

ADVANCE JAVA AND WEB TECHNOLOGY  
(INFO 5253)

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 alternatives for the following: **10 x 1=10**
- (i) Applets execute on  
(a) Web server (b) Web browser  
(c) Application server (d) Web server or Web browser.
- (ii) MTS is a \_\_\_\_\_ technology  
(a) Transaction processing (b) Database server  
(c) User interface (d) Message queue.
- (iii) Which of the following in JSP has XML like syntax  
(a) Directives (b) Scripting elements  
(c) Action elements (d) None of these.
- (iv) \_\_\_\_\_ contain HTML tags embedded in java language  
(a) ASP (b) Servlet (c) JSP (d) CGI.
- (v) The \_\_\_\_\_ method of an applet gets executed only once  
(a) Init (b) start (c) paint (d) none.

- (vi) The \_\_\_\_\_ in XML is equivalent to the scheme in the database  
(a) Element (b) Attribute (c) Parser (d) DTD.
- (vii) An XML parser is used to \_\_\_\_\_ the contents of an XML document  
(a) Display (b) read but not interpret  
(c) read and interpret (d) none.
- (viii) The JSP engine convert a JSP file into \_\_\_\_\_  
(a) servlet (b) byte code  
(c) executable file (d) none.
- (ix) Driver Manager class is the member of which of the following packages  
(a) java.util (b) java.io  
(c) javax.servlet (d) java.sql.
- (x) The external javascript file must contain <script> tag  
(a) True (b) False  
(c) None of these (d) Depends on some condition.

**Group - B**

2. (a) Describe Http Frame format and Get request format. Why is Http a stateless protocol? What are the difference between GET and POST methods?  
  
(b) Write a css rule that changes the color of all elements containing attribute class="greenmove" to green and all heading elements a font size = 36pt. Use internal stylesheet.  
**(2+2+2+2) + 4 = 12**
3. (a) How many header tags are there in HTML? Give an example of a empty (end-less) tag.  
  
(b) What is Java Script? Draw a neat diagram of the object hierarchy of Java Script. How can we handle events in Java Script?  
**(2+4) + (2+2+2) = 12**

**Group – C**

4. (a) Create a small java applet and call that applet from a jsp page. What is the significance of plugin? Draw and explain the life cycle of a Java applet.
- (b) What are the differences between Swing and AWT? Why does it take so much time to access an Applet having Swing Components the first time?

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

5. (a) What is XML and why is it used? What is DTD? What are the basic elements of an XML structure? What do you mean by a rigidly formed XML?
- (b) How can we form XML from a given DTD and vice versa? What are the difference between SAX and DOM APIs for XML?

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

**Group – D**

6. (a) Using Servlet calculate the area and circumference of a circle. The user enters the radius of a circle and clicks button “Calculate”.
- (b) What do you mean by a Servlet Container? Give an example of Application Server that uses System JRE and one that uses its own bundled JRE.

$$6 + (2+4) = 12$$

7. (a) What are the basic differences between EJB and Java Bean? Can all application servers run EJB? How many types of EJB are there?
- (b) What is the goal of RMI and how does it differ from RPC? How can we develop a simple RMI program? What do you mean by Stub and Skeleton?

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

**Group – E**

8. (a) Describe the steps required to make a JDBC connection. Compare Statement object, Prepared Statement and Callable Statement object.

(b) Write a JSP code to track the number of times a particular JSP page is visited. Invocation of JSP page is done from a HTML page containing submit button.

**(3+3) + (6) = 12**

9. (a) Explain the difference between, JSP include directive tag and JSP include action Tag. Suppose a jsp page is created named r1.jsp. Explain in brief what happens in the background when a request for this jsp page is made for the first time. Now suppose the page is modified. What happens when this modified page is requested again?

(b) Write a program that retrieves the phone-number from a database using JSP and JDBC.

**(2+2+2) + 6 = 12**