WEB TECHNOLOGIES
(CSEN 3133)

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) Which of the following is the correct way to add background color in HTML?
    (a) <body color = "green">
    (b) <body bg-color = "green">
    (c) <body style = "background-color=green">
    (d) <body style = "background-color: green;">.

    (ii) How can you make an e-mail link?
    (a) <a href ="mailto: xxx@y.com">   (b) <a href = "xxx@y.com">
    (c) <mail href +"xxx@y.com">   (d) Both (b) and (c).

    (iii) The following message is displayed on the browser, while trying to access a URLServer; Error 403. The reason for the message:
    (a) The requested HTML file is not available
    (b) The URL refers to a CGI script and the header of the script does not indicate where the interpreter is located
    (c) The path to the interpreter of the script file is invalid
    (d) The requested HTML file or CGI script has insufficient permission.

    (iv) 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.

    (v) 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.

    (vi) 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.

(vii) Suppose your current location is http://www.indal.com/html/ and you want to reference the http://www.indal.com/html/admin/registration.aspx page using href attribute of <a>, what root relative URL should you use in href attribute?
(a) /registration.aspx
(b) /html/admin/registration.aspx
(c) /admin/registration.aspx
(d) registration.aspx.

(viii) The service() method is the main method to perform the actual task of servlet. Who is calling this service() method?
(a) init() method
(b) The servlet container (i.e. web server)
(c) Requester (i.e. web browser)
(d) None of them.

(ix) 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.

(x) GenericServlet class is encapsulated inside _____ package.
(a) java.lang
(b) java.servlet
(c) javax.servlet
(d) javax.servlet.http

Group- B

2. (a) Why is HTTP protocol called stateless protocol? How does it manage its state during item addition in the e-commerce shopping cart? [(CO1)(Analyze/LOCQ)]
   (b) Develop a webpage using html/javascript that have three boxes and three labels. The captions of the labels are "First Number", "Second Number" and "Result". Put the text boxes beside the labels. Place five command buttons, namely, "Plus", "Minus", "Multiplication", "Division", "Cancel". The form should disappear when the cancel button is pressed. When the plus button is pressed, it should add the first number and the second number and the result should be displayed in the appropriate text box. The first number and the second number text boxes should allow only 0 – 9 and decimal. [(CO1)(Evaluate/IOCQ)]
   (c) Write the difference between GET and POST method. [(CO1)(Remember/LOCQ)]
   (2 + 2) + 6 + 2 = 12

3. (a) Write the difference between Client-Side Scripting and Server-Side Scripting. [(CO1)(Analyze/IOCQ)]
   (b) Write an external CSS file to style a table so that the odd rows have a yellow background, a header row has style white text and a black background colour. [(CO2)(Remember/LOCQ)]
   (c) 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 text area for additional information.
   (iv) Create username and password for future login.
   (v) Create submit and reset buttons. [(CO1)(Evaluate/HOCQ)]
   5 + 5 + 2 = 12

Group – C

4. (a) What is XML? Why is XML superior to other forms of data exchange?
   [(CO4)(Remember/LOCQ)]
   (b) Create an XML document which has a root element Employee. Root element contains more than one No. of employee element. Each employee has sub-element empname, id, mobile, gender and address. Empname has two sub-element: firstname and lastname. Address has the sub-element street, city, region, postalcode, countrycode. Street has two sub-elements street1 and street2. Countrycode has an attribute c_id. Write an external DTD to validate this XML. [(CO2)(Analyze/LOCQ)]
   (2 + 2) + (4 + 4) = 12

5. (a) Write a javascript explicit regular expression to validate email and phone number. Phone no must be only numbers and email must have the format like abc@gmail.com.
   In the following Code snippet, can you please predict the output, or, if you get an error, please explain the error?

```
<!DOCTYPE html>
<html>
<body>
<h2><strong> Sample: Software Testing Help</strong></h2>
<p id="sum_first"></p>
<p id="sum_second"></p>
<script>
var sum_first =50+20+' Sajeesh Sreeni ';
var sum_second= " Sajeesh Sreeni "+50+20;
document.getElementById("sum_first").innerHTML = "The first varaible sum is
:"+sum_first +"<br>The second varaible sum is :"+sum_second ;
</script>
</body>
</html>
```
   [(CO1)(Remember/LOCQ)]
   (b) Write a simple servlet program which will return the current date and time.
   [(CO2)(Analyze/IOCQ)]
   (2 + 2) + (3 + 5) = 12

Group - D

6. (a) What is difference between scriptlet and expression? Explain with example.
   [(CO3)(Analyze/LOCQ)]
   (b) Write a simple JSP to count and display the number of times a page has been visited in a single session. [(CO2,CO3)(Remember/LOCQ)]
   (c) What is a directive in JSP? Name and very briefly explain the need of different JSP directives. [(CO3)(Understand/IOCQ)]
   4 + 3 + (2 + 3) = 12

7. (a) Compare Prepared and Callable statements? [(CO3)(Evaluate/HOCQ)]
   (b) Assume a table EMP [fields: ID, NAME, SALARY, AGE] in mySql in your localhost.

Now do the following from your Java file:-
(i) Register the JDBC driver
(ii) Open a connection
(iii) Execute a query to find out the Employees above 40 years of age who get salary above Rs. 10,000 per month
(iv) Display the result
(v) Close the connection.   [(CO2)(Analyze/IOCQ)]
3 + (1 + 1 + 4 + 2 + 1) = 12

Group – E

8. (a) What is VPN? Why VPN is required? What are the advantages of using firewall?
                                        [(CO6)(Remember/LOCQ)]
    (b) Define Spoofing attack in the context network security.   [(CO5)(Remember/LOCQ)]
    (c) Compare eavesdropping and denial of service attacks.   [(CO5)(Evaluate/HOCQ)]
(2 + 2 + 2) + 2 + (2 + 2) = 12

9. (a) What is packet filtering firewall? Briefly explain its working principle.
                                        [(CO5)(Remember/LOCQ)]
    (b) Explain brute force attack and man-in-the-middle attack.
                                        [(CO5,CO6)(Evaluate/HOCQ)]
    (c) What is a worm? How does it differ from a virus?   [(CO6)(Remember/LOCQ)]
(1 + 3) + (2 + 2) + (2 + 2) = 12

Cognition Level	LOCQ	IOCQ	HOCQ
Percentage distribution	52.08	34.37	13.54

Course Outcome (CO):

After the completion of the course students will be able to
CSEN3133.1. Understand the basic tags of HTML, CSS, java script and DHTML.
CSEN3133.2. Connect a server-side program using servlet and JSP to a DBMS and perform insert, update and delete operations on DBMS table.
CSEN3133.3. Write a server-side program using servlet and JSP to store the data sent from client, process it and store it on database.
CSEN3133.4. Prepare a well formed / valid XML document, schema to store and transfer data.
CSEN3133.5. Understand various types of attacks and their characteristics.
CSEN3133.6. Get familiar with network security designs using available secure solutions (such as PGP, SSL, IPSec).

*LOCQ: Lower Order Cognitive Question; IOCQ: Intermediate Order Cognitive Question; HOCQ: Higher Order Cognitive Question.