

DEPARTMENT OF CSE

CCS375-WEBTECHNOLOGIES

UNIT - I

WEBSITE BASICS, HTML 5, CSS 3, WEB 2.0

Web Essentials: Clients, Servers and Communication – The Internet – World wide web – HTTP Request Message – HTTP Response Message – Web Clients – Web Servers – HTML5 – Tables -Lists – Image – HTML5 control elements – Drag and Drop – Audio – Video controls – CSS3 -Inline, embedded and external style sheets – Rule cascading – Inheritance – Backgrounds -Border Images – Colors – Shadows – Text – Transformations – Transitions – Animations. Bootstrap Framework

PART A**1. DEFINE INTERNET .**

Network is an interconnection of systems to share data and information. Internet is network of network or collection of heterogeneous networks.

2. WHAT IS THE USE OF IP ADDRESSES AND PORTS?

It is very difficult to remember the IP address of each and every node. In order to avoid this problem domain names are used. Example googl.com, rediff.com etc.

PORTS

Ports are used in receiving and sending data to another server or client. Example for port numbers

Protocol	Port	Protocol	Purpose
Echo	7	TCP/UDP	Echo is a test protocol used to verify that 2 machines
1. are able to connect by having one echo back the Application Layer Transport Layer (TCP, UDP) Internet layer (IP) Physical path(Ethernet, FDDI etc) other's input.			
Discard	9	TCP/UDP	Discard is a less useful test protocol in which all data
2. received by the server is ignored.			
FTP	21		
SMTP	25		
HTTP	80		
POP3	110		
NTP	119	Usenet	News transfer is more formally known as the
Network News Transfer Protocol			
RMI Registry	1099		This is the registry service for Java Remote
Objects.			

3. MENTION THE DIFFERENT INTERNET ADDRESS CLASS AND IT'S RANGE.

Internet addresses are assigned to different organizations by the Internet Assigned Numbers Authority (IANA).

ISP – Internet Service Providers gives a block addresses.

Class C address block specifies the first 3 bytes of address, for example 199.1.32. This allows room for 254 individual addresses from 199.1.32.1 to 199.1.32.254

Class B address specified only the first 2 bytes of the addresses .

There are also Class D and E addresses are used for IP multicast group.

4. DEFINE FIREWALL.

The hardware and software that sits between the Internet and the local network, checking all the data that comes and goes out is called –firewall. The security is provided using SSL(Secure Socket Layer) in internet.

5. DEFINE PROXY SERVERS

Proxy servers are related to firewalls prevents hosts on a network from making direct connections to the outside world, a proxy server can act as a go-between. Thus a machine that is prevented from connecting to the external network by a firewall would make a request for a web page from the local proxy server instead of requesting the web page directly from the remote web server.

6. WHAT IS THE USE OF HTTP PROTOCOL?

HTTP is a standard protocol that defines how a web client talks to a server and how data is transferred from the server back to the client. HTTP relies heavily on two other standards.

MIME (Multipurpose Internet Mail Extensions), HTML

7. WHAT IS THE USE OF MIME?(Multipurpose Internet Mail Extension)

MIME is a way to encode different kinds of data, such as sound and text, to be transmitted over a 7-bit ASCII connection. It also lets the recipient know what kind of data has been sent, so that it can be displayed properly. MIME was originally designed to facilitate multimedia email and to provide an encoding that could get binary data past the most train –damaged mail transfer programs.

MIME is an open standard for sending multipart, multimedia data through Internet email. MIME was originally intended for email, it has become a widely used technique to describe a file's contents so that client software can tell the difference between different kinds of data.

8. DEFINE URL & URN.

URL

Uniform Resource Locator is a way to unambiguously identify the location of a resource on the Internet.

URI Uniform Resource Identifier is a string of characters in a particular syntax that identifies a resource. The resource identified may be a file on a server, but it may also be an email address, a newsmesssage, a book, a person's name, an Internet host.

Syntax

Scheme: scheme-specific-part

Scheme types

data – base 64 encoded data included directly in a linkfile –

A file on a local disk

FTP – An FTP server

gopher – a Gopher server

mailto – an email address

news – A Usenet newsgroup

Telnet – A connection to a Telnet based service (only used in Remote Login System)urn –

Uniform Resource Name

9. EXPLAIN ABOUT URN

There are 2 types of URLs.

URL – Uniform Resource Locators (is a pointer to a particular resource on the Internet at a particular location.)

URNs – Uniform Resource Name (is a name for a particular resource but without reference to a particular location)

SYNTAX OF URN

urn:namespace:resource-name

namespace - is the name of a collection of certain kinds of resources maintained by some authority.

resource-name – is the name of a resource within that collection.

10. WHAT IS MEANT BY RELATIVE URL?

URLs that are not complete but inherit pieces from their parent are called relative URL. In contrast, a completely specified URL is called an absolute URL address.

11. EXPLAIN ABOUT SGML – STANDARD GENERALIZED MARKUP LANGUAGE

- HTML is an instance of SGML.
- SGML was invented beginning in the mid-1970s by Charles Goldfarb at IBM

- SGML is now an International Standards Organization (ISO) standard, specifically ISO 8879:1986.
- SGML allows the user to create various user defined tags easily without any rules.

EXAMPLE 1 – FOR PRODUCT DETAILS

<PRODUCT MANUFACTURER=|ABC COMPANY|> -Assumed as record name

<NAME> KEY BOARD </NAME>

<TYPE> KEY BOARD </TYPE>

<PRICE> 1500 </PRICE>

</PRODUCT

12. EXPLAIN ABOUT XML – EXTENSIBLE MARKUP LANGUAGE

- Similar to SGML
- Allows the user to create any number of user defined tags.
- The value of an attribute may be enclosed in double or single quotes like this:
- <H1 ALIGN=|CENTER|> THIS IS CENTERED H1 HEADING </H1>
- STYLES can be introduced for XML program like CSS using XSL file(XML Style Sheet program)
- Here XML styles are saved with an extension of .xsl (XML style sheet)
- Using .xsl files various styles can be given to the data which is inside the XML program.

13. LIST THE STEPS/FUNCTIONS OF HTTP PROTOCOL.

Standard protocol for communication between web browsers and web servers.

HTTP specifies how a client and server establish a connection, how the client requests data from the server, how the server responds to that request, and finally how the connection is closed.

HTTP 1.0 is the currently accepted version of the protocol. It uses MIME to encode data. The basic protocol defines a sequence of 4 steps for each request from a client to the server.

Making the connection

Making a request

Receiving the response

Closing the connection

14. WHAT IS DOMAIN & MENTION DIFFERENT TYPES OF DOMAINS

Domain is a place where information is available.

DOMAIN NAME EXTENSION

.edu – Servers that provide Educational services

.gov – About the government of a country.

.mil – Servers that provide military information.

.org – Provide information about the organizations in the world.

.com – Servers providing commercial services on the Internet.

15. WRITE THE FORMAT OF HTML PROGRAM

<HTML>

<HEAD>

<TITLE> This is the Title </TITLE>

</HEAD>

<BODY>

.... Type the body of the program

</BODY>

</HTML>

Note: All the tags in HTML program are optional, however the file should be saved in .html extension.

16. MENTION SOME TEXT FORMATTING TAGS

<p> </p> - is used for introducing various paragraphs.

 - this tag is used for giving an empty blank line.

HEADING TAGS - <h1> </h1> .. <h6> </h6> is used to introduce various headings.

<h1> is the biggest and h6 is the smallest heading tag.

<HR> TAG – is used to draw lines and horizontal rules.

, <I>, <U> for bold, italic and underline respectively.

17. EXPLAIN ABOUT LIST TAG.

TYPES OF LISTS

UNORDERED LISTS

ORDERED LISTS

UNORDERED LISTS

It starts with and ends with

Attributes of Unordered lists

TYPE:

TYPE = FILLROUND or TYPE = SQUAREEXAMPLE

<UL TYPE = FILLGROUND>

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ORDERED LISTS (NUMBERING)

TYPE: Controls the numbering scheme to be usedTYPE = -1|| will give counting numbers (1,2,...

-A|| will give A,B,C..

-a|| will give a,b,c

-I|| starts with Capital roman letters I,II,II...

-i|| starts with small case roman letters

START: Alters the numbering sequence, can be set to any numeric valueVALUE:

Change the numbering sequence in the middle of an ordered list

EXAMPLE

<OL TYPE = -1|| START = 5>

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18. EXPLAIN THE ATTRIBUTES OF TABLE TAG WITH AN EXAMPLE

A table is a two dimensional matrix, consisting of rows and columns. All table related tags areincluded between <TABLE> </TABLE> tags.

<TABLE>

<TH> Heading </TH>

<TR> Row elements </TR>

<TD> Table data values </TD>

</TABLE>

ATTRIBUTES OF TABLE TAG

ALIGN Horizontal alignment is controlled by the ALIGN attribute. It can be set to LEFT, CENTER,or

RIGHT VALIGN Controls the vertical alignment of cell contents. It accepts the values TOP,

MIDDLE or BOTTOM WIDTH Sets the WIDTH of a specific number of pixels or to a percentage of the available screen width.

BORDER Controls the border to be placed around the table.

CELLPADDING This attribute controls the distance between the data in a cell and the boundaries of the cell

CELLSPACING Controls the spacing between adjacent cells

COLSPAN Used to split the single cell to one or more columns

ROWSPAN Used to split the single cell to one or more rows.

EXAMPLE

```
<TABLE BORDER = 3 WIDTH = 100 HEIGHT = 200>
```

```
<TR>
```

```
<TH> Roll Number </TH>
```

```
<TH> Age </TH>
```

```
<TR>
```

```
<TR> <TD> 1 </TD> <TD> 35 </TD> </TR>
```

```
</TABLE>
```

ALIGN: ALIGN = TOP, MIDDLE, BOTTOM

BORDER: Specifies the size of the border to place around the image. WIDTH:

Specifies the width of the image in pixels.

HEIGHT: Specifies the height of the image in pixels

HSPACE: Indicates the amount of space to the left and right of the image VSPACE:

Indicates the amount of space to the top and bottom of the image.

19. WHAT DO YOU MEAN BY COLUMN SPANNING AND ROW SPANNING?

Row spanning is used to merge (combine) two or more rows. Column spanning is used to merge (combine) two or more columns.

20. MENTION THE DIFFERENT TYPES OF LINKS

HTML allows linking to other HTML documents as well as images. There are 3 attributes that can be introduced in BODY tag.

LINK – Changes the default color of a Hyperlink to whatever color is specified with this tag. ALINK – Changes the default color of a hyperlink that is activated to whatever color is specified with this tag.

VLINK – Changes the default color of a hyperlink that is already visited to whatever color is specified with this tag.

NOTE: User can specify the color name of a hyperlink or an equivalent hexadecimal number. EXTERNAL LINKS

SYNTAX

 Hyper Text Message

21. EXPLAIN IMAGE MAPS WITH ITS SYNTAX

When a hyperlink is created on an image, clicking on any part of the image will lead to opening of the document specified in the <A HREF TAG>. Linked regions of an image map are called hot regions and each hot region is associated with

a filename.html.

Syntax

<MAP NAME = -map name||>

ATTRIBUTES OF IMAGE

MAPS

COORDS: Each of the above shapes takes different coordinates as parameters. Rectangle – 4 coordinates (x1,y2,x3,y2)

POLYGON: 3 or more coordinates.

HREF – Takes the name of the .html file that is linked to the particular area on the image.

<MAP NAME = -fish.jpg||>

<AREA SHAPE = -rect|| COORDS = -52,65,122,89|| HREF = -sct.html||>

</MAP>

22. EXPLAIN ABOUT HTML FORM TAG WITH ITS ATTRIBUTES.

HTML form provides several mechanisms to collect information from people viewing your site. The syntax of the form is

<FORM METHOD = -POST|| ACTION = -/cgi-bin/formmail||>

- The METHOD attribute indicates the way the web server will organize and send you the form output.
- Use METHOD = -post|| in a form that causes changes to server data, for example when updating a database.
- The ACTION attribute in the FORM tag is the path to this script; in this case, it is a common script which emails form data to an address. Most Internet Service Providers will have a script like this on their site.

23. MENTION THE VARIOUS FORM ELEMENTS.

Various elements or controls can be created in FORM using <INPUT> tag. They are 1. Label 2.Text box 3. Text Area 4. Radio button 5. Check box 6. List box 7. Command button 8. Scroll bars

24. WHAT IS THE USE OF FRAMES IN HTML GIVE THE SYNTAX OF FRAMES

Frames are used to call many html files at the same time. This can be done using <FRAMESET> </FRAMESET> tags.

ATTRIBUTES OF FRAMES

ROWS – This attribute is used to divide the screen into multiple rows. It can be set equal to a list of values. Depending on the required size of each row. The values can

- A number of pixels
- Expressed as a percentage of the screen resolution
- The symbol *, which indicates the remaining space.

COLS – This attribute is used to divide the screen into multiple columns.

EXAMPLE

<FRAMESET ROWS = "30%,*"> => Divides the screen into 2 rows,

- occupying the remaining space

<FRAMESET COLS = "50%,50%"> => Divides the first row into 2 equal columns

<FRAME SRC = -file1.html>

<FRAME SRC = -file2.html>

<FRAMESET COLS = "50%,50%"> => Divides the second row into 2 equal columns

<FRAME SRC = file3.html>

<FRAME SRC = file4.html>

</FRAMESET>

</FRAMESET>

25. What is the difference between node and host?

A node is any addressable device connected to a network whereas the host is a more specific descriptor that refers to a networked general-purpose computer rather than a single purpose device (such as a printer).

26. Define protocol.

A protocol is a formal set of rules that must be followed in order to communicate.

27. Define port.

A port is a logical channel to an application running on a host. ie., The applications running on the host machines are uniquely identified by port numbers.

28. What do you mean by well-known ports?

Port numbers can range from 1 to 65535, however ports 1 to 1023 are reserved. These reserved ports are referred to as well-known ports because the Internet Assigned Numbers Authority publicly documents the applications that use them.

29. What is meant by Name Resolution?

Name Resolution is the process of mapping a hostname to its corresponding IP Address. One way to translate a hostname to an IP address is to look it up in a simple text file. The second way is the domain name service, which is a distributed database containing all registered hostnames on the Internet and their IP addresses.

30. Define URI, URL, URN.

- URI (Uniform Resource Identifier): It identifies an object on the Internet.
- URL (Uniform Resource Locator): It is a specification for identifying an object such as a file, newsgroup, CGI program or e-mail address by indicating the exact location on the internet.
- URN (Uniform Resource Name): It is a method for referencing an object without declaring the fullpath to the object.

31. What are the components of HTTP URL?

The components are host, an optional port, path, filename, section and query string.

32. Define URL encoding.

URL encoding involves replacing all unsafe and nonprintable characters with a percent sign (%) followed by two hexadecimal digits corresponding to the character's ASCII value.

33. What are the issues of next generation IP?

The issues to be considered in IP next generation are

- Addresses Space Growth
- Support large Global networks
- A clear way of transition from the existing IP to new IP next generation

34. List the goals of SGML.

- To manage the flow of millions of pages.
- For structuring information exchange
- For modeling inter-document linkages
- For managing information flows between departments and weapons systems

35. What is the role of server?

The server

- Manages application tasks
- Handles storage
- Handles security
- Provides scalability
- Handles accounting and distribution

36. What are the necessities of using HTML forms?

- Gathering user information
- Conducting Surveys
- Interactive services

37. What are the sequences of steps for each HTTP request from a client to the server?

- Making the connection
- Making a request
- The response
- Closing the connection

38. List the predefined MIME content types.

- Text
- Multipart
- Message
- Image
- Audio
- Video
- Model
- Application

39. Define HTML.

It is a simple page description language, which enables document creation for the web.

40. What is meant by loop back address?

A zone that enables the server to direct traffic to itself. The host number is almost always 127.0.0.1.

41. Explain about HTTP Connection.

It is a communication channel between web browser and web server. It begins on the client side with the browser sending a request to the web server for a document.

Request Header Fields are

- From
- Reference
- If_modified_since
- Pragma
- User Agent

42. What do mean by search engine?

It is a program or web page that enables you to search an Internet site for a specific keywords or words.

43. How do search engine work?

When you enter a keyword, the search engine examines its online database and presents to you a listing of sites that, in theory, match your search criteria.

44. Discuss about the client/server strategies in Internet.

- Application Server
- Database Server
- Transaction Server
- Six client/server models

45. Explain about <table> & <frame> tags in detail..

- Syntax of <table> tag:
- <TABLE>
- <TR>...</TR> <!--Row1_
- <TR>...</TR> <!--Row2_
- ...
- <TR>...</TR> <!--Rowm_
- </TABLE>
- Syntax of <frame> tag:
- <frameset rows=| -, cols=| ->
- <frame name=| - src=| ->
- <frame name=| - src=| ->
- ...
- <frame name=| - src=| ->
- </frameset>

46. Explain about Internet servers.

- Mail servers
- Web servers
- FTP servers
- News server
- DNS servers

47. Explain the elements of WWW.

- Client & server
- Web languages & protocols
- Web pages
- Home page
- Web browsers
- Web sites

48. Explain HTML forms in detail along with form elements, attributes & methods.

```
<form method=||how to send|| ACTION=|URL of script|>
```

```
...form data...
```

```
</form>
```

Form fields & attributes:

- i. <TEXTAREA> element
- ii. <INPUT> tag: text, password, checkbox, radio, hidden, reset, submit, button
- iii. <SELECT> tag

49. How do you change the color of background or text in HTML?

Include the element "bgcolor" with a color code in your body tag:

```
<BODY BGCOLOR="#ffffff" TEXT="#000000" LINK="#cc0000"
VLINK="#000066" ALINK="#ffff00">
```

51. How do you use a picture as the background in HTML?

Include the element "background" with the name of the graphics file:

```
<BODY BACKGROUND="gumby.gif" BGCOLOR="#ffffff" TEXT="#000000"
LINK="#cc0000" VLINK="#000066" ALINK="#ffff00">
```

52. How do you add music to a web page?

```
<A HREF="http://www.snowhawk.com/sounds/hvnearth.mid">Heaven on Earth</A>
```

53. How do you align text next to a graphic in HTML?

```
<IMG SRC="wflower.jpg" WIDTH="25" HEIGHT="25" ALIGN="top" BORDER="0"
ALT="wildflower photo"> Photo of wildflowers in Texas</A>
```

54. How do you make a graphic a link?

```
<AHREF="http://www.snowhawk.com/wildlife.html"><IMG SRC="leopard.jpg"
WIDTH="25"
HEIGHT="25" ALIGN="top" BORDER="0" ALT="link to wildlife"></A>
```

55. How do you make a new paragraph in HTML?

Inserting the <P> tag at the beginning of your paragraph will drop the text down two lines. (If you insert the
 tag, it will drop your text down one line.)

56. How do you make headings and text larger or smaller?

There are 6 sizes to the heading tags:

This is using the <H1> tag

This is using the <H2> tag

This is using the <H3> tag

This is using the <H4> tag

This is using the <H5> tag

This is using the <H6> tag

57. How do you make text show as bold?

Placing the tag before the text will make everything bold, until you close the tag with(Or using tags will do the same.)

58. How do I make text show in italics?

Placing the <I>tag before the text will make everything in italics, until you close the tag with</I> (Using emphasis tags will do the same.)

59. How would you make all text on a page green and a little larger than normal, but make all headings yellow?

Put the following at the beginning of the Web page:

```
<BODY TEXT=|green|><BASEFONT SIZE=4>
```

Then make each heading look like this:

```
<H1><FONT COLOR=|Yellow|>Heading goes here </FONT></H1>
```

60. Write the HTML to create the following ordered list.

X. Xylophone

Y. Yak

Z. Zebra

```
<OL TYPE =|A| START = -24|>
```

```
<LI> Xylophone
```

```
<LI>YAK
```

```
<LI>Zebra
```

```
</OL>
```

The following alternative will also do the same things.

```
<OL TYPE =|A|<LI VALUE =|24|>Xylophone<LI>Yak<LI>Zebra</OL>
```

61. How would you insert a single word and put a square bullet in front of it?

```
<UL TYPE=|Square|><LI>Supercalifragilisticexpalidocious</UL>
```

62. How would you insert an image file named elephant.jpg at the very top of a Webpage?

Copy the image file into the same directory folder as the HTML text file and type immediately after the <BODY> tag in the HTML text file

63. How would you give a Web page a black background and make all text, including links, bright green?

Put the following at the beginning of the Web page:

```
<BODY BGCOLOR=#black>
```

The following would do the same thing

```
<BODY BGCOLOR =#000000
```

```
TEXT=#00FF00 LINK=#00FF00 VLINK=#000000>
```

64. How would you make an image file named texture.jpg appear as a background tile?

```
<BODY BACKGROUND=#texture.jpg
```

```
TEXT=#White LINK=#red VLINK=#blue ALINK=#black>
```

65. How would you wrap text around the right side of an image, leaving 40 pixels of space between the image and the text?

```
<IMG SRC=#myimage.gif HSPACE=40 VSPACE=40 ALIGN=#left>Text goes here
```

66. How could you insert exactly 80 pixels of blank space between two paragraphs of text?

Create a small image that is all one color, and save it as nothing.gif with that color set to be transparent. Then put the following tag between the two paragraphs of text:

```
<IMG SRC=#nothing.gif WIDTH=1 HEIGHT=80>
```

67. How would you write the HTML to draw a rule 20 pixels wide?

```
<HR WIDTH=20>
```

68. If you have a circular button that links to another page, how do you prevent a rectangle from appearing around it?

Use the BORDER=0 attribute, like this:

```
<A HREF=#another_page.html><IMG SRC=#circle.gif BORDER=0></A>
```

69. What is meant by Stateless Connection?

When a web server receives a HTTP request from a web browser it evaluates the request and returns the requested document, if it exists, and then breaks the HTTP connection. This document is preceded by the response header, which has details about how to display the document that will be sent by the server. Each time a request is made to the server, it is as if there was no prior connection and each request can yield only a single document. This is known as Stateless Connection.

70. DEFINE CASCADING STYLE SHEETS (CSS)

- CSS are powerful mechanism for adding styles (e.g. Fonts, Colors, Spacing) to web documents.
- They enforce standards and uniformity throughout a web site and provide numerous attributes to create dynamic effects.
- The advantage of a style sheet includes the ability to make global changes to all documents from a single location. Style sheets are said to cascade when they combine to specify the appearance of a page.

The style assignment process is accomplished with the <STYLE>...</STYLE> tags.

71. MENTION THE TYPES OF STYLE SHEETS

- i. 1 Embedded or Internal Style sheet
- ii. 2 External or Linked Style sheet
- iii. 3 Inline style sheet

72.LIST THE PROPERTIES OF STYLE TAG

<STYLE> tag properties are divided in to 6 categories. They are

- Font Attributes
- Color and Background attributes
- Text Attributes
- Border Attributes
- Margin Attributes and
- List Attributes.

73.HOW TO INTRODUCE STYLE IN HTML PROGRAM?

```
<HTML>
<HEAD>
<STYLE Type = -text/cssl>
predefined tag name {attribute name1:attribute value1; attribute name2:attributevalue2;
.....attribute name-n:attribute value-n}
<STYLE>
</HEAD>
<BODY>
write the body of program
</BODY> </HTML>
```

74.What are Style Sheets?

Style sheets are collections of style information that are applied to plain text. Style information includes font attributes such as type size, special effects (bold,italic,underline), color and alignment. Style sheets also provide broader formatting instructions by specifying values for quantities such as line spacing and left and right margins.

75.List down the ways of including style information in a document.

1. Linked Styles -Style information is read from a separate file that is specified in the <LINK> tag
2. Embedded Styles -Style information is defined in the document head using the <STYLE> and </STYLE> tags.
3. Inline Styles -Style information is placed inside an HTML tag and applies to all content between that tag and it companion closing tag.

76.What are the style precedence rules when using multiple approaches?

Inline styles override both linked style sheets and style information stored in the document head with <STYLE> tag.

77.Give the syntax to specify a characteristic in linked style sheet.

{Characteristic: value}

Multiple characteristic/value pairs should be separated by semicolons.

78.List down font characteristics permitted in style sheets.

- 1.font-family
- 2.font-size
- 3.font-weight
- 4.font-style

79.Write a note on content positioning characteristic "Visibility".

Enables the document author to selectively display or conceal positioned content; Possible values are show or hide.

PART B

1. Discuss the various HTML tags in detail .
2. Write short notes on the following
 - i. IMG tag
 - ii. TABLE tag
 - iii. FRAME tag
3. Write an HTML document to provide a form that collect name and telephone numbers.
4. Explain HTML forms in detail along with form elements, attributes & methods.
 - i. <form method=||how to send|| ACTION=|URL of script|>
 - ii. ...form data...
 - iii. </form>
 - iv. Form fields & attributes:
 - <TEXTAREA> element
 - <INPUT> tag: text, password, checkbox, radio, hidden, reset, submit,
 - v. button
 - <SELECT> tag
5. List any four events associated with DHTML and explain each one with an example.
6. Write the XHTML markup to create a frame with a table of contents on the left side of the window and have each entry in the table of contents use internal linking to scroll down the document frame to the appropriate subsection.
7. What are HTML tags? List the commonly used HTML commands.
8. Design a web page that allows the user to choose from a series of images and to view the image in color and grayscale.
9. Develop a html page which accepts
 - i. -Any mathematical expression
 - ii. -Evaluate the expression
 - iii. -Displays the result of the evaluation
10. How to create user interactive web pages using form objects and form elements?
11. What is HTML? List the goals of SGML. explain the various html tags to develop the web pages.
12. What are the necessities of using HTML forms? What is the use of HTML Forms? Create a HTML

Form page for Railway Registration Form.

13. Develop a html web page for the following design using frame and frameset.

<u><frame 1></u> DEMONSTRATION OF FRAMES	
<u><frame2></u> <link1> <link2> <link3>	<u><frame3></u> <content to be displayed in this frame>

14. How to create user interactive web pages using Form elements and Form objects? Develop an Student registration form using HTML Form elements. (Assume your own fields).

UNIT II**CLIENT SIDE PROGRAMMING**

Java Script: An introduction to JavaScript-JavaScript DOM Model-Exception Handling-Validation-Built-in objects-Event Handling- DHTML with JavaScript- JSON introduction – Syntax – Function Files.

1. List out the differences between Java script & VB script.
2. What is the advantage of client side programming?
3. List out the various client side programming languages.
4. What is java script?
5. What are the uses of Java script?
6. What is the use of prompt and confirm commands.
7. What are the various browsers to be supported .
8. Write a java script program to print first 100 numbers .
9. Write a java script program to print Armstrong numbers between 1 to 500.
10. Draw the DOM model.

PART B

1. Explain the document object model architecture
2. Explain the various event handlers in java script. Give an example.
3. Write a java script program to develop the arithmetic calculator
4. Write a java script program to perform the validation process in an application programs
5. Write short notes on scripting languages.
6. What are the various java script objects? Explain each with an example.
7. How to validate the check box and check box group?
8. Explain about types of cascading style sheet? Explain with example
9. Explain the various CSS properties
10. What is html? explain the various html tags to develop the web pages.
11. What is the use of HTML Forms? Create a HTML Form page for Railway Registration Form
12. What is CSS ? List out the Various CSS Properties. Explain the various concepts of CSS properties with neatexample.
13. What are the types of CSS? Explain any two with neat example.
14. Explain Dhtml.
15. Explain how Dhtml used to develop the web pages.
16. With a neat diagram write a SCRIPT PROGRAM with validation for the following (each program carries 16 marks)
 - Student Mark List
 - Inventory System
 - Employee Pay Slip generation
 - Railway Ticket Reservation
 - Online Quiz program
17. Draw form design
 - Design must have one Primary key field – always
 - check for duplication for the primary key field
 - emp- name, product- name, dept-name etc should not be blank
 - Write a function for all these validation
 - When you introduce any number field, always check it is negative or not, if it so do not accept theinput value
 - For calculations always use program concept, do not ask the user to enter total, gross etc.
 - Instead through program calculate Gross.value = val(basic.value + hra.value+da.value)
 - Always use val or ParseInt function when you perform calculation with numbers.
 - for avoiding too much of validation better use the following in the design itself
 - Radio button

- Command button
 - Check box
 - List box
 - Must introduce SUBMIT & RESET button at the end of the design
18. Explain in detail about all the types of Cascading Style sheet with an example Program draw the form design
 19. Mention the 3 types of CSS
 20. Write example program for each type of CSS
 21. Write the differences and advantages of each CSS
 22. Write short notes on the following
 23. Write short notes on Java Script/Advantages of Scripting
 - Java Script control statements
 - Java Script functions
 24. Discuss briefly about HTML – Object Model and Collections
 - Object modeling
 - Object Referencing
 - Dynamic Styles
 - Dynamic Positioning
 25. Discuss briefly Dynamic HTML – Event Model
 26. Write Short notes on event model
 27. Explain Event bubbling with an example program
 28. How can we JavaScript using Objects. Give an Example
 29. With an example describe java scripts Control structure.
 30. Explain about CSS.
 31. With an example describe java scripts Control structure
 32. 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.
 33. What are the methods associated with array object in JavaScript? Explain each one with an example.
 34. Write a JavaScript to display a welcome button of an html form is pressed
 35. What do you mean by CSS? Discuss the properties of CSS-level-1 in detail with suitable example.
 36. Write a JavaScript program to demonstrate the JavaScript events.
 37. Design a webpage with a textbox where the user can enter a four digit number and a button –validate. Validate the entered number for the following using java script. No zero as the first digit Entered number must be in ascending order of digits (Ex:1234,5678...)
 38. 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 the statement. $\text{Volume} = (4.0/3.0) * \text{Math.PI} * \text{Math.pow}(\text{radius}, 3)$
 39. To calculate the volume, the user should input the radius through an HTML text field and press an HTML button to initiate the calculations.
 40. What are the objectives of using Cascading style sheet? Briefly explain about linking of external Style sheets and fixing the backgrounds.
 41. Explain the concept of CSS and its properties and its uses with an example.
 42. Using a JavaScript create a web page using two image files, which switch between one another as the mouse pointer moves over the images.
 43. 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.

44. Develop a simple online shopping application using JavaScript(Assume your own data)
45. 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.
46. What is CSS ? List out the Various CSS Properties. Explain the various concepts of CSS properties with neat example.
47. Explain the various event handlers in java script. Give an example of each. Write a java script program to develop the arithmetic calculator .
48. develop the web page for employee management system and validate all the fields using java script. (Note: The web page should contain all the html forms control)
49. Explain about cascading style sheets in detail.
 - i. Style sheet rules
 - ii. Styling a page
 - iii. Linking style sheets
 - iv. Inline style sheets.
50. Write a XHTML program to create a web page for your college information using any one CSS type (Assume your own data) .Explain the various CSS properties in detail. Write a suitable code each property.
51. Develop a JavaScript program to display a message –HI ! GOOD MORNING TO YOU! when a page is loaded and display a message –THANKS TO VISIT OUR WEB PAGE! when a page is unloaded.
52. 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.
 - i. Both the fields should not be empty
 - ii. Name field should have alphabets
 - iii. ID field should have numeric.

UNIT III

Servlets: Java Servlet Architecture- Servlet Life Cycle- Form GET and POST actions- Session Handling- Understanding Cookies- DATABASE CONNECTIVITY: JDBC.

1. What are Servlets?

A small program that runs on a server, the term usually refers to a Java applet that runs within a Web server environment. This is analogous to a Java applet that runs within a Webbrowser environment. Java servlets are becoming increasingly popular as an alternative to CGI programs. The biggest difference between the two is that a Java applet is persistent. This means that once it is started, it stays in memory and can fulfill multiple requests. In contrast, a CGI program disappears once it has fulfilled a request. The persistence of Java applets makes them faster because there's no wasted time in setting up and tearing down the process.

2. What are Applets?

A program designed to be executed from within another application. Unlike an application, applets cannot be executed directly from the operating system. With the growing popularity of OLE (object linking and embedding), applets are becoming more prevalent. A well-designed applet can be invoked from many different applications. Web browsers, who are often equipped with Java virtual machines, can interpret applets from Web servers. Because applets are small in file size, cross-platform compatible, and highly secure (can't be used to access users' hard drives), they are ideal for small Internet applications accessible from a browser.

3. What do you mean by Server-side?

Occurring on the server side of a client-server system. For example, on the World Wide Web, CGI scripts are server-side applications because they run on the Web server. In contrast, JavaScript scripts are client-side because they are executed by your browser (the client). Java applets can be either server-side or client-side depending on which computer (the server or the client) executes them.

4. Explain the life cycle methods of a Servlet.

The `javax.servlet.Servlet` interface defines the three methods known as life-cycle methods: `public void init(ServletConfig config) throws ServletException`, `public void service(ServletRequest req, ServletResponse res) throws ServletException, IOException`, and `public void destroy()`.

First the servlet is constructed, then initialized with the **init()** method.

Any request from client are handled initially by the **service()** method before delegating to the **doXXX()** methods in the case of `HttpServlet`.

The servlet is removed from service, destroyed with the **destroy()** method, then garbage collected and finalized.

5. What is the difference between the `getRequestDispatcher(String path)` method of `javax.servlet.ServletRequest` interface and `javax.servlet.ServletContext` interface?

The `getRequestDispatcher(String path)` method of `javax.servlet.ServletException` interface accepts parameter the path to the resource to be included or forwarded to, which can be relative to the request of the calling servlet. If the path begins with a "/" it is interpreted as relative to the current context root.

The `getRequestDispatcher(String path)` method of `javax.servlet.ServletContext` interface cannot accept relative paths. All paths must start with a "/" and are interpreted as relative to current context root.

6. Explain the directory structure of a web application.

The directory structure of a web application consists of two parts. A private directory called `WEB-INF`. A public resource directory which contains public resource folder.

`WEB-INF` folder consists of

1. `web.xml`
2. classes directory
3. lib directory

7. What are the common mechanisms used for session tracking?

Cookies

SSL sessions

URL-rewriting

8. Explain about Session tracking.

A session is basically a conversation between a browser and a server. All the above technologies can save information for the current session for a particular user visiting a site. The session is important, as HTTP is a stateless protocol. This means that the connection between web server and a web browser is not automatically maintained, and that the state of a web session is not saved.

State is a general term that includes "everything about your situation" and the specifics vary based on the application. In a word processor, the state of the application would include which windows are open, where they are on the screen, and what files you most recently used. In a web application, the state would include any data that you had entered, the results of any queries that you had run, and your security access information (e.g. whether you have logged in to the site).

9. Explain ServletContext

`ServletContext` interface is a window for a servlet to view its environment. A servlet can use this interface to get information such as initialization parameters for the web application or servlet container's version. Every web application has one and only one `ServletContext` and is accessible to all active resource of that application.

10. What is preinitialization of a servlet?

A container does not initialize the servlets as soon as it starts up, it initializes a servlet when it receives a request for that servlet first time. This is called lazy loading. The servlet specification defines the `<load-on-startup>` element, which can be specified in the deployment descriptor to make the servlet container load and initialize the servlet as soon as it starts up. The process of loading a servlet before any request comes in is called preloading or preinitializing a servlet.

11. What is the difference between `doGet()` and `doPost()`?

A `doGet()` method is limited with 2k of data to be sent, and `doPost()` method doesn't have this limitation. A request string for `doGet()` looks like the following:

<http://www.allaplabs.com/svt1?p1=v1&p2=v2&...&pN=vN>

doPost() method call doesn't need a long text tail after a servlet name in a request. All parameters are stored in a request itself, not in a request string, and it's impossible to guess the data transmitted to a servlet only looking at a request string.

12. What is the difference between HttpServlet and GenericServlet?

A GenericServlet has a service() method aimed to handle requests. HttpServlet extends GenericServlet and adds support for doGet(), doPost(), doHead() methods (HTTP 1.0) plus doPut(), doOptions(), doDelete(), doTrace() methods (HTTP 1.1). Both these classes are abstract.

13. What is the difference between ServletContext and ServletConfig?

ServletContext: Defines a set of methods that a servlet uses to communicate with its servlet container, for example, to get the MIME type of a file, dispatch requests, or write to a log file. The ServletContext object is contained within the ServletConfig object, which the Web server provides the servlet when the servlet is initialized

ServletConfig: The object created after a servlet is instantiated and its default constructor is read. It is created to pass.

PART B

1. Explain the concept of Servlets with an example program
2. Explain about applet to servlet communication with example program?
3. Explain about applet-to-applet communication with example program?
4. Explain about servlet interfaces with snippet code?
5. What are attributes are available for servlet and explain each of them
6. What do mean by Connection pooling? Explain it with an example.
7. What is HTTP Tunneling? Explain with an example
8. What's the difference between sendRedirect() and forward() methods? Explain each with an example
9. List down the methods of GenericServlet .Explain ach of them with an example
10. List down the methods of HttpServlet .Explain ach of them with an example
List down the methods of SevletConfig .Explain ach of them with an example
11. List down the methods of Servletcontext .Explain ach of them with an example
12. Explain implicit objects with example
13. Explain about JSP expressions
14. Explain about JSP actions with example
15. Write down the differences between <jsp: include> and <@include...> with example
16. Briefly explain about Java Server Pages technology
17. Why do I need JSP technology if I already have servlets? And explain the features of JSP over servlet.
18. Explain how are the JSP requests handled with an example?
19. What are Directives? Explain about JSP diecives.
20. Explain in details about taglib .
21. Explain the concepts of JSP directives with suitable example.
22. Explain THE various session tracking MECHANISMS.
23. Explain the architechture of a Servlet?
24. Explain life cycle of a Servlet?
25. What is Servlet Chaining? Explain with an example
26. Explain the concepts of Servlet chaining and communications.
27. **Explain about session tracking.**
28. Two ways of maintaining the sessions:
 - i. Cookies
 - ii. Rewriting URLs
29. Example for session tracking, Shopping cart
30. Explain the feature of Multi-tier application using servlet architecture.
31. Explain the Servlet architecture with its functionality.

WEBTECHNOLOGY

QUESTION BANK

32. Develop an HTML document to generate ballot form for an election. The votes submitted are recorded on the server by a servlet handling the form. Cookies must be used to prevent multiple votes by the same client.
33. What is DOM? Explain its usage with HTML with an example.
34. Write a servlet program to implement session tracking using HTTP session object.
35. Compare JSP with servlets.
36. Discuss the traditional methods of session tracking techniques in servlet explain with example.
37. Explain DOM. Write a Javascript Program to validate Radio Button, CHECKBOX and OPTION fields.
38. Explain the servlet life cycle model and explain javax.servlet package
39. Write a HTTP servlet program to authenticate a user and retrieve all information from a HTML registration Form and store in a given data base.
40. Explain the various Java Script objects & Host objects
41. What is DOM? Draw the detailed DOM objects structure. Explain with its usage.

PHP and XML 6 An introduction to PHP: PHP- Using PHP- Variables- Program control- Built-in functions- Form Validation. XML: Basic XML- Document Type Definition- XML Schema, XML Parsers and Validation, XSL

1. WHAT IS THE USE OF XML NAMESPACE?

- XML allows document authors to create custom elements.
- This extensibility can result in naming collisions (i.e. different elements that have the same name) among elements in an XML document.
- An XML namespace is a collection of element and attribute names. Each namespace has a unique name that provides a means for document authors to unambiguously refer to elements with the same name (i.e. prevent collisions).

2. WHAT ARE THE USES OF XML?

- CML – Chemical Markup Language – for chemical equations
- MML - Mathematical Markup Language – for Mathematical equations and derivations.
- Used in bio medical line.

3. WHAT IS THE USE OF XML?

Extensible Markup Language, derived from SGML (Standard Generalized Markup Language).

XML is widely supported open technology (i.e. non-proprietary) for electronic data exchange and storage. XML is actually a language used to create other markup languages to describe data in a structured manner.

- XML documents contain only data, not formatting instructions, so applications that process XML documents must decide how to manipulate or display the document's data.

4. WHAT DO YOU MEAN BY DTD IN XML?

- DTD means Document Type Definition.
- DTD file is similar to CSS file, because DTD also contains only styles.
- DTD contains various styles which are to be applied in XML document .
- Like .CSS file .DTD file also should be linked with XML program.

Styles in XML program should be save with .xsl (Xml Style Sheet Language) extension.

5. Define XML.

- XML is a meta-markup language that provides a format for describing structured data. This facilitates more structured declarations of content and more meaningful search results across multiple platforms.

6. Define DTD.

- A DTD is a set of rules that specifies how to use XML markup. It contains specifications for each element, including what the element's attributes are, what values the attributes can take on and what elements can be contained in others.

7. What are the XML rules for distinguishing between the content of a document and the XML markup element?

1. The start of XML markup elements is identified by either the less than symbol (<) or the ampersand (&) character

2. Three other characters, the greater than symbol (>), the apostrophe or single quote (') and the double quotation marks (") are used by XML for markup.

3. To use these special characters as content within your document, you must use the corresponding general XML entity.

8. What are the different XSLT elements?

- Stylesheet
- Value-of
- For-each
- Sort
- Text

9. What is VoiceXML?

VoiceXML is an emerging standard for speech-enabled applications. Its XML syntax defines elements to control a sequence of interaction dialogs between a user and an implementation platform. VoiceXML uses XML text to drive voice dialogs.

10. What is XQuery?

XQuery is a W3C initiative to define a standard set of constructs for querying and searching XML documents. XQuery brings database query processing to XML.

11. What is XForm?

XForm is an XML approach that overcomes the limitations of HTML forms. XForm includes a variety of buttons, scrollbars and menus. It generates XML form data as output. XForm's model has the capability to work with the variety of user interfaces.

12. What is XPath?

Xpath is used to navigate XML tree structures. XPath gets its name from its use of a path notation to navigate through the hierarchical tree structure of an XML document. It is an important XML technology due to its role in providing a common syntax and semantics for functionality in both XSLT and XPointer.

13. What are complex types?

Complex types are an important aspect of XML schema that allow application developers to define application-specific datatypes that can be checked by programs that check XML documents for validity. XML schema divides complex types into two categories: those with simple content & those with complex content.

14. What are the presentation technologies?

CSS - cascading style sheets

XSL - provides users with ability to describe how XML data & documents are to be formatted. XForms - it is a GUI toolkit for creating user interfaces & delivering the results in XML. XHTML - it is used to replace HTML with a more flexible approach to displaying web content.

VoiceXML - it is an emerging standard for speech-enabled applications.

15. What are all the transformation techniques?

XSLT - it is an XML-based language used to transform XML documents into other formats such as HTML for web

XLINK - highlighting that element or taking the user directly to that point in the document. XPATH - xpath gets its name from its use of a path notation to navigate through the hierarchical tree structure of an XML document XQUERY - it is a W3C initiative to define a standard set of constructs for querying & searching XML document.

16. Explain any two XForm implementations?

X-Forms - it is a Java-based XML browser. It implements a large part of X-Forms & uses X-Forms together with XSL-FO on the user interface side. Mozilla XForms Preview - is an XML-based Web development s/w that implements XForms & gives the current Web browser the ability to send, receive & process XML documents.

17. What are the Important features of SAX?

SAX is an event-driven.

SAX supports processing pipelines.

SAX requires programmers to maintain state.

18. What is metadata?

Literally data about data. XML element and attribute names are considered

metadata in that they may be used to describe the data contained in a document. Metadata isn't needed but it certainly helps.

19. What is DTD? How is it different from XML?

DTD stands for Document Type Definition

DTD is a description of the structure & the elements and attributes that define a class of XML document. DTD can be declared both internally in a XML document and as an external reference.

DTD Xml Schema

DTD is used to define the structure of an XML document.

XML schema is used to define the structure of an XML document.

Data type for elements limited to text. 2. Numerous predefined data types available.

Complex data types cannot be defined. 3. Ability to define complex type that map to application data structure. DTD

document is stored as -filename.dtd 4. XML schema document is stored as -filename.xml

20. What is XML? How is it different from HTML?

XML is the text-based markup language that stores the data in a structured format using meaningful tags. It allows computers to store and exchange data in a format that can be interpreted by any other computer with different hardware or software specification.

XML HTML

.xml stands for Extensible markup language HTML

stands for Hyper Text Markup

Language. 2. Several languages are derived from XML & XHTML

can be derived from XML.

XML uses indefinite, user-defined,

meaningful set of tags which can be used to include XML data in the webpage.

HTML uses a fixed set of tags which can be used to specify the appearance of the webpage.

21. Define XML.

XML stands for EXtensible Markup Language
 XML is a markup language much like HTML
 XML was designed to carry data, not to display data
 XML tags are not predefined. You must define your own tags
 XML is designed to be self-descriptive
 XML is a W3C Recommendation

22. Define DTD.

A Document Type Definition (DTD) defines the legal building blocks of an XML document. It defines the document structure with a list of legal elements and attributes. A DTD can be declared inline inside an XML document, or as an external reference.

23. What does PHP stand for, and what is its primary use?

PHP stands for Hypertext Preprocessor. Its primary use is to create dynamic web pages by embedding PHP code within HTML. PHP code is executed on the server to generate HTML content sent to the client's web browser.

24. How do you include PHP code within an HTML file?

PHP code is included within an HTML file using `<?php ... ?>` tags. For example:
`<?php echo "Hello, World!"; ?>`

25. How do you declare and initialize a variable in PHP?

In PHP, a variable is declared by starting with a dollar sign (\$) followed by the variable name.

26. What is the purpose of the if statement in PHP?

The if statement in PHP is used to execute a block of code if a specified condition evaluates to true

27. Name a built-in PHP function used to find the length of a string and provide an example of its usage.

The built-in PHP function `strlen()` is used to find the length of a string
`$string = "Hello";`
`$length = strlen($string);`

28. How can you check if a form field is empty in PHP?

`if (empty($_POST['username'])) { echo "Username is required."; }`

Part –B Questions

1. Explain the Roles and Advantages of XML.
2. Explain briefly the The Three Revolutions XML
3. Explain XML & DTD.
4. explain the basics of XML Language
5. Explain briefly xml Transformation?
6. Explain briefly XML Schema:
7. Explain Simple API for xml(SAX):
8. Explain about Presentation Technique?
9. Short notes on XML Namespaces?
10. Explain briefly DTD?
11. Briefly Explain About HTTP & XML-RPC
12. Mention the rules of well-formed XML.
13. What is DTD? Explain it with example.
14. What is a DTD (document Type Definition) . What are its applications?

15. Write a XML schema for a Movie data base table with the following structure:
16. Movie(name, director,date_released, record), name(firstname, midname, lastname), date_released(date, month,year)
17. Write similarities and dissimilarities between XML and DHTML.
18. Write a DTD for the following schema (emp_id, emp_name(firstname, lastname), dob(dd,mm,yyyy), address(city, state)).
19. Create a XML document to store voter ID, voter name, address and date of birth details. Create a DTD to validate the document.
20. Discuss the following
 - i) Specify the set out development goals of XML.
 - ii) How is XML defined?Give the XML syntax and structure rules.
Explain the XML components in detail.

UNIT V

Introduction to AngularJS, MVC Architecture, Understanding ng attributes, Expressions and data binding, Conditional Directives, Style Directives, Controllers, Filters, Forms, Routers, Modules, Services; Web Applications Frameworks and Tools – Firebase- Docker- Node JS- React- DjangoUI & UX.

Part A

1. What is AngularJS? Briefly explain its key features.
2. Describe the MVC architecture in AngularJS. What are the roles of Model, View, and Controller?
3. What is the purpose of ng-app and ng-model directives in AngularJS?
4. Explain the concept of two-way data binding in AngularJS.
5. How do you use the ng-repeat directive to iterate over an array in AngularJS?
6. What is the difference between ng-show and ng-hide directives?
7. Write an AngularJS expression to display the result of a mathematical calculation.
8. What is the role of a controller in AngularJS? How do you create and use a controller?
9. Explain the concept of dependency injection in AngularJS. How do services fit into this concept?
10. How do you create a simple form in AngularJS using the ng-form directive?
11. What are some common validation rules that can be applied to form fields in AngularJS?
12. What is the purpose of routing in AngularJS? How do you configure routes using the ngRoute module?
13. Explain the concept of modules in AngularJS. Why are they useful for organizing code?
14. What is Firebase? How can it be used in conjunction with AngularJS to build web applications?
15. Briefly describe the role of Docker in web development. How can it be used to deploy AngularJS applications?

PART B

1. Explain the core concepts of AngularJS and discuss how it differs from traditional JavaScript frameworks. Provide examples of how AngularJS enhances web development.
2. Describe the Model-View-Controller (MVC) architecture. How does AngularJS implement the MVC pattern, and what are the advantages of using MVC in web application development?
3. What are ng- attributes in AngularJS? Explain the role of ng-model, ng-bind, and ng-repeat in data binding and dynamic content generation.
4. How do AngularJS expressions work, and what is the significance of data binding in AngularJS applications? Provide examples of one-way and two-way data binding.
5. Discuss the use of conditional directives in AngularJS. Explain how ng-if and ng-show differ and provide examples of when to use each.

6. What are style directives in AngularJS, and how can they be used to conditionally apply CSS classes? Provide examples using ng-class and ng-style
7. Explain the role of controllers in AngularJS. How do controllers interact with views and models? Illustrate with an example of a simple AngularJS controller.
8. What are filters in AngularJS, and how are they used to format data in views? Provide examples of built-in filters like currency, date, and filter.
9. Describe how AngularJS handles forms and form validation. Explain the use of directives like ng-model, ng-submit, and ng-form in managing user input and validation.
10. Define AngularJS modules and their importance in an AngularJS application. Describe how to create and manage modules, and explain their role in application structure and dependency injection.
11. Compare and contrast the following web application frameworks and tools: Firebase, Docker, Node.js, React, and Django. Discuss their primary use cases, strengths, and how they integrate into modern web development workflows.

PART -C

1. Imagine you are tasked with developing a dashboard application that updates real-time data from multiple sources. How would you leverage AngularJS to manage and display this data dynamically? Discuss how AngularJS's features would benefit this use case
2. Develop an AngularJS application where you need to highlight rows in a table based on user actions, such as marking selected items with a specific color. How would you use ng-class or ng-style to achieve this dynamic styling?
3. For an e-commerce application, you need to create a product detail page where the controller manages the product data and handles user interactions like adding items to the cart. How would you structure the controller to handle these responsibilities?
4. Considering UI/UX principles, how would you use AngularJS to enhance user experience in a complex application with multiple interactive elements? Discuss how AngularJS's features contribute to creating a responsive and user-friendly interface.