

B.TECH/CSE/6TH SEM/CSEN 3283/2019
ADVANCED JAVA PROGRAMMING
(CSEN 3283)

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) Which of the followings options cannot be considered as advantage of Web application over desktop application?
(a) Users always get the latest version (b) Platform independence
(c) Easy access (d) Better performance.
- (ii) Which of the following functions are not under the purview of controller in MVC model?
(a) Flow control logic or routing logic
(b) Setting the color scheme, font, graphics, and layout of web page
(c) Code which uses the input got from user to perform desired action
(d) None of above.
- (iii) Who will call the lifecycle method init() and destroy() of servlet?
(a) You must call them explicitly inside the service() method
(b) Both will be called by container
(c) init() will be called by container after instantiation and you have to call the destroy() explicitly
(d) init() will be called by container after instantiation and destroy() will be called by garbage collector before cleaning from memory.
- (iv) Which of the following is true about execution phase in JSP life cycle?
(a) Whenever a browser requests a JSP and the page has been loaded and initialized, the JSP engine invokes the _jspService() method in the JSP
(b) The _jspService() method of a JSP is invoked once per request and is responsible for generating the response for that request
(c) The _jspService() method of a JSP generates responses to all seven of the HTTP methods i.e. GET, POST, DELETE etc
(d) All of the above.

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- (v) When does the translation phase of JSP occur ?
(a) Before processing of every request of JSP
(b) Before first request processing of JSP
(c) Request processing after modification of JSP page
(d) Request sent after removing java and class files of JSP from server.
- (vi) The Java _____ specification defines an application programming interface for communication between the Web server and the application program.
(a) Servlet (b) Server (c) Program (d) Randomize.
- (vii) A JSP is transformed into a(n):
(a) Java applet (b) Java servlet
(c) Either 1 or 2 above (d) Neither 1 nor 2 above.
- (viii) Which of the following specify that the order and content of "membership" is not important
(a) <!ELEMENT membership NORULE>
(b) <!ELEMENT membership EMPTY>
(c) <!ELEMENT membership ALL>
(d) <!ELEMENT membership ANY>.
- (ix) The following example shows which XML syntax rule,
<note date="12/11/2007">
<to>Tove</to>
<from>Jani</from>
</note>
(a) XML attribute values must be quoted
(b) All XML elements must have a closing tag
(c) XML Tags are case sensitive
(d) XML elements must be properly nested.
- (x) Which middleware services are provided by EJB?
(a) Security (b) Transaction Management
(c) Both a & b (d) None of the above.

Group – B

2. (a) What is the difference between a server, a container and a connector?
- (b) What makes J2EE suitable for distributed multi-tiered applications?
- (c) With the help of examples, give a relative comparison between the session management techniques using rewritten URLs and hidden variables.

4 + 4 + 4 = 12

3. (a) Explain the working of the three tier architectural with a schematic diagram. Suggest the Java EE API used in different layer. Write down at least three advantages of this style of architecture over two tier architecture.
- (b) What is MVC Architecture? What are the purposes of model and controller layer of MVC?
- (c) What are the duties of Web server? Why do you need application server? Name at least 3 application servers implementing JEE.

$$(3 + 1 + 1) + (1 + 2) + (2 + 1 + 1) = 12$$

Group – C

4. (a) What are the five categories of JSP tags defined in the JSP 1.0 specification?
- (b) Write a jspscriptlet to greet a user by displaying “Good Morning” or “Good Evening” depending on AM or PM.
- (c) What is java bean? Assume you have created a java bean class person.class to contain first name and last name of a person. Write a JSP page to set the first name and last name of a person and then display those from the bean along with today’s date using the class java.util.Date. You must use appropriate JSP action tags related to java bean to solve this. You need to write only JSP page and no bean class.
- (d) Explain the use of session and application object with one example for each.

$$2 + 2 + (1 + 3) + (2 + 2) = 12$$

5. (a) What is servlets API? Describe the life cycle of servlets.
- (b) What is the significance of entity bean? Explain CMP and BMP entity bean. What are the ways to persist entity bean?

$$(2 + 4) + (2 + 2 + 2) = 12$$

Group – D

6. (a) Most relational databases handle a JDBC / SQL query in four steps. Write those four steps.
- (b) What is the purpose of the statement “intexecuteUpdate(String SQL)” used in JDBC programming ? Can you access the records of a table using above statement ? If not, what statement you should use for that purpose.
- (c) Assume that you have created a table named Activity which contains three fields activityNo (integer), activityName (string) and point (integer) in Mysql. Write a java program to insert three records in that table and get all three records from that table using JDBC. Write appropriate comments for each step in the program.

$$2 + 3 + (4 + 3) = 12$$

- 7.(a) What role does JNDI play in J2EE architecture?

- (b) Citing examples, compare LDAP and JNDI.
- (c) Explain RMI architecture with suitable diagram.

$$3 + 4 + 5 = 12$$

Group – E

8. (a) You need to transfer a newspaper data in XML form. The data must follow the structure as specified below :
- Newspaper consists of one or more articles and each article is a collection of HEADLINE, BODY and FOOTER elements. ARTICLE element must contain one AUTHOR attribute, may or may not contain EDITOR and PUBLISHDATE attribute. FOOTER attribute must contain COPYRIGHT attribute. Consider all the elements are of type PCDATA and all attributes are of type CDATA.
- Write an external DTD file to satisfy above structure for the root element NEWSPAPER. Write the instruction for including this external DTD file in the XML file.
- (b) What is the meaning of following element definition?
- ```
<xs:element name="Customer_order" type="xs:integer" minOccurs="0"
maxOccurs="unbounded" />
```
- (c) For a STUDENT element you need to define three attributes ROLLNO, NAME and DOB. First two are string type and third one is date type. Each student element must contain ROLLNO and NAME but DOB is optional. Define all these three attributes using XML schema (XSD).

$$6 + 2 + 4 = 12$$

9. (a) Define Structure of XML.
- (b) Create an XML document that describes your details in the following hierarchy:
- ```
Name: LastName
      FirstName
      MiddleName

Age:   Years
      Months

Address: Country
        State
        City
        Pin

Phone:  CountryCode
        AreaCode
        PhoneNumber
```
- (c) What are the advantages of XML DOM Document?

$$3 + 6 + 3 = 12$$