WEB TECHNOLOGIES
(CSEN 3282)

Time Allotted : 3 hrs   **Full Marks : 70**

Figures out of the right margin indicate full marks.

Candidates are required to answer Group A and
<u>any 5 (five)</u> from Group B to E, taking <u>at least one</u> 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)   Identify the correct order in which the following actions take place in an interaction between a web browser and a web server.
   1. The web browser requests a webpage using HTTP.
   2. The web browser establishes a TCP connection with the web server.
   3. The web server sends the requested webpage using HTTP.
   4. The web browser resolves the domain name using DNS.
   (a) 4,2,1,3   (b) 1,2,3,4   (c) 4,1,2,3   (d) 2,4,1,3.

   (ii) Which of the following is correct about JavaScript?
   (a) JavaScript is a lightweight, interpreted programming language.
   (b) JavaScript has object-oriented capabilities that allows you to build interactivity into otherwise static HTML pages.
   (c) The general-purpose core of the language has been embedded in Netscape, Internet Explorer, and other web browsers.
   (d) all of the above.

   (iii) What is one advantage of setting up a DMZ (Demilitarized Zone) with two firewalls?
   (a) You can control where traffic goes in the three networks
   (b) You can do stateful packet filtering
   (c) You can do load balancing
   (d) You can improve network performance.

   (iv) A HTTP request encountered a server error. Which of the following is a possible error status code that the client will receive?
   (a) 1xx (status code starting with 1)   (b) 2xx
   (c) 4xx   (d) 5xx.

   (v)   Predict the output of the following JavaScript code.
   ```
   <script type="text/javascript">
   a = 8 + "8";
   document.write(a);
   </script>
   ```
   (a) 16   (b) compilation error
   (c) 88   (d) run time error.

   (vi) Which of the following is not a lifecycle method of Servlet?
   (a) init()   (b) doGet()   (c) start()   (d) destroy().

   (vii) Which of the following statements is false?
   (a) A servlet can be invoked through a JavaScript
   (b) A servlet can be invoked through an applet
   (c) A servlet is executed on the server side
   (d) A servlet instance is created for each client request.

   (viii) Which of the following is not a life cycle method of an applet?
   (a) init   (b) update   (c) start   (d) destroy.

   (ix) Which of the following code is used to get session in servlet?
   (a) request.getSession()   (b) response.getSession()
   (c) new Session()   (d) none of the above.

   (x)   Which of the following is not a valid CSS selector?
   (a) Attribute   (b) Element   (c) Class   (d) ID.

Group – B

2. (a) Explain the use of <map> element with a suitable example. What is the function of usemap attribute in <img>element?

   (b) Say you have a map of India which is only showing the boundary of each state. Write an HTML page to show that map and when user click within the boundary of West Bengal and Bihar it will be redirected to the detail map of corresponding state. You may assume arbitrary polygon area in the said boundaries for this purpose.

                                                          8 + 4 = 12

3. (a) Write HTML code for dividing the browser window into two horizontal parts (left part is content and right part is main). Left part should contain the anchors clicking on which corresponding page to be displayed at the right part. Clearly state the assumptions regarding the developed code.

   (b) Write an HTML document to create a job registration form.
   (i)   create test boxes for Name, Address, Phone, Email.

(ii) create two radio buttons for Gender specification.
(iii) create a textarea for additional information.
(iv) create username and password for future login.
(v) create submit and reset buttons.

5 + 7 = 12

Group – C

4. (a) Write the differences between SAX and DOM parser.

    (b) Write a DTD and XML for the following customer data
    - Customer id
    - Customer name(first and last name must be specified)
    - Mobile no(can be more than one)
    - Address (must contain three fields- state, pin, country)
    - Credit Card [credit card no and type (domestic and international)] must be specified.

    3 + (6 + 3) = 12

5. (a) What is the difference between HTTP GET and POST method and where are they typically used?

    (b) What do you mean by the terms "well-formed" XML and "valid" XML.

    (c) Write the XSD and XML corresponding to a bookstore. Your example should have atleast two books.

    3 + 3 + 6 = 12

Group – D

6. (a) How is a JSP different from a Servlet?

    (b) Write a simple JSP to count and display the number of times a page has been visited in a single session.

    (c) What is a directive in JSP? Name and very briefly explain the need of different JSP directives.

    3 + 4 + 5 = 12

7. What do you understand by JDBC-ODBC bridging? Explain what happens in the background when a JSP page is accessed by a user from a server that supports JSP. What is difference between scriptlet and expression? State the main objectives of J2EE.

    (3 + 4 + 3 + 2) = 12

Group – E

8. (a) What is packet filtering firewall? Briefly explain its working principle.

    (b) Differentiate between transport and tunnel modes of operation of IPSec. Explain virus vs worm.

    5 + (5 + 2) = 12

9. (a) What is meant by a spoofing attack?

    (b) Describe in brief the types of spoofing attack.

    (c) Consider the case of the SYN Flood attack and explain briefly what a Denial of Service attack is.

    2 + 6 + 4 = 12