**MODULE 1 &2**

* + - 1. What is Segment ?
      2. Why UDP is Connectionless protocol ?
      3. Is UDP unreliable transport protocol ? Explain.
      4. Define Gateway.
      5. Why TCP is connection-oriented protocol?
      6. What is process-to process delivery ?
      7. Define Congestion.
      8. What is IPV4 ?
      9. Write down the classification of routing table.
      10. What is IPV6 ?
      11. What is meant by quality of service ?
      12. What is Perl?
      13. What are the features of Perl programming?
      14. What are the benefits of Perl programming in using it in web based applications?
      15. Is perl a case sensitive language?
      16. What is a perl identifier?
      17. What are data types that perl supports?
      18. What are scalar data types in perl?
      19. What are Arrays in perl?
      20. What are Hashes in perl?
      21. How will you declare a variable in perl?
      22. What is variable context in perl?
      23. What is scalar context?
      24. What is a list context?
      25. What is Boolean context?
      26. What is void context?
      27. What is interpolative context?
      28. What is the difference between single quoted string and double quoted string in perl?
      29. What is the purpose of \_FILE\_ literal in perl?
      30. What is the purpose of \_LINE\_ literal in perl?
      31. How will you create Hashes in perl?
      32. How will you get element from Hashes in perl?
      33. How will you get all keys from Hashes in perl?
      34. How will you get all values from Hashes in perl?
      35. What is the purpose of \*\* operator in perl?What is the purpose of <=> operator?
      36. What is the purpose of lt operator in perl?What is the purpose of gt operator?
      37. What is the difference between localtime() and gmtime() functions in perl?
      38. What is JavaScript?
      39. Name some of the JavaScript features.
      40. What are the advantages of using JavaScript?
      41. What are disadvantages of using JavaScript?
      42. Is JavaScript a case-sensitive language?How can you create an Array in JavaScript?
      43. How to read elements of an array in JavaScript?
      44. Which built-in method returns the length of the string? Which built-in method removes the last element from an array and returns that element?
      45. Which built-in method returns the characters in a string beginning at the specified location? Which built-in method returns the calling string value converted to lower case?
      46. What is Date object in JavaScript?
      47. How to create a Cookie using JavaScript?
      48. What do mean by Cookies?Are Cookies secure?
      49. What are the advantages of using Cookies?
      50. Why the applet class should be kept as public?
      51. What are the steps involved in Applet development?
      52. What is the order of method invocation in an Applet?
      53. What is an Applet? Should applets have constructors?
      54. What tags are mandatory when creating HTML to display an applet?
      55. What packages are mandatory when creating an applet to display something?

**MODULE 3**

* + - 1. What is the difference between HTML and DHTML?
      2. What is the difference between Network and Internet?
      3. What is the relationship between internet and world wide web?
      4. Define Markup tags. Why HTML is called markup language?
      5. What is JavaScript? Why is it mostly used in web browser?
      6. What is defined by <!doctype> in html?
      7. What is the use of href attribute in html?
      8. Explain importance of Frame tag in HTML.
      9. In XML what is equivalent to a database schema? What is the purpose of XML parser?
      10. Why XML is superior to HTML?
      11. When a markup tag is used, what instruction goes to web browser?
      12. What are the advantages of JavaScript over HTML?
      13. What are <ul> and <ol> tags to describe HTML Lists?
      14. Why is it advised to use alternative text (alt) while displaying an html image?
      15. Explain Nested HTML elements.
      16. What are Inline elements in HTML? Give 2 examples of HTML Inline elements.
      17. What are block-level elements in HTML? Give 2 examples of HTML block-level elements.
      18. How to set the background color in HTML?
      19. What is <form> element? What is the use of it in HTML?
      20. What is Image floating in HTML?
      21. What are different ways to view an XML document?
      22. Name 4 commonly used XML parsers.
      23. What are the 2 main reasons behind creation of XHTML?
      24. Name 4 commonly used XML Predefined Character Entities.
      25. What are various XML comment rules?

**MODULE 4 & 5**

* + - 1. What Is Voice Over Internet Protocol (voip)?
      2. How Does Voip Work?
      3. What Is The Biggest Disadvantage To Going Voip
      4. What is PVDM ?
      5. What is VoIP gateway and explain the basic features of it?
      6. What RSVP ?
      7. What are heterogeneous reciver?
      8. What is a MPLS Label ?
      9. What is RTP?
      10. Are There Any Mechanisms Provided For Error Recovery In Rtp?
      11. Can Rtp Run Over Ipv6?
      12. Can Rtp Be Used In Asymmetric Networks?
      13. Why Doesn't Rtp Have A Length Field?
      14. How Does Padding Work?
      15. What Is The Sender Packet Count And Byte Count Used For?
      16. What Is The Rtp Timestamp In The Rtcp Sender Report Used For?
      17. What is metadata?
      18. Why is metadata important?
      19. How is metadata expressed?
      20. How is metadata structured?

**Question (5 marks)**

**MODULE 1 &2**

1. Briefly explain different operations of UDP.
2. Briefly explain different TCP services.
3. Compare Open loop Congestion Control and Close loop Congestion Control.
4. What is the Difference between TCP and UDP ?
5. Explain the mechanism of Reverse Address Resolution Protocol.
6. What is Network address translation ? Explain.
7. Explain different classes of Classful addressing.
8. What is 3-way handshake in TCP ?
9. Explain the mechanism of Address Resolution Protocol.
10. Explain the concept of subnetting and supernetting.
11. Write short note on IGMP.
12. What is autonomous system ? Explain Intra and Inter-domain routing protocol.
13. What are the advantage of IPV6 over IPV4 ?
14. What do you mean by Net Id and Host Id.
15. What are the factors that measure network performance ?
16. How DNS is used in internet ? Also explain different domains of DNS.
17. What is DNS ? Explain how the protocol works.
18. Explain WWW.
19. Write short note on Digital Signature.
20. Explain the format of HTTP Request Message.
21. Explain the format of HTTP Response Message ?
22. Develop and demonstrate a XHTML file that includes JavaScript script for the following problem:
    * 1. Input: A number n obtained using prompt.
      2. Output: The first n Fibonacci numbers.
23. Develop and demonstrate a XHTML file that includes JavaScript script for the following problem:
    * 1. Input: A number n obtained using prompt.
      2. Output: A table of numbers from 1 to n and their squares using alert.
24. a) Develop and demonstrate a XHTML file that includes JavaScript script for the following problem:

* Celsius to Fahrenheit

b) Explain different types of operators present in JavaScript.

1. Change background color of a web page depending on time of day using JavaScript.
2. How will you sort an array in perl? What is the purpose of next statement? **(4+1)**
3. What is the purpose of −> operator? Write a program that generates random integers between 1 and 10 using perl. **(1+4)**
4. Write a program that prints the elements of a list using perl. What are Hashes in perl?

**(3+2)**

1. Design an arithmetic calculator using JavaScript and html.
2. Describe the methods used to display something in webpage.
3. Explain the life cycle of an Applet indicating the functions
4. What is the difference between Java applets and Java application programs?
5. List any three attributes of Applet tag used in HTML. Explain the purpose of these attributes.
6. What is a prompt box?Explain the working of timers in JavaScript? Also elucidate the drawbacks of using the timer, if any? **(2+2+1)**
7. Explain the difference between "==" and "==="?What are all the types of Pop up boxes available in JavaScript?What is the use of Void(0)? **(2+2+1)**
8. Explain what is pop()method in JavaScript?What are JavaScript Cookies? **(3+2)**
9. Mention what is the disadvantage of using innerHTML in JavaScript?What is the use of Push method in JavaScript? **(3+2)**
10. How are DOM utilized in JavaScript?Display your name using JavaScript alert box. **(2+3)**
11. Write about the errors shown in JavaScript?How are JavaScript and ECMA Script related? **(3+2)**
12. How to merge two array in perl?Name two the prefix dereferencer in perl?**(3+2)**
13. What is the difference between for&foreach?What is eval in perl? **(3+2)**
14. Write a perl program to remove duplicate lines from a file.
15. Why we use Perl? Explain Perl regular expression. **(2+3)**
16. What is the difference between chop & chomp functions in perl? Write a perl script to validate email address.
17. How to get Hash size in perl. How to add or remove elements in Hashes. How many loop is supported by perl. **(2+2+1)**
18. Create an html page to explain the use of various predefined functions of string and math object in java script.

**MODULE 3**

1. What is CSS? Why is it needed? Describe different types of CSS with example.
2. Write an html program to create one web page to display your biodata with the following information: name, DOB, address, father’s name, mother’s name, phone number, email id. Display all of them on left side of the page and your passport size image to be displayed on the right side of the page.
3. What is an HTML element? Write a small html code to display elements showing header, body and paragraph.
4. What is iFrame? How to specify the size of the iFrame? Describe with an example.
5. Write short notes on: HTML Image maps
6. Write and explain tags to create following HTML form elements with their attributes. (i). textbox (ii). Dropdown list (iii) Checkbox (iv). radio button
7. Explain the following HTML tags with all attributes. (a)<a> (b)<body> (c) <img> (d) <table> (e) <p>
8. Why do we need to have dynamic webpage? How can we link a style sheet to a webpage?
9. Write down the rules for creating a well formed XML document.
10. Write short notes on HTML DOM.
11. What are the features of scripting language? How markup language is different from scripting language?
12. Create a HTML page with following features: Hyperlink, List and Form.
13. Differentiate Get and Post method.
14. Explain different types of parsers used in XML.
15. State different types of lists with examples in HTML. State the use of <pre> and <del> tags.
16. What is XML tree? Explain in detail.
17. Write short notes on HTML tables explaining different table elements.
18. What are different types of HTML layout elements? Explain different HTML layout elements with a diagram.
19. What are HTML attributes? What are the utilities? Discuss about the following HTML attributes: style, title.
20. What are various syntax rules available to write different types of markup and text in an XML document? Explain through a diagram.
21. What is XML encoding? Explain the 2 major XML encoding types.
22. What are various validation rules for well-formed XML document?
23. What is XML DTD? Explain in detail two major types of XML DTD.
24. Write short notes on XHTML.

**MODULE 4 & 5**

1. What is the difference between MGCP & H.323 Voice gateways?
2. What is the difference between Transaction, Dialog and Session?
3. What you will do if you get a crackling sound on VoIP line while talking?
4. What is SLRG & why do we use it?
5. What is the basic difference between VoIP and POTS (Plain old telephone systems) dial-peers?
6. What is an LSP?
7. What is an LSP-Path?
8. What is an RSVP Session?
9. Is Rtp A Transport Protocol Or A Kind Of Application Protocol?
10. Rtp Does Not Ensure Real-time Delivery. So How Come It Is Called A Real-time Protocol?
11. What Are The Roles Of The Rtp Timestamp And Sequence Numbers?
12. Who is developing metadata standards?
13. What is the difference between a “standard” and a “specification”?
14. What kinds of tools are used to create metadata?
15. What is a metadata record (or instance)?

**Question (15 marks)**

**MODULE 1 &2**

1. Explain the various field of TCP header and the working principle of the TCPprotocol. **10+5**
2. Define IGMP, ICMP ,ARP and RARP. **(5+5+3+2)**
3. Explain and draw the header format of IPv4 and explain DHCP. **(10+5)**
4. Explain the detail of Web architecture. **15**
5. What is IP addressing ? How it is classified ? How is subnet addressing is performed ?. **15**
6. Write short notes on any three of the following:
   1. DNS
   2. POP
   3. SMTP
   4. FTP
7. Differentiate between routers and bridge? State there working principle? **(8+7)**
8. a) What is IP datagram ? Draw and explain the IPV4 datagram format. **(3+6)**

b) A block of address is granted to a small organization. One of the address is 205.16.37.39/28. Find the first and last address in the block. **6**

1. What is IPV6 ? Explain its advantage over IPV4. Also explain its frame format. . **15**
2. In cases where reliability is not of primary importance, UDP would make a good transport protocol. Give examples of specific cases. What are the responsibilities of the network layer in the Internet model ? (**8+7)**
3. a) What is JavaScript? State the difference between JavaScript and Java. How todevelop JavaScript? Explain with example.

b) Write a java script code to verify authenticity of EMAIL ADDRESS in a given text box. **(2+3+5+5)**

1. a) List the various dialog boxes in Java Script.

b) Mention the various Java Script object models.

c) Write a JavaScript to display a welcome button of an html form is pressed. **(5+5+5)**

1. a) How scripting language is differs from HTML.

b) Define function in Java Script with example.

c)Write the complete JavaScript to prompt the user for the radius of the sphere and call function sphere Volume to calculate and display the volume of the sphere. Use thestatement. Volume=(4.0/3.0)\*Math.PI\*Math.pow(radius,3).

**(4+5+6)**

1. a) Explain the various event handlers in java script. Give an example of each.

b) Develop a JavaScript program to display a message “HI ! GOOD MORNING TO YOU “when a page is loaded and displays a message “THANKS TO VISIT OUR WEB PAGE” when a page is unloaded. **(8+7)**

1. a) With an example describe java scripts Control structure.

b) Design a web page with a text box (username) where the user can enter a name and

Another text box (ID) where the user enter an only four digit ID.NO and a button “validate”. Validate the entered username and ID field for the following using java script.

* Both the fields should not be empty
* Name field should have alphabets
* ID field should have numeric.  **(7+8)**

1. a) What are Style Sheets? List down the ways of including style information in a document. Explain about types of cascading style sheet? Explain with example.

b) Design a webpage with a textbox where the user can enter a four digit number and button “validate”. Validate the entered number for the following using java script. No zeroes the first digit Entered number must be in ascending order of digits (Ex:1234,5678…).

**(7+8)**

1. a) Write short notes on -
   1. Java Script control statements
   2. Advantages of Scripting
   3. Java Script functions

**(5+5+5)**

1. Write JavaScript for the following. Provide a text box for the user enter user name. Validate the username for the no. of characters (assume some no. say 6). Provide a SUBMIT button for the validation to happen. On successful validation display a new page with an image and two text boxes for entering the width and height of the image respectively with a RESIZE button below. On clicking the Resize button validate the width and height numbers and on successful validation display the image with the requested width and height.

**(15)**

1. a) Create an html page named as “validate\_registration.html”
   1. Define a method name as “reset()” to be called when reset button is clicked and manually set all values of fields to default.
   2. Define a method name as “check()” to be called when check button is clicked.
   3. here check for blank entry, name, age, email, phone no, radio button, checkbox.
   4. Once all the valuables are properly filled make the submit button to be visible.
   5. Define the various fields in form using table.

**(15)**

1. a) How will you add an element to the beginning of an array?

b) Write an HTML/JavaScript code to take name as input through a confirm box and male or female from radio button and display Mr. or Mrs. And followed by user’s name.

**(7+8)**

1. a) Create an html page named as “Sorting.html”
   1. Within the script tag
      1. define a function called as “array\_size()” to get the size of array.
      2. define a function called as “get\_number()” to get numbers from user.
      3. define a function called as “Sorting()” to sort the numbers.
   2. Within the body tag
      1. Display the message to click the button & display a button to call the
      2. “array\_size()” method.
      3. “array\_size()” method calls “get\_number()” method which in turn calls the “sorting()” method. (15)
2. a) Explain the following HTML tags with all attributes.

<a>(ii)<img> (iii)<table> (iv)<p>

b) Create an html page named as openwindow.html. Define a method called as openwin() which is to be called when a button is clicked. Within this method specify the necessary code to open a new window with some message as well as images.

**(8+7)**

1. a) Explain importance of Frame tag in HTML.

b) Create an html page named as changebackground\_color.html

Define a method named as random\_color() which is to be called when you click on the body. This method should generate random number, which is used to set the background colour. **(5+10)**

1. (a) What is an applet? What are the demerits of an applet?

(b) Why do applet classes need to be declared as public?

(c) Describe the different stages in the life cycle of an applet. Distinguish between init() and start() methods. **((5+2)+2+ 3+3)**

1. (a) What is an applet? Explain functionalities of stop (), paint() and repaint() method. (b) Discuss the steps involved in developing and running an applet?

(c) Write an Applet program to show status message in Status Window.((2+3) +5+5)

1. (a) What are the ways to run an applet?

(b) Write a program to show all the steps of applet life cycle.

(c) Write an applet to add two numbers and display the result using drawstring ( ).

**(4+6+5)**

1. (a) Explain Local applet and Remote applet.

(b) Discuss the steps involved in developing and running an applet?

(c) Write the similarities and dissimilarities between applet program and application program. **(4+7+4)**

1. (a) Using the FROM tag of HTML create a registration form containing the below mentioned fields :

(i) First Name (Using text boxes)

(ii) Last Name (Using text boxes)

(iii) E-mail ID (Using text boxes)

(iv) Gender (Using radio button)

(v) Hobbies (Using check boxes)

(vi) Submit Button and Reset Button.

(b) What is the difference between Static and Dynamic WebPages ? What do you mean by Active Web Pages.

(c) In your browser there will be a textbox to enter your name. There will be a SUBMIT button. If your name field is empty then on submit this will give an alert that your name field is empty. If your name is more than10 characters long then it will give an alert to enter your name properly. Else it will display your name in capital, bold and in red colour.  **(4+5+6)**

1. (a) What are the different ways of adding styles ( CSS ) to web page ? Write the precedence rule for the same. What are subgroup selectors in CSS? Give example.

(b) Write HTML/JavaScript 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. **( 4 + 2 + 3 ) + 6**

1. (a) Write a DTD and XML for the following customer data :
   1. Customer id (must be unique)
   2. Customer name (first and last name as to be specified)
   3. Mobile no. (can be more than one )
   4. Address
      1. State
      2. Pin
      3. Country
   5. Credit card ( may or may not be there )
      1. Credit card no.
      2. Credit card type ( Domestic or International )

(b) Illustrate with example the use of IMAGE swapping using HTML/JavaScript. Write the HTML code for creating Table with 2 rows and 3 column and first row for the table should be with 3 column merged.

**8 + ( 4 + 3 )**

**MODULE 3**

1. Write an html program to create one web page to display the following:
   1. Text field to enter Name, Phone No, Email ID, Registration No.
   2. Radio button to enter gender (Male/Female), check boxes for hobbies like playing, travelling, reading books etc.
   3. 2 drop down list for stream like B.Tech, M. Tech, MCA and for branch like CSE, ECE, ME, CIVIL etc.
   4. Text area to enter address.
   5. Html table to display your degree from Class X till last semester showing degree name, year of passing, grade/percentage in a tabular format.
2. Write short notes on any three of the following:
   1. XML
   2. HTML Color
   3. HTML Forms
   4. HTML Layout
3. Answer the following:
   1. What is the meaning of the term “Hypertext Transfer Protocol” in World Wide Web Environment?
   2. What is URL? Explain different components of URL.
   3. Distinguish between GET and POST method in HTTP.
   4. Explain different File Transmission Mode across FTP data connection. **[2+5+4+4]**
4. (a) Using the FROM tag of HTML create a registration form having the below mentioned fields:
   * 1. First Name (Using Text boxes)
     2. Last Name (Using Text boxes)
     3. Email Id (Using Text boxes)
     4. Gender (Using radio button)
     5. Hobbies (Using check boxes)
     6. Submit button and reset button.

(b) In a browser there will be a textbox to enter name and a SUBMIT button. If the name field is empty an alert message to be displayed stating the name field is empty. If the name is more than 30 characters long an alert message to be displayed stating that names should be less than 30 characters. Otherwise display the name in CAPITAL, BOLD and red color. **[8+7]**

1. (a) What is XML? What is the basic structure of an XML element?

(b)Mention 2 technologies used to display XML data.

(c) Why root tag is a must in XML documents?

(d) Create an XML document with a root element emp. Root element contains more than one number of employee element. Each element has sub-element employee id, employee name, gender and address. Address has the sub element street, city, postal code, state. Street has two sub elements street1 and street2. Write an external DTD to validate this XML.  **[4+2+2+7]**

1. (a)Create a single web page in a file named <your last name>.html. Compose narrative text about yourself as a student with several details like name, DOB, Department, Year, Phone Number, Aadhar No, Email ID.

Employ the following HTML features:

* Document tags (like HTML, BODY, and HEAD)
* Text structure tags <P> and/or <BR> to achieve reasonable vertical arrangement
* A heading with heading tags
* Style tags (at least one of underlining, bolding, or italicizing)
* Centering with <CENTER> tags
* An unordered (bulleted) list (to capture gender)

(b) Explain the following HTML attributes: style, src

1. (a) What is iFrame? Why is it used?

(b) Write a HTML program to display your name, address, university, department name as an ordered list within an iFrame. Set the height as 200, width as 300. The content within the iFrame should be captured in a separate file, which needs to be called as a source (src) within iFrame. **[3+12=15]**

1. (a) What is a layout in HTML? Why is it helpful?

(b)Write a HTML program to demonstrate usage of layout which should have a <title>, <header>, <nav>, <section>, <article>, <footer>. Apply features like background-color, font-size, text-align, color, width, height as applicable. (Choose any content of your choice while demonstrating the above). **[3+12=15]**

1. (a) What is an Image Map in HTML? Explain various attributes of Image Map.

(b) Write an HTML program containing 3 different Images: Computer, Phone and Coffee having respective Images with shapes and coordinates. On clicking any of the Images, a new page will open with relevant description and image of the topic and a corresponding Wikipedia link like: <https://en.wikipedia.org/wiki/Telephone>. **[5+10=15]**

1. What is XML? Explain how to write an XML document? What are the goals of XML? Clearly explain the XML Schema and XML parsing in detail. **[2+4+3+6=15]**
2. (a) Explain an internal valid XML document with example.

(b) Write the differences between DOM and SAX parser in XML.

(c) Explain why XML is NOT a programming language.

(d) What is a Reference in XML? Explain two types of XML references. **[4+4+3+4=15]**

1. (a) What are the differences between SGML, HTML and XML? How are they related with each other?

(b) What is XHTML? Why is it introduced? What are the 2 main reasons for using XHTML?

(c) Write the Tree structure corresponding to the following XML document:

<?xml version ‘ “1.0”?>

<Company>

<Employee>

<FirstName>Rajib</FirstName>

<LastName>Das</LastName>

<Phone>1234567890</Phone>

<Email>[Rajib.Das@xyz.com</Email](mailto:Rajib.Das@xyz.com%253C/Email)>

<Address>

<Street>1 MG Road</Street>

<City>Mumbai</City>

<Zip>400001</Zip>

</Address>

</Employee>

</Company> [**5+4+6=15]**

1. What are the major 5 types of syntax rules in XML? Explain in detail various types of XML syntax rules. **[5\*3=15]**

**MODULE 4 & 5**

1. What is sip trunk and what are the basic benefits of using SIP trunk?What is the difference between E1 and T1 Link? In which country are we using t E1 and T1 for digital transmission? How many channels are in E1 and T1 link? What is the operational bandwidth of each channel in each link? **5+5+5**
2. What is the signalling and what is the difference between CAS and CSS?What are the basic differences between G711 and G729 codec?Can we configure trunking between Cisco and Avaya PBX? **7+4+4**
3. What is a Path in RSVP?How do I Identify an Unique  LSP-Path in the Network(RSVP)? **7+8**
4. What is “interoperability” and how does it relate to metadata?Why do some people hyphenate the word metadata?. Can metadata be copyrighted? **5+5+5**
5. Why do we need metadata when search engines such as Google™ seem so effective?What is METS?What is MARC? **5+5+5**

1. What’s the difference between library cataloging and creating metadata?When is metadata created?Should metadata be revised or updated? **5+5+5**
2. What is the purpose of a public key infrastructure? Why is there a risk for “who is using my key?” Define protection state **15**
3. Why is it necessary to prevent forgery of capabilities in capability systems to meet reference monitor guarantees? Specify the conditions under which it is necessary to weaken (reduce) the permissions available to a capability. **15**
4. Consider the Needham-Schroeder protocol for shared key distribution. Assume XOR for encryption/decryption

In the NH protocol, the initiating party, we will call A, forwards the conversation key CK in a message encrypted by the authentication server AS for the verifying party B. Suppose A’s identity is represented by the 4-bit quantity 0001 and the key shared between B and the AS is 0101 **15**

1. How can you set up a firewall to work as VPN and distribute the network into VLAN’s? **7+8**