Bachelor of Information Technology
3rd year, 1st Semester Supplementary Examination, 2017
Subject: Web Technology-I

Time – Three Hours   Full Marks – 100

Question number 1 and 2 are compulsory. Answer any 5 (five) questions from the rest.

1. Answer all the questions.   10x1=10

    a) How to embed JavaScript in a web page?

    b) Discuss one advantage of using Cascading Style Sheets (CSS).

    c) How do you refer an external CSS file from a HTML page?

    d) How do you define a function in JavaScript?

    e) How to display an alternate message if a browser does not support JavaScript?

    f) How to access an external JavaScript file that is stored externally and not embedded?

    g) Write HTML code to generate following:

        if(x≤y) then z = √3 else z = √2

    h) How to hide JavaScript code from old browsers that don't support?

    i) What are undefined and undeclared variables?

    j) Suppose in JavaScript an array is declared as var color = ["red", , , "green", "blue",];
        What is the length of this array?

2. **Each of the following statements is either TRUE or FALSE. Choose the most appropriate answer.**   10x1=10

    a) An outer function has access to the variables and parameters of inner functions.

    b) The scope that an inner function enjoys continues even after the parent functions have returned.

    c) The web typically sends multiple objects in a web page within a multipart MIME message

    d) Each of child process a web server spawns for each client request will have same server port numbers.

    e) All web servers use port 80 to listen for client requests.

    f) SMTP is a state-full protocol.

    g) There are only 5(five) mandatory commands in SMTP.

    h) Is it possible in HTML to add more than one submit button having different actions in a single form.

    i) A root DNS server contains all of the host-address mappings for every host on the Internet.

    j) Full form of MIME is Multipurpose Internet Message Extension.

3.

[2+(2+2)+4+6]

a) Write a constructor function to add two numbers taken as arguments.

b) How is it possible to send binary data in e-mail, even though SMTP is based on sending text messages?

c) E-mail clients in personal computer usually will connect to a nearby mail server to send e-mail. They do not directly connect to a remote server close to the recipient, or to a server at a bridge to another net, even if the recipient is there. Why?

d) Write a Cascading Style Sheet that will make the color of all left aligned paragraphs red and right aligned paragraph green and justified paragraphs blue. Write also a sample HTML page.

4.

[2+(2+2+1+1)+4+4]

a) Write a HTML page *first.html* which when loaded will redirect another page *second.html* after 5 seconds.

b) Write a constructor function for "Circle" that takes x and y coordinates of the center and radius as argument. Now set a method "computeArea()" for this class Circle. Create an object of this class and add a method "computePerimeter" for this object.

c) A link is contained in an HTML frame. How can you indicate (i) that clicking the link will replace the content of this frame, leaving the other frames unchanged, (ii) that clicking the link will replace the whole browser window content.

d) An Internet search engine wants to measure which of the different links to web documents, listed by the search engine, are most often clicked on by its users. Provide some possible ways to measure this?

5.

[2+6+6+2]

a) What is difference between *well-formed* and *valid* XML?

b) Write a HTML document as follows: Page contains a single link "browser name" with default color blue. If the mouse is placed on the link, the color will change to red and cursor will appear as hand cursor. If the link is clicked, the name of the browser will be shown on an alert dialog box.

c) Write a JavaScript function to display all tags used in a HTML document.

d) Suppose in JavaScript an array is declared as var months[3] = "April"; What is the length of this array?

6.

[(3+3+8+2]

a) Suppose that everyone in the world was perfectly capable of remembering Internet addresses instead of just host names. Would DNS still serve a purpose in this world? Explain.

b) Draw the DOM tree for the following segment of code: <p title="The test paragraph">This is a sample of some HTML you might
have in your document</p>. Suppose the variable ptr points to the node corresponding to the br in the DOM tree. How can you access the attribute title of p tag?

c) Write a JavaScript function to make all paragraph in a HTML document justified.

d) What will be the value of y after executing the following statement? var y = (function f(x) {return x*x;})(10);

7.   [2+4+6+4]

a) Briefly write the importance of secondary name server.

b) Write a HTML documents to display the current date and time on the status bar.

c) Write a DTD for XML file containing the addresses of employees in a company. State the assumptions you make.

d) Write a JavaScript function to validate the price (taken as an argument) of an item up to two decimal digits using regular expression.

8.   [2+4+4+6]

a) Write the names of two MTAs.

b) Write the function of a email gateway.

c) What will be displayed by the following program segment?

```
db = new Array();
db["abc"] = "abc123";
db["xyz"] = "xyz123";
db["user1"] = "user1";
for(i in db) document.writeln(i+" "+db[i]+"<br>");
```

d) Write a CSS file for XML file having the following DTD.

```
<!DOCTYPE email [
   <!ELEMENT email (from, to, body)>
   <!ELEMENT from (#PCDATA)>
   <!ELEMENT to (#PCDATA)>
   <!ELEMENT body (#PCDATA)>
]>
```

9.   [2+4+(3+3)+4]

a) What is required, in order to be allowed to send 8-bit characters unencoded in e-mail according to e-mail standards?

b) Write with example the difference between "innerHTML" and "innerText"?

c) Explain *one-to-many* and *many-to-one* alias expansion used in SMTP.

d) Suppose a large Web site is using CSS and JavaScript in their HTML pages. The site wants to have one Web server handle all requests for HTML, another Web server handle all requests for CSS, and the third Web server handle all requests for JavaScript files. How can the site do that using only DNS?

10.   [2+2+(2+2)+8]

a) Write a DTD entity declaration for the symbol '!'.

b) Write 7(Seven) native generic domain name.

c) Briefly explain different name resolution procedure.

d) When e-mail is sent to user@yahoo.com, how does the e-mail come to arrive at the mail server mail.yahoo.com, when it wasn't specified at all in the address of the message?