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Java EE 7 Application Developer

Exam A

QUESTION 1
You need to develop a chat application, which allows the display of emoticons and images together with text messages.

How should you configure a WebSocket endpoints to receive both text and binary messages?

A. Create two `@onMessage` methods in the same endpoint with appropriate parameter types.
B. Define the `@onMessage` methods in your endpoint with `Object` as parameter and check the actual type in your code.
C. You can achieve this only by creating separate WebSocket endpoints for each message type.
D. Create two `@onMessage` methods, each with appropriate decoder attribute in the same endpoint.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Reference: https://abhirockzz.gitbooks.io/java-websocket-api-handbook/content/Receiving%20Messages.html

QUESTION 2
Which two capabilities are provided by the Java Authentication and Authorization Services (JAAS) API? (Choose two.)

A. protecting data from unauthorized viewing by using encryption
B. verifying that a user is allowed to perform an action
C. ensuring that data is not modified in transit
D. verifying identity claims from users

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:
Reference: https://docs.oracle.com/javase/8/docs/technotes/guides/security/jaas/JAASRefGuide.html

QUESTION 3
Which interface should you implement if you want to be alerted to the lifecycle events surrounding your task being executed by a `ManagedExecutorService`?

A. the `Runnable` Interface
B. the `ManagedExecutorTask` interface

C. the `TaskEventListener` interface

D. the `ManagedTaskListener` interface

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Reference: https://github.com/javaee/concurrency-ee-spec/blob/master/api/src/main/java/javax/enterprise/concurrent/ManagedExecutorService.java

QUESTION 4
Given the code fragment:

```
@Path ("Employees")
public class EmployeesResource (
  @Inject privace EmployeeManager em;
  @Get
  @Path("{id:[A-Z] [0-9]+}")
  public Employee getEmployee(@PathParam("id") String id) {
        return em.findEmployee(id);
  )
}
```

Which URL triggers the invocation of the `getEmployee` () method?

A. <base url>/Employees/89724

B. <base url>/Employees/J6349

C. <base url>/Employees/id:a7280

D. <base url>/Employees/id/J6349

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 5
What is true about Message-Driven Beans (MDBs)?

A. MDBs can participate in transactions.
B. MDBs are invoked synchronously.
C. Each MDBs can process messages only from a single client.
D. MDBs retain data caches between client calls.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Reference: https://docs.oracle.com/javaee/7/tutorial/ejb-intro003.htm

QUESTION 6
You have been asked to implement internationalization in your JSF web application.

Where do you configure the supported locales?

A. in the `<f:view>` tag of the Facelet page
B. in the `web.xml` file
C. in the `faces-config.xml` file
D. in the `src` folder

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 7
Given the code fragment:

```
1: @ReguestScoped
2: public class BankActivityService {
3:
4:        public void notifyDebit(BankEvent be) { }
5:
6:
7:        public void notifyCredit(BankEvent be) { }
8:
9: }
```

Which code can be added to register both of these methods to receive BankEvent notifications only if an instance of BankActivityService is already instantiated in the current context?

A. `@Observes(notifyObserver=IF_EXISTS)` on `line 3` and `line 6`

B. `@Observes(during=IN_PROGRESS)` on `line 1`

C. `@Observes(during=AFTER_COMPLETION)` on `line 1`

D. `@Observes(notifyObserver=IF_EXISTS)` on `line 4` and `line 7` before method parameter declaration

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Reference https://docs.oracle.com/javaee/7/tutorial/cdi-adv005.htm

QUESTION 8
Which code snippet prints the exception error message as part of the page output?

A. <%= exception.message %>
B. <c:out value="${requestScope['javax.servlet.error.exception']}"/>
C. <% exception.getMessage(); %>
D. <% System.out.println(e.getMessage()) %>

Correct Answer: D

QUESTION 9
Java EE's support for WS-Security includes handling which two types of security credentials? (Choose two.)

A. X.509 certificates
B. SAML tokens
C. OAuth Bearer tokens
D. Two-factor authentication tokens

Correct Answer: AB
Section: (none)
Explanation

Explanation/Reference:

QUESTION 10
Given the code fragment from a Facelet page:

```
<ui:composition xmlns="http://www.w3.org/1999/xhtml"
       xmlns:h="http://xmlns.jcp.org/jsf/html"
       xmlns:pt="http://xmlns.jcp.org/jsf/passthrough"
       xmlns:f="http://xmlns.jcp.org/jsf/core"
       xmlns:jsf="http://xmlns.jcp.org/jsf"
       xmlns:ui="http://java.sun.com/jsf/facelets">
    <h:form id="searchForm">
           <!-- Line 1 -->
           <h:commandButton value="Search"
                  action="#{searchMB.search}"/>
       </h:form>
</ui:composition>
```

On `Line 1`, you ae asked to insert a search box that displays the text "Search Here" via a placeholder.
Assume `searchMB` is a valid Managed Bean.

Which two options enable you to create a search box with a `placeholder` attribute on `Line 1`? (Choose two.)

A. `<h:inputText value="#(searchMB.query)">`
   `<f:param name="placeholder" value="Search Here"/>`
   `</h:inputText>`
B. `<h:inputText value="#(searchMB.query)" placeholder="Search here"/>`
C. `<input jsf:id="search" placeholder="Search here" jsf:value="# (searchMB.query)"></input>`
D. `<h:inputText pt:placeholder="Search Here" value="#(searchMB.query)"/>`
E. `<input id="search" jsf:placeholder="Search Here" value="$(searchMB.query)"></input>`

Correct Answer: CE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 11
Given the code fragment:

```
1. JAXBContext jc = JAXBContext.newInstance( "com.oracle.foo" );
2. Unmarshaller u = jc.createUnmarshaller();
3.
4. InputStream in  = new FileInputStream("fooStuff.xml");
5. Object o = u.unmarshal ( in );
```

Which method should be used on `line 3` to enable default validation mechanism?

A. `u.setProperty(String, Object)`
B. `u.setProperty(Schema)`
C. `u.setEventHandler(ValidationEventHandler)`
D. `u.setAdapter(XmlAdapter)`

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Reference: https://docs.oracle.com/javaee/6/api/javax/xml/bind/Unmarshaller.html

QUESTION 12
How do you specify a default error page in your `web.xml` file?

A. ```
<on-error>
<location>/general-error.html<location>
</on-error>
```
B. ```
<error-page>
<error-code>*</error-code>
<location>/general-error.html</location>
</error-page>
```
C. ```
<on-error>
<error-code>*</error-code>
<location>/general-error.html</location>
</on-error>
```
D. ```
<error-page>
<location>/general-error.html</location>
</error-page>
```

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Reference: http://www.codejava.net/java-ee/servlet/how-to-handle-error-in-web-xml-for-java-web-applications

QUESTION 13
Given the code fragment:

Account.java:

```
public class Acount {
        private int accId = 12345;
        //getters and setters
}
```

Customer.java:

```
public class Customer {
        private Account acc; //line 1
        public void setAcc(Account acc) // line 2
        { this.acc=acc; }
        public Account getAcc() // line 3
        { return acc; }
```

And

index.xhtml:

```
<h:outputText value = "The Id is #(customer.acc.accId)"/>
```

Which two steps, when performed independently, enable the `index.xhtml` page to print the following text: `The Id is 12345`? (Choose two.)

A. Replace line 2 with: `@Inject public void setAcc(Account acc)`
B. Replace line 3 with: `@Inject public Account getAcc()`
C. Replace line 1 with: `@Inject private Account acc;`
D. Replace line 3 with: `public @Inject Account getAcc()`
E. Replace line 1 with: `private @Inject Account acc;`
F. Replace line 2 with: `public void setAcc(@Inject Account acc)`

Correct Answer: DF
Section: (none)

Explanation

Explanation/Reference:

QUESTION 14
Given:

```
public class SomeClass {
    @Resource (name="java:comp/env/concurrent/TaskExecutor")
    ManagedExecutorService mes;
    public void createTask() {
        Future<Integer> result=
                    mes.sibmit(new MyCallable<Integer>());
    }
}
```

How often does the submitted task run?

A. need more details to determine
B. once
C. as many times as you like
D. based on a schedule

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 15
Given:

```
// line 1
public class Mymapper {
        @PrePassivate
        public void setPinDrop() {}
        @PostActivate
        public void checkLocation() {}
}
```

What code needs to be added to line 1 for MyMapper bean instances to be correctly passivated?

A. `@Stateless @PassivationCapable`
B. `@Stateless`
C. `@Stateful @PassivationCapable`
D. `@Stateful`

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Reference: https://docs.oracle.com/javaee/6/tutorial/doc/giplj.html#gipln

QUESTION 16
Which URL represents an invalid approach to pass a parameter to a REST resource?

A. `<base-url>/Employees?value=1`
B. `<base-url>/Employees&value=1`
C. `<base-url>/Employees/1`
D. `<base-url>/Employees;value=1`

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 17
Given:

```
public class AppException extends Exception {}

@Stateless
public class CustomerService {
        @TransactionAttribute(TransactionAttributeType.REQUIRED)
        public boolean addCustomer(int id, String name throws AppException {
            //assume database insert operation succeeds
            Customer c = insertIntoDB(id, name);
            if(id < 20) {
                throw new AppException();
            }
        }
}
```

If an exception is thrown inside the `if` block, what effect will it have on the transaction?

A. The transaction will be committed.
B. The transaction will be suspended.
C. The transaction will be rolled back.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 18
Given the code fragments:

```java
@Stateless
public class HRService {
        @PersistenceContext(unitName="HRApp-PU")
        private Employee findEmployee(String badgeId) {
                return entityManager.find(Employee.class, badgeId);
        }
        public void updateEmployee(Employee emp) {
                //add code here
        }
}


@WebServlet(name="HR", urlPatterns={"/hr"})
public class HRServlet extends HttpServlet {
    @EJB
    private HRService hrService;
    public void doGet(HttpServletRequest req, HttpServletResponse res)
                                    throws ServletException, IOException {
        String badgeId = req.getParameter("badge");
        String name = req.getParameter("name");
        Employee emp = hrService.findEmployee(badgeId);
        emp.setName(name);
        hrService.updateEmployee(emp);
    }
}
```

What code should you add to the body of the `updateEmployee` method in order to save pending changes to the database?

A. `entityManager.merge(emp);`

B.
```
Context. Ctx = new InitialContext();
UserTransaction utx = (UserTransaction)ctx.lookup("java:comp/UserTransaction");
utx.begin();
entityManager.merge(emp);
utx.commit();
```

C. `entityManager.lock(emp);`
   `EntityManager.merge(emp);`
D. `entityManager.getTransaction().begin();`
   `entityManager.merge(emp);`
   `entityManager.getTransaction().commit();`

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 19
When handling a JSF request, your application code decided to redirect the call to another URL by using HTTP redirect. Which action should you take to correctly complete the handling of the JSF life cycle?

A. Set the immediate="true" attribute on the command button that was used to perform this call.
B. Invoke the `dispatch()` method on the `ExternalContext` object.
C. Invoke the `setCurrentPhaseId(RENDER_RESPONSE)` method on the `FacesContext` object.
D. Invoke the `responseComplete()` method on the `FacesContext` object.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 20
Given the code fragment:

```
<servlet-mapping>
    <servlet-name>firstServlet</servlet-name>
    <url-pattern>/*</url-pattern>
</servlet-mapping>

<servlet-mapping>
    <servlet-name>secondServlet</servlet-name>
    <url-pattern>/</url-pattern>
</servlet-mapping>

<servlet-mapping>
    <servlet-name>thirdServlet</servlet-name>
    <url-pattern>/</url-pattern>
</servlet-mapping>
```

When the context root is requested http://host:port/context, how does the container resolve this mapping?

A. `thirdServlet` handles the request.
B. `firstServlet` handles the request.
C. The container throws an error at startup.
D. `secondServlet` handles the request.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 21
Given the code fragments:

```
//line 1
public class ContactId implements Serializable {
    private String countryCode;
    private String phoneNumber;
    // remaining implementation
}

@Entity
//line 2
public class Contact implements Serializable {
    @NotNull
    @Id
    protected String countryCode;
    @NotNull
    @Id
    protected String phoneNumber;
    // remaining implementation
}
```

Which action completes this composite primary key implementation?

A. Add `@IdClass` annotation at `line 1`.
B. Add `@Embeddable` annotation at line 1 and replace both `@Id` annotations with `@EmbeddedId` annotations.
C. Add `@IdClass(ContactId.class)` annotation at `line 2`.
D. Add `@Embeddable` annotation at `line 1` and `@EmbeddedId(ContactId.class)` at `line 2`.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 22

Given the code fragment:

```
// line 1
public class DataConverter
        implements AttributeConverter<LocalDate, Date> {
    //implementation
}


@Entity
// line 2
public class Customer {
        // line 3
        private localDate birthday;
         //remaining implementation
}
```

How can you apply `DateConverter` to the `birthday` field?

A. by adding `@Convert(to=Date.class)` at `line 3`
B. by invoking the `setConverter(DateConverter.class)` method on the `EntityManager` object
C. by adding `@Converter(autoApply=true)` at `line 1`
D. by adding `@Convert((DateConverter.class))` at `line 2`

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 23
Which class do you use to handle an incoming JSON Message as a stream?

A. `JsonReader`
B. `JsonObjectBuilder`

C. `JsonParser`
D. `JsonObject`

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Reference: https://docs.oracle.com/javaee/7/tutorial/jsonp002.htm

QUESTION 24
Which two approaches would result in the current date being added to the output of a JSP? (Choose two.)

A. `<%= out.printIn(new java.util.Date()) %>`
B. `<% out.printIn(new java.util.Date()); %>`
C. `<%= new java.util.Date() %>`
D. `<% System.out.printIn(new java.util.Date()); %>`

Correct Answer: AC
Section: (none)
Explanation

Explanation/Reference:
Reference: http://www.ntu.edu.sg/home/ehchua/programming/java/javaserverpages.html

QUESTION 25
Given the code fragment:

```
@Resource(lookup = "java:comp/DefaultJMSConnectionFactory")
private ConnectionFactory cf;
@Resource(lookup = "jms/MyTopic")
private Topic topic;
public void action() {
        try (JMSContext ctx =
                cf.createContext(JMSContext.SESSION_TRANSACTED);) {
            JMSConsumer c1 = ctx.createConsumer(topic, "(grade > 50)");
            JMSConsumer c2 = ctx.createConsumer(topic, "(grade <= 50)");
        }
}
```

How are transactions managed?

A. through a single shared transaction across the connection factory
B. through a separate transaction per JMS Consumer
C. through a single transaction for the entire JMS Topic
D. through a single shared transaction in the JMS Context

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 26
You need to exchange large binary messages using chunks in a WebSocket application. Identify two ways in which you can receive partial messages. (Choose two.)

A. Define an `@OnMessage` method with a single `MimePart` parameter.
B. Use a `ChunkListener` interface implementation.
C. Use a `MessageHandler.Partial<ByteBuffer>` interface implementation.
D. Define an `@OnMessage` method with byte [] as the first parameter and a `boolean` as the second parameter.

Correct Answer: CD

Section: (none)
Explanation

Explanation/Reference:
Reference: https://abhirockzz.gitbooks.io/java-websocket-api-handbook/content/Receiving%20Messages.html

QUESTION 27
Given:

```
URI uri = new URI("ws://www.example.com/api/employee");
WebSocketContainer container = ContainerProvider.getWebSocketContainer();
Session session = container.connectToServer(new SocketHandler(), uri);
RemoteEndpoint.Async remote = session.getAsyncRemote();
Employee employee = new Employee("Nancy Taube");
employee.setStatus(Status.FULLTIME);
// send employee object
session.close(new CloseReason(CloseReason.CloseCodes.NORMAL_CLOSURE, "Goodbye"));
```

Which client-side Java method will send the employee object to the WebSocket Server Endpoint?

A. `session.post(employee);`
B. `container.send(employee);`
C. `session.send(employee);`
D. `remote.sendObject(employee);`

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 28
You are working with JMS publish-subscribe operations.

What happens when a producer publishes a message to a topic for which a durable subscription exists but there are no subscribers available?

A. The publisher waits for a subscriber, who then consumes it. However, the publisher will time out if no consumer arrives within the given timeout period.

B. The publisher sends the message. However, it is never consumed because there wasn't anything listening when it arrived, regardless of the message timeout length.

C. The publisher successfully sends a message, which will be consumed later, once there is a subscriber, assuming the message hasn't timed out.

D. The message publisher is immediately notified about the lack of subscribers and can decide for itself if, and when, to resend.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Reference: https://www.ibm.com/support/knowledgecenter/en/SSAW57_8.5.5/com.ibm.websphere.nd.multiplatform.doc/ae/tjn0012_.html

QUESTION 29
Which type allows you to share servlet attributes across your entire web application?

A. `ServletContext`
B. `HttpSession`
C. `ServletRequest`
D. `ServletConfig`

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Reference: https://stackoverflow.com/questions/123657/how-can-i-share-a-variable-or-object-between-two-or-more-servlets

QUESTION 30
Which annotation allows a request to be executed with another Principal's identity?

A. It is not possible to execute a request with another Principal's identity.
B. `@UseIdentity`
C. `@RolesAllowed`
D. `@Runs`

Correct Answer: C
Section: (none)

Explanation

Explanation/Reference:
Reference: https://docs.oracle.com/cd/E19798-01/821-1841/6nmq2cpig/index.html

QUESTION 31
Which statement is true about the WS-Security standard?

A. It is a Java EE standard for protecting SOAP services.
B. It relies on HTTP security mechanism to protect SOAP messages in transmit.
C. It provides message-level security.
D. It defines protocol-specific ways of protecting SOAP messages.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Reference: https://docs.oracle.com/cd/E19226-01/820-7627/gjiou/index.html

QUESTION 32
Which two statements are true about the relationship between JavaServer Pages (JSP) and servlets? (Choose two.)

A. A JSP page must extend the `HTTPServlet` class to behave like a servlet.
B. A JSP page has access to the same information, objects, and a context as a servlet.
C. A JSP page is interpreted by `JSPServlet`.
D. A JSP page must be written as either an XML file or a JSP file before it is turned into a servlet.

Correct Answer: AD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 33
Given:

```
1:      @Stateless
2:      public class AlarmManager {
3:              @Resource
4:              private TimerService timerService;
5:              public void createAlarm(Date alarmDate) {
6:                      Alarm myAlarm = new Alarm();
7:                      TimerConfig config = new TimerConfig();
8:                      config.setInfo(myAlarm.getId());
9:
10:             }
11:             @Timeout
12:             public void handleTimeout(Timer myTimer) {
13:                     int alarmId = {int)myTimer.hetInfo();
14:                     show AlarmMessage(alarmId);
15:             }
16:     }
```

You are creating an Alarm management system. When you create a new alarm, you want it to create an alert that is triggered once at the specified time.

Which method should you call on Line 9 to create the timer?

A. `timerService.createCalendarTimer(alarmDate, config);`
B. `timerService.createSingleActionTimer(alarmDate, config);`
C. `timerService.createIntervalTimer(alarmDate, -l, config);`
D. `timerService.createTimer(alarmDate, -l, config);`

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Reference: https://docs.oracle.com/javaee/6/api/javax/ejb/TimerService.html

QUESTION 34
Given the code sample:

```
public interface GenericMessenger (
        public void handleMessage(Message msg) { }
)
```

And:

```
@Default
public class MsgHandler implements GenericMessenger (
        public void handleMessage(Message msg) { }
)
```

And:

```
@Alternative
public class SmsHandler implements GenericMessenger (
        public void handleMessage(Message msg) { }
)
```

And the next fragment from `beans.xml`:

```
<alternatives>
  <class>com.acme.SmsHandler</class>
</alternatives>
```

And this injection point:
```
@Inject GenericMessenger messageHandler;
```

Which type would be injected at run time and referenced by the `messageHandler` variable?

A. `SmsHandler`
B. `MsgHandler`
C. None of the above. An exception would be thrown due to ambiguous bean references.
D. GenericMessenger

Correct Answer: D
Section: (none)

Explanation

Explanation/Reference:

QUESTION 35
On your JSF page, you have a form in which you have a command button:

```
<h:commandButton value="Click Me!"
                 actionListener="#{someBean.listenCarefully}"
                 action="#{someBean.actNow}"/>
```

A user submits the form by clicking the button, and no errors occur while processing the request. Which statement is true?

A. The `actNow()` and `ListenCarefully()` methods are executed in parallel.
B. The `listenCarefully()` method is executed followed by the `actNow()` method.
C. The `actNow()` method controls the condition upon which the `listenCarefully()` method is allowed to be executed.
D. The `actNow` method is executed followed by the `listenCarefully()` method.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 36
Given the code fragment:

```
public void onMessage(Message msg) {
      try {
              // get property names
      } catch (Exception e) {

      }
```

How can you get all property names of a JMS message in the JMS consumer `onMessage` operation?

A. `String [] props = msg.getPropertyNames();`
B. `Enumeration props = msg.getPropertyNames();`
C. `Iterator props = msg.getPropertyNames();`
D. `List<String> props = msg.getProperties();`

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 37
Given a JSL document describing a batch job:

```
<job id="ProductLoadJob"
xmlns=http://xmlns.jcp.org/xml/ns/javaee version="1.0">
<step id="ProcessProduct">
        <chunk item-count="10">
                <reader ref="ProductReader"/>
                <processor ref="ProductProcessor"/>
                <writer ref="ProductWriter"/>
        </chunk>
</step>
</job>
```

How do you initiate a batch job?

A. Get the `JobExecution` object from `BatchRuntime` and call its `start()` method.
B. Get the `JobExecution` object from `BatchRuntime` and set its status to `JobStatus.INITIATED`.
C. Get the `JobOperator` object from `BatchRuntime` and call its `start()` method.
D. Call `BatchRunTime.initialize("ProductLoadJob");`

Correct Answer: A
Section: (none)

Explanation

Explanation/Reference:

QUESTION 38
Given the code fragment:

```
Cookie cookie = new Cookie ("key","value");
cookie.setMaxAge (-1);
```

How long does this cookie persist?

A. until server shutdown
B. until garbage collection in the servlet instance
C. this request
D. until browser shutdown

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Reference: https://docs.oracle.com/javaee/6/api/javax/servlet/http/Cookie.html

QUESTION 39
When should a JPA entity implement the `Serializable` interface?

A. when JPA entities are used in the EJB Full container
B. when JPA entities are used outside of the EJB Lite container
C. always, because JPA entities are required to implement the `Serializable` interface
D. when JPA entities are used as parameters or return values by the remote EJB operations

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

Reference: https://stackoverflow.com/questions/2020904/when-and-why-jpa-entities-should-implement-serializable-interface

QUESTION 40
Which statement is true about JAX-RS resource implementation?

A. The REST resource implementation class must extend the `javax.ws.rs.core.Application` class
B. The REST resource class can be implemented as a stateful Enterprise JavaBean (EJB).
C. The REST resource class can be implemented as a Plain Old Java Object (POJO).
D. The REST resource implementation class must not be final.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Reference: https://docs.oracle.com/javaee/7/tutorial/jaxrs002.htm

QUESTION 41
How can you inject a target web service into an EJB?

A. Define service as an injectable resource by using the <resource-ref> declaration.
B. Use a HandlerChain.
C. Use a java.xml.ws.WebServiceRef annotation.
D. Use a java.xml.ws.WebServiceContext annotation.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 42
How can you configure, in a portable way, the number of threads used by a `ManagedExecutorService`?

A. programmatically, using a `ManagedExecutorService`
B. using the `ManagedExecutors` utility class to define the execution properties
C. This cannot be done because this configuration is dependent on the Java EE Product Provider.

D. configuring the thread pool info in the deployment descriptor

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 43
Given an `HttpServletRequest` request and an `EJB SessionContext ctx`.

Which is a valid way to retrieve the Principal invoking either behavior?

A. `request.getCallerPrincipal()` and `ctx.getCallerPrincipal()`
B. `request.getUserPrincipal()` and `ctx.getUserPrincipal()`
C. `request.getCallerPrincipal()` and `ctx.getUserPrincipal()`
D. `request.getUserPrincipal()` and `ctx.getCallerPrincipal()`

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 44
Given the set of navigation rules:

```xml
<navigation-rule>
    <from-view-id>list-widgets</from-view-id>
        <navigation-case>
            <from-outcome>add</from-outcome>
            <to-view-id>add-widget</to-view-id>
        </navigation-case>
    </navigation-rule>
    <navigation-rule>
        <from-view-id>*</from-view-id>
        <navigation-case>
                <from-outcome>home</from-outcome>
                <to-view-id>home</to-view-id>
        </navigation-case>
        <navigation-case>
                <from-outcome>logout</from-outcome>
                <to-view-id>goodbye</to-view-id>
    </navigation-rule>
    <navigation-rule>
        <from-view-id>home</from-view-id>
        <navigation-case>
                <from-outcome>dashboard</from-outcome>
                <to-view-id>dashboard</to-view-id>
        </navigation-case>
        <navigation-case>
                <from-outcome>list</from-outcome>
                <to-view-id>list-widgets</to-view-id>
        </navigation-case>
    </navigation-rule>
```

Which two define a valid flow of view IDs through the application? (Choose two.)

A. home > goodbye > list-widgets
B. dashboard > home > add-widget > list-widgets
C. list-widgets > add-widget > home > dashboard > home
D. home > list-widgets > add-widget > goodbye

Correct Answer: CD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 45
How can a servlet indicate to the browser that cookie data should be sent over a secure connection?

A. Call the `getSecure(true)` method on the cookie object.
B. Encrypt the cookie data. The browser automatically sends encrypted data over a secure connection.
C. Set the `ENCRYPT` header in the response.
D. Configure `SessionTrackingMode.SSL` on the `ServletContext` object.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Reference: https://docs.oracle.com/javaee/6/api/?javax/servlet/http/Cookie.html

QUESTION 46
Which two features are provided by the JSTL Core library for a JSP? (Choose two.)

A. iteration over a collection
B. buffering of large result sets
C. testing conditions
D. message localization

Correct Answer: AD
Section: (none)
Explanation

Explanation/Reference:
Reference: https://www.journaldev.com/2090/jstl-tutorial-jstl-tags-example

QUESTION 47
Which of these can be a JPA entity?

A. Enum type
B. Abstract class
C. Interface type
D. Final class

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 48
You created two filters for your web application by using the `@WebFilter` annotation, one for authorization and the other for narrowing results by the provided search criteria. The authorization filter must be invoked first.

How can you specify this?

A. setting the `priority` attribute of the `@WebFilter` annotation for each of the filters
B. placing the filter mapping elements in the required order in the `web.xml` deployment descriptor
C. placing `@WebFilterMapping` annotations in the required order
D. specifying the filter precedence order by using the `@Priority` annotation

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 49
You have been assigned to the Widget Editor portion of an application. It contains a Widget Editor Facelet page, the `Widget` class, and a simple `WidgetEditor`

backing bean, which contains a reference to the current `Widget` instance.

Given the code fragment from the `Widget` class:

```java
public class Widget implements Serializable {
        private String name;
        private Date createdDate;
        private boolean approved;
}
```

Given the code fragment from the Facelet page:

```xml
<h:messages id="messages"/>
<h:form id="widgetForm">
        <h:outputLabel for="name" value="Name:"/>
        <h:inputText id="name" value="#{widgetEditor.widget.name}"/>
        <h:outputLabel for="createdDate" value="Created Date:"/>
        <h:inputText id="createdDate"
                value="#{widgetEditor.widget.createdDate}"/>   <!-- Line 1 -->
        <h:outputLabel for="approved" value="Approved:"/>
        <h:selectBooleanCheckbox id="approved"
                    value="#{widgetEditor.widget.approved}"/>
        <h:commandButton value="Save" action="#{widgetEditor.save}"/>
</h:form>
```

The page displays Conversion Error when a user fills out all the form fields and clicks the Save button.

Which step do you perform to fix this problem?

A. Replace `Line 1` with:
   ```
   <h: inputText id="createDate"
   value="#{widgetEditor.widget.createdDate}"
   converter="java.util.Date"/>
   ```
B. Enclose the code fragment within the `<f:view/>` tag

C. Insert `<f:convertDateTime"/>` at `Line 1`

D. Replace `Line 1` with:
```
<h:inputText id="createDate"
value="#{widgetEditor.widget.createdDate}">
<f:convertDateTime pattern="dd-mm-yyyy"/>
</h:inputText>
```

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 50
Identify two valid WebSocket message types for which you can register handlers. (Choose two.)

A. Error Message
B. Binary Message
C. Pong Message
D. Ping Message

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:
Reference: https://docs.oracle.com/javaee/7/api/javax/websocket/Session.html

QUESTION 51
Given the following code:

```
@WebServlet(urlPatterns = {"/myServlet}, asyncSupported=true}
public class NonBlockingServlet extends HttpServlet{
   protected void processRequest (HttpServletRequest req,
                                 HttpServletResponse res)
                 throws ServletException, IOException {
      AsyncContext ac = req.startAsync();
         // line 1
   }
}
```

What should you do at `line 1` to enable this servlet receive request data without blocking?

A. Use a `Runnable` instance with the `start ()` method of `AsyncContext`.
B. Define a `ReadListener` and assign it to the request input stream.
C. Create a Callable class and delegate this operation to a `ManagedExecutorService` by using the dispatch method of `AsyncContext`.
D. Define an `AsyncListener` and assign it to the `AsyncContext` object.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 52
Which two elements CANNOT be injected by using an @Inject annotation? (Choose two.)

A. static fields
B. instance fields declared final
C. concrete methods
D. abstract methods

Correct Answer: BD
Section: (none)
Explanation

Explanation/Reference:
Reference: https://docs.oracle.com/javaee/6/api/javax/inject/Inject.html

QUESTION 53
Which code snippet indicates that the page you are designing is capable of handling errors?

A.
```
<%@page errorPage="errorHandler.jsp"%>
```

B. `<%= requestScope['javax.servlet.error'] !=null %>`

C. `<%@page isErrorPage="true"%>`

D. `<c:set var="errorHandler" value="true"/>`

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 54
A Java EE application that uses an EJB container must communicate with a legacy system developed using non-Java technologies.

Which two Java EE technologies can be used in the integration tier of the application? (Choose two.)

A. JMS
B. JSF
C. JPA
D. JCA

Correct Answer: AB
Section: (none)
Explanation

Explanation/Reference:

QUESTION 55
Which statement is true about the relationship between HTTP and WebSockets?

A. A WebSocket connection is a bi-directional HTTP session with message-handling support.

B. A WebSocket connection is initialized with an HTTP handshake.

C. A WebSocket connection can be initialized by either client or server.

D. A WebSocket connection uses HTTP protocol to exchange data with the browser.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 56
Given:

```
@Singleton
public class MySessionBean {
        // line 1
        public void callMethod() {
        // implementation logic
        }
        //Constructor and other business methods
}
```

Which annotation do you use on `line 1` to ensure that clients immediately time out when attempting to concurrently invoke `callMethod ()` while another client is already accessing the bean?

A. @AccessTimeout (value = 1, unit = TimeUnit.SECONDS)
B. @AccessTimeout (null)
C. @AccessTimeout (-1)
D. @AccessTimeout (0)

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Reference: http://tomee.apache.org/examples-trunk/access-timeout/

QUESTION 57
Which is a valid description of REST?

A. REST provides the same architectural properties as SOAP.
B. REST is a library that is part of JEE called JAX-RS.
C. REST is the conventional way of interacting with information resources.
D. REST is a Web Services standard supported by JEE and JAX-RS.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Reference: https://docs.oracle.com/javaee/6/tutorial/doc/giepu.html

QUESTION 58
Given the code fragment:

```
public class Bean {
}


@SessionScoped
public class Service {
        @Inject
        private Bean bean;
}
```

Assuming this bean is used only in the code fragment above, how long will the injected `Bean` instance be available?

A. for the lifetime of the enterprise application
B. for the lifetime of the request
C. for the lifetime of the session
D. for the lifetime of the `Service` object

Correct Answer: D

Explanation/Reference:

QUESTION 59
You want to allow one set of roles to POST to a resource and another set of roles to GET it.

Which two configuration options should you use? (Choose two.)

A. two separate `@HttpMethodConstraints` annotations and sets of roles
B. a single `@HttpMethodContstraint` annotation and a map of method to roles
C. two `<web-resource-collection>` with different `<http-method>` in the deployment descriptor
D. a single `<web-resource-collection>` with two `<auth-constraint>` with different `<http-method>` in the deployment descriptor

Correct Answer: BD

Explanation/Reference:

QUESTION 60
Your class requires multiple resources defined, as shown in the following:

```
@<XXXX> ({
      @Resource(name="aFactory",
                type="javax.jms.ConnectionFactory"),
      @Resource(name="aSession",
                type="javax.mail.Session">
})
```

Which annotation do you use to group multiple `@Resource` declarations together for class-based injection, replacing `<XXXX>` in the code above?

A. `@Resources`
B. `@Resource`

C. `@ResourceGroup`
D. `@ResourceCollection`

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 61
Your web application requires logic to remember items that a user placed into a shopping cart.

Which two mechanisms should you use to associate that information with the user? (Choose two.)

A. HttpServletResponse objects
B. ServletContext objects
C. HttpSession objects
D. a database

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:

QUESTION 62
Given:

```
@Path("Employees")
@Produces({MediaType.APPLICATION_JSON})
public class EmployeesResource {
        @Inject
        private EmployeeManager em;
        @GET
        public List<Employee> findAll() {
                return em.findAllEmployees();
        }
}
```

What will be the response to a `HEAD` request?

A. The `findAll()` method will be called and the employee list will be returned.
B. The `findAll()` method will be called and no employees will be returned.
C. No method will be invoked and no error will be returned.
D. No method will be invoked and a 404 error will be returned.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 63
You are building the User Preferences page of an application. A user can change values, such as his or her name, password, address, company, and so on. These values are sent to a CDI backing bean via AJAX when the user tabs out of each field. However, the values must be retained in the CDI bean and stored in the database only when the user clicks the Save button.

Which two scopes will allow your CDI bean to retain its state while the user is interacting with the User Preferences page? (Choose two.)

A. Dependent
B. View
C. Session
D. Request

E. Application

Correct Answer: CD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 64
A Persistence application locks entity `x` with a `LockModeType.PESSIMISTIC_READ` lock type. Which statement is true?

A. `LockModeType.PESSIMISTIC_READ` is the synonym of `LockModeType.READ`
B. This operation will force serialization among transactions attempting to read the entity data.
C. This operation will result in a `TransactionRolledbackException` if the lock cannot be obtained.
D. If the application updates the entity later, and the changes are flushed to the database, the lock will be converted to an exclusive look.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Reference: https://docs.oracle.com/javaee/7/api/javax/persistence/LockModeType.html

QUESTION 65
Which statement is true about Java methods that are exposed as Web Service operations by using JAX-WS API?

A. The `@WebResult` annotation must exist.
B. Method parameters and return types must be JAXB compatible.
C. Method parameters must be declared by using `@WebParam`.
D. The `@WebMethod` annotation must exist.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 66
Given the code fragment:

```
protected void service(HttpServletRequest req, HttpServletResponse res)
                throws ServletException, IOException {
      PrintWriter out = res.getWriter();
      out.print("Service() method called.");


protected void doGet(HttpServletRequest req, HttpServletResponse res)
                throws ServletException, IOException {
      PrintWriter out = res.getWriter();
      out.print("Get() method called.");
```

What output will be returned when this servlet is called a `GET` request?

A. `Service() method called.`
B. `Service() method called.Get() method called.`
C. An HTTP error
D. `GET() method called.`

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 67
Give the code fragment:

```
1: @Stateless
2:
3: public class Warehouse {
4:      public void sendConfirmation(String msg) { }
5:      public String reverve(Product pro) { }
6: }
7:
```

And the code fragment:

```
 8:  @Stateless
 9:
10:  public class Shop {
11:    @EJB private Warehouse war;
12:
13:    public void purchase(Product pro) {
14:          String confirmationCode = war.reserve(pro);
15:          war.sendConfirmation(confirmationCode);
16:    }
17: }
```

The `sendConfirmation()` and `reserve()` methods should be executed in the same transactional context.

Which transaction attributes do you ensure this?

A. Add annotations:
    `@TransactionAttribute (TransactionAttributeType.REQUIRES_NEW)` at `line 2`,
    `@Transactional` at `line 9` and
    `@TransactionAttribute ((TransactionAttributeType.MANDATORY)` at `line 12`
B. No additional annotations are required.
C. Add annotations:
    `@TransactionAttribute (TransactionAttributeType.REQUIRED)` at `line 2`,
    `@Transactional` at `line 9` and
    `@TransactionAttribute ((TransactionAttributeType.REQUIRES_NEW)` at `line 12`

D. Add annotations:
`@TransactionAttribute (TransactionAttributeType.MANDATORY)` at line 2,
`@Transactional` at line 9 and
`@TransactionAttribute ((TransactionAttributeType.REQUIRES_NEW)` at line 12

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 68
Given the JPQL code fragment:

`Select pub.title, pub.author, pub.pages FROM Publisher pub`

Which two clauses do you add to this JPQL query to retrieve only those books with between 500 and 750 total pages? (Choose two.)

A. WHERE MIN(pages) >= 500 AND MAX(pages) <= 750
B. WHERE pub.pages <= 500 OR pub.pages >= 750
C. WHERE pub.pages BETWEEN 500 AND 750
D. WHERE pub.pages <= 500 AND pub.pages >=750

Correct Answer: AB
Section: (none)
Explanation

Explanation/Reference:

QUESTION 69
Given the following class definition with numbered lines:

```
@Alternative
public class ShoppingCartMock implements ShoppingCart {
        @Override
        public void checkout() {...}
}
```

How do you specify to use this mock CDI bean implementation instead of the regular implementation class?

A. Use the `alternatives` element in the `beans.xml` file and specify the class name in the `class` element within it.
B. Start up the server with the optional `-alternative` command-line option, specifying any alternative class names in a comma-separated list.
C. Reorder the implementation names in the `beans.xml` file such that the desired alternative is listed earlier.
D. Delete the regular implementation class from the WAR.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference: