is true?

- a) Java EE applications are hosted and managed by an application server.
- b) Java SE applications cannot connect to a database and perform transactions.
- c) In Java EE applications, multi-threading and concurrency has to be manually implemented by the developer.
- d) Java SE applications are always single-threaded. Only Java EE applications are multithreaded.

7. Which of the following statements about containers in an application server is true?

- a) There must only be one container in an application server. Multiple containers within a single application server are not allowed.
- b) The containers can only read XML deployment descriptors in deployments. Code-level annotations are not supported.
- c) Application components can declaratively configure security in XML deployment descriptors or code-level annotations.
- d) A web container can deploy EJB, JMS, and JPA components.
- e) The EJB container must be run separately, outside of the application server. The application server only supports running the web container inside it.

8. Session Beans can be accessed from _____

- a) Remote Java clients
- b) Web Services Clients
- c) Components running in same server
- d) All of the Above

9. Which is the method for Message Driven Beans?

- a) onmessage()
- b) onMessage()
- c) Meessage()
- d) getMessage()

10. What CMT annotation should be inserted before The *logCreateTodo()* method, which ensures that this method is always executed with a new transaction, even if it is called from another method executing with its own transaction context.

- a) @TransactionAttribute(TransactionAttributeType.REQUIRES_NEW)
- b) @TransactionAttribute(TransactionAttributeType.REQUIRED)
- c) @TransactionAttribute(TransactionAttributeType.SUPPORTS)
- d) @TransactionAttribute(TransactionAttributeType.MANDATORY)

```
@Stateless
public class TodoEJB {

    //MISSING_ANNOTATION
    public void logCreateTodo(TodoItem item) {
        ...
    }
}
```

Q2) For the given system requirements, identify the most suitable type of session bean, and justify why you chose that session bean type specifically. If no justification is given, no grade would be given [3 Marks].

An online Solitaire game allows one player to play the game while enforcing a persistent connection between the client (player) and the server. Multiple players can be playing Solitaire at the same time, but none share the same game.

Answer:

Stateless – online game, no data to be maintained across sessions.

Q3) Complete the FOUR missing lines in the following code that uses Bean Managed Transactions [4 marks]:

```
@Stateless
```

```
@TransactionManagement(TransactionManagementType.BEAN)
```

```
public class BeanManagedEJB {
```

```
    @Inject
```

```
    private UserTransaction tx;
```

```
    public Integer saveOrder(Order order) {
```

```
        try {
```

```
            tx.begin();
```

```
            Integer orderId = createOrder(order);
```

```
            raisePurchaseOrder(orderId);
```

```
            sendEmail("Your order # " + orderId + "has been placed successfully...");
```

```
            tx.commit();
```

```
            return orderId;
```

```
        } catch (Exception e) {
```

```
            tx.rollback();
```

```
    }
```

Q4) Complete the THREE missing annotations in the following code so that it achieves the following [3 Marks]:

1. The *StatusBean* class a Singleton EJB
2. The *init* method is invoked when the bean is created for the first time.
3. The *finalize* method is invoked when the bean is destroyed

```
@Singleton
```

```
public class StatusBean {
```

```
    private String status;
```

```
@PostConstruct
```

```
    void init {
```

```
        status = "Ready";
```

```
    }
```

@PreDestroy

```
void finalize {  
    status = "Done";  
}  
}
```

With My Best Wishes