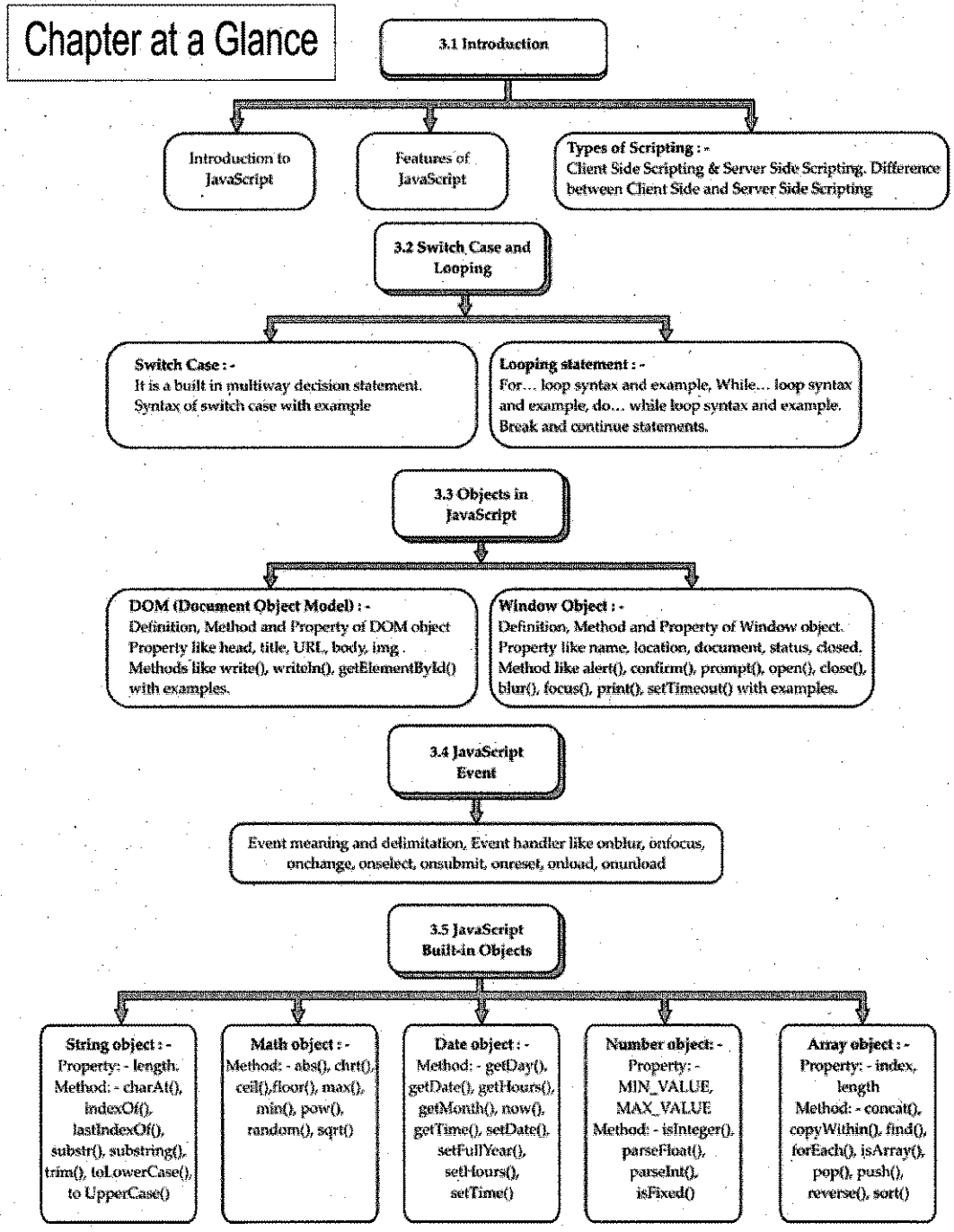
3 Advanced JavaScript

Chapter at a Glance



Fill in the Blanks

3.1 Introduction

1. ..... is an interpreted scripting language.

Ans. : JavaScript

2. ..... is a set of instructions used to produce various kinds of outputs.

Ans. : Program

3. The programs in JavaScript language are called .....

Ans. : Scripts

4. ..... is an object oriented scripting language and supports event based programming facility.

Ans. : JavaScript

5. ..... is platform independent scripting language.

Ans. : JavaScript

6. ..... is knows as Universal client side scripting language.

Ans. : JavaScript

7. In ..... scripting the script resides on the client computer.

Ans. : Client side

8. In ..... scripting the script resides on web server.

Ans. : Server side

9. ..... scripting does not need any server interaction.

Ans. : Client side

10. ..... scripting communicates to the server.

Ans. : Server side

11. ..... scripts are used for validation purpose.

Ans. : Client side.

12. ..... scripts requires web browser as on interface.

Ans. : Client side

13. ..... scripts requires web server software to execute.

Ans. : Server side

14. ..... is a JavaScript based open source frontend web framework developed for single page application.

Ans. : Angular JS

15. ..... is JavaScript based framework for building interactive user interface.

Ans. : Vue Js

16. ..... consists of JavaScript libraries for building UI for single page application and mobile application..

Ans. : React

3.2 Switch case and Looping Structures

17. JavaScript has a built-in multiway decision statement known as .....

Ans. : Switch

18. ..... refers to the execution of statement or a group of statements of code for a fixed number of times.

Ans. : Iteration

19. ..... loop combines initialization, condition and loop iteration in single statement.

Ans. : For

20. ..... means increment or decrement value of a running variable.

Ans. : Iteration

21. ..... statement is used to jump out of loop.

Ans. : Break

22. When it is necessary to skip statement block and take the control at the beginning for next iteration ..... statement is used.

Ans. : Continue

3.3 Objects in JavaScript

23. The ..... keyword is used to create new object in JavaScript.

Ans. : new

24. An ..... can group data together with functions needed to manipulate it.

Ans. : Object

25. All tangible things are known as .....

Ans. : Objects

26. DOM stands for .....

Ans. : Document Object Model

27. The way in which HTML document content is accessed and modified is called as .....

Ans. : Document Object Model

28. ..... property of DOM object returns the <head> element of the document.

Ans. : Head

29. ..... property of DOM object sets or returns title of the document.

Ans. : Title

30. ..... property of DOM object returns URL of the HTML document.

Ans. : URL

31. ..... method of DOM object writes HTML expressions or JavaScript code to a document.

Ans. : write()

32. ..... method of DOM object adds a newline character after each statement.

Ans. : writeln()

33. Using ..... method id properly is used to find an element.

Ans. : getElementById()

34. The ..... property is useful for getting html element and changing its content.

Ans. : innerHTML

35. ..... object is parent of all other objects.

Ans. : window

36. ..... object represents an open window in a browser.

Ans. : window

37. ..... property of window object sets or returns the name of the window.

Ans. : Name

38. ..... property of window object returns the location object for the window.

Ans. : location

39. ..... property of window object returns the document object for the window.

Ans. : document

40. ..... property of window object sets or returns the fact in the status bar of a window.

Ans. : status

41. ..... property of window object returns a Boolean valve indicating whether a window has been closed or not.

Ans. : closed

42. ..... method of window object display the alert box containing message with OK button.

Ans. : alert ()

43. ..... method of window object displays the confirm dialog box containing message with ok and cancel button.

Ans. : confirm()

44. ..... method of window object displays a dialog box to get input from the user.

Ans. : prompt()

45. ..... method of window object opens the new window.

Ans. : open()

46. ..... method of window object closes the current window.

Ans. : close()

47. ..... method of window object removes focus from the current window.

Ans. : blur()

48. ..... method of window object sets focus to the current window.

Ans. : focus()

49. ..... method of window object prints the content of current window.

Ans. : print()

50. ..... method of window object calls a function or evaluates an expression after a specified number of milliseconds.

Ans. : setTimeout()

3.4 JavaScript Events

51. ..... are the actions done by users or an application that occurs on the webpage .

Ans. : Events

52. ..... event handler occurs when user leaves field or looses focus of an element .

Ans. : onblur

53. ..... event handler occurs when an element gets focus .

Ans. : onfocus

54. ..... event handler occurs when user changes content of an element or selects drop down list .

Ans. : onchange

55. ..... event handler occurs when user selects same text of an element .

Ans. : onselect

56. ..... event handler occurs when user clicks submit button .

Ans. : onsubmit

57. ..... event handler occurs when user clicks reset button .

Ans. : onreset

58. ..... event handler occurs when page/image has been loaded .

Ans. : onload

59. ..... event handler occurs when document page has been unloaded or closes .

Ans. : onunload

3.5 JavaScript built-in Objects

60. ..... object is used to store or manipulate text .

Ans. : String

61. ..... property of string object returns number of characters in a string.

Ans. : Length

62. ..... method of string object returns the character at the specified position.

Ans. : charAt()

63. ..... method of string object returns the index of the first occurance of specified character in given string.

Ans. : indexOf()

64. ..... method of string object returns the index of last occurance of specified character in given string.

Ans. : lastIndexOf()

65. ..... method of string object removes whitespace from both sides of a string.

Ans. : trim()

66. ..... method of string object converts a string to lower case.

Ans. : toLowerCase()

67. ..... method of string object convert a string to upper case.

Ans. : toUpperCase()

68. The built in ..... object includes mathematical constants and functions.

Ans. : math

69. ..... method of math object returns the absolute value of a number.

Ans. : abs()

70. ..... method of Math object returns the cube root of a number.

Ans. : cbrt()

71. ..... method of math object returns the next integer grater than or equal to a given number.

Ans. : ceil()

72. ..... method of math object returns the next integer less than or equal to a given number.

Ans. : floor()

73. ..... method of math object returns the highest valued number in a list of numbers.

Ans. : max()

74. ..... method of math object returns the lowest valued number in a list of numbers.

Ans. : min()

75. ..... method of math object returns the base to the exponent power.

Ans. : pow()

76. ..... method of math object returns a random number between 0 and 1.

Ans. : random()

77. ..... method of math object returns the square root of a number.

Ans. : sqrt()

78. ..... object is used to create date and time values.

Ans. : date

79. ..... method of date object returns the day of the month.

Ans. : getDate()

80. ..... method of date object returns the day of the week.

Ans. : getDay()

81. ..... method of date object returns the year.

Ans. : getFullYear()

82. ..... method of date object returns the hour.

Ans. : getHours()

83. ..... method of date object returns the minutes.

Ans. : getMinutes()

84. ..... method of date object returns the month.

Ans. : getMonth()

85. ..... method of date object returns the seconds.

Ans. : getSeconds()

86. ..... method of date object sets the day of the month.

Ans. : setDate()

87. ..... method of date object sets the full year.

Ans. : setFullYear()

88. ..... method sets the hours of a date object.

Ans. : setHours()

89. ..... method sets the minutes of a date object.

Ans. : setMinutes()

90. ..... method sets the month of a date object.

Ans. : setMonth()

91. ..... method sets the seconds of a date object.

Ans. : setSeconds()

92. ..... method sets a date to a specified number of milliseconds after/before Jan 1, 1970.

Ans. : setTime()

93. ..... object helps us to work with number.

Ans. : Number

94. ..... property of Number object returns the largest minimum value.

Ans. : MIN_VALUE

95. ..... property of number object returns the largest maximum value.

Ans. : MAX_VALUE

96. ..... property of Number object represents not a number value.

Ans. : NaN

97. ..... method of number object determines whether the given value is a Integer.

Ans. : isInteger()

98. ..... method of number object converts the given string into a floating point number.

Ans. : parseFloat()

99. ..... method of Number object converts the given string into a integer number.

Ans. : parseInt()

100. ..... method of number object returns the string that represents a umber with exact digits after a decimal point.

Ans. : isFixed()

101. An ..... is an object that can store a collection of items.

Ans. : Array

102. An ..... is a special variable which can hold more than one value at a time.

Ans. : Array

103. The index of the first element of an array is .....

Ans. : Zero

104. ..... is referred to access and set the items in an array.

Ans. : Index Number

105. ..... property of Array object represents the zero based index of the match in the string.

Ans. : Index

106. ..... property of Array object reflect number of elements in array.

Ans. : length

107. ..... method of array object joins two or more arrays and returns a copy of the joined arrays.

Ans. : concat()

108. ..... method of Array object copies array elements within the array, to and from specified position.

Ans. : copyWithin()

109. ..... method of array object returns the value of the first element in an array that satisfies a test in testing.

Ans. : find()

110. ..... method of Array object calls a function for each array element.

Ans. : forEach()

111. ..... method of Array object search the array for an element and returns its position.

Ans. : indexOf()

112. ..... method of array object checks whether an object is an array.

Ans. : isArray()

113. ..... method of array object removes the last element of an array and returns that element.

Ans. : pop()

114. ..... method of array object adds new elements to the end of an array.

Ans. : push()

115. ..... method of array object reverses the order of the elements in an array.

Ans. : reverse()

116. ..... method of array object sorts the elements of an array.

Ans. : sort()

True or False

3.1 Introduction

1. JavaScript is an involved scripting language.

Ans. : False

2. An interpreted language is a type of programming language that executes its instructions directly without compiling machine language.

Ans. : True

3. Program is a set of instructions used to produce various kinds of outputs.

Ans. : True

4. JavaScript was created to destroy web pages.

Ans. : False

5. There is no need of special software to run JavaScript program.

Ans. : True

6. Java script is an object oriented scripting language.

Ans. : True

7. JavaScript is not case sensitive language.

Ans. : False

8. JavaScript helps the browser to perform input validation.

Ans. : True

9. JavaScript cannot handle date and time.

Ans. : False

10. JavaScript has the ability to create new functions within scripts.

Ans. : True

11. Functions are declared in JavaScript using var keyword.

Ans. : False

12. Software that can run on any hardware platform is called as platform independent software.

Ans. : True

13. JavaScript is platform independent scripting language.

Ans. : True

14. There are two types of scripting.

Ans. : True

15. In client side scripting, the script resides on client computer and that can run on the client.

Ans. : True

16. Client side scripts are placed inside HTML document.

Ans. : True

17. In Server side scripting the scripts resides on web server.

Ans. : True

18. Server side scripting is used at the front end.

Ans. : False

19. Client side scripting is used at the front end.

Ans. : True

20. When a server side script is processed it communications to the client.

Ans. : False

21. Client side scripting does not need any server interaction.

Ans. : True

22. PHP, ASP.net etc are server side scripting languages.

Ans. : True

23. Client side scripts are generally used for validation purpose.

Ans. : True

3.2 Switch case and Looping Structures

24. JavaScript has a built-in multiway decision statement known has switch.

Ans. : True

25. There should not be duplicity between the cases.

Ans. : True

26. The value for the case must be similar data type as the variable in switch.

Ans. : True

27. Iteration refers to the execution of statements of code for a fixed number of times till the condition is satisfied.

Ans. : True

28. For loop combines initializing, condition and loop iteration in single statement.

Ans. : True

29. Loop will execute statement in statements block will the condition is false.

Ans. : False

30. Iteration means increment or decrement value of a running variable.

Ans. : True

31. While loop executes statements as long as the condition is false.

Ans. : False

32. Break statement is used to jump out of loop.

Ans. : True

33. Continue statement is used to make early exit from a loop.

Ans. : False

34. Continue statement is used to skip statement block and take the control at the beginning for next iteration.

Ans. : True

3.3 Objects in JavaScript

35. JavaScript is an object based scripting language.

Ans. : True

36. A JavaScript object is an entity having properties and objects.

Ans. : True

37. Properties and methods of object are accessed with "." Operator.

Ans. : True

38. JavaScript supports 4 types of objects.

Ans. : False

39. JavaScript gives facility to create user defined objects.

Ans. : True

40. The new keyword is used to create new object in JavaScript.

Ans. : True

41. DOM stands for Document Original Model.

Ans. : False

42. The way in which HTML document content is accessed and modified is called as DOM.

Ans. : True

43. Head property of DOM object returns the <head> element of the document.

Ans. : True

44. Title property is DOM object returns the name of the document.

Ans. : False

45. URL property of DOM object returns full URL of the HTML document.

Ans. : True

46. Body property of DOM object returns <body> elements respectively.

Ans. : True

47. write() method of DOM object write Java script code to a document.

Ans. : True

48. writeln() method is same as write ( ) method of DOM object.

Ans. : False

49. writeln() method of DOM object adds a new line character after each statement.

Ans. : True

50. The outerHTML property is used to change any HTML element.

Ans. : False

51. window object is parent object of all other objects.

Ans. : True

52. An object of window is created automatically by the browser.

Ans. : True

53. name property of window object sets or returns the name of a window.

Ans. : True

54. location property of window object returns a Boolean value indicating whether a window has been closed or not.

Ans. : False

55. document property of window object returns the document object for the window.

Ans. : True

56. status property of window object sets the name of a window.

Ans. : False

57. alert() method of window object displays the alert box containing message with ok button.

Ans. : True

58. prompt() method of window object displays a dialog box to set output for the user.

Ans. : False

59. confirm() method of window object displays the confirm dialog box containing message with ok and cancel button.

Ans. : True

60. open( ) method of window object removes the focus from the current window.

Ans. : False

61. close() method of window object closes the current window.

Ans. : True

62. blur() method of window object removes focus from the current window.

Ans. : True

63. focus() method of window object removes focus from the current window.

Ans. : False

64. print() method of window object prints the content of current window.

Ans. : True

65. setTimeout() method of window object calls a function after a specified number of milliseconds.

Ans. : True

3.4 JavaScript Events

66. Events are the actions done by the user or an application that occurs on the web page.

Ans. : True

67. onKeyPress, onKeyDown are keyboard events.

Ans. : True

68. onClick, onMouseUp are mouse events.

Ans. : True

69. onblur event handler occurs when an element gets focus.

Ans. : False

70. onfocus event handler occurs which an element gets focus.

Ans. : True

71. onchange event handler occurs when user changes content of an element.

Ans. : True

72. onselect event handler occurs when page image has been loaded.

Ans. : False

73. onsubmit event handler occurs when user clicks submit button.

Ans. : True

74. onreset event handler occurs when user clicks reset button.

Ans. : True

75. onload event handler occurs when document/page has be loaded.

Ans. : True

76. onunload event handler occurs when user clicks on submit button.

Ans. : False

3.5 JavaScript built-in Objects

77. String is used to store zero or more character of text within single or double quotes.

Ans. : True

78. String object is used to store and manipulate numbers.

Ans. : False

79. length property returns the number of characters in a string.

Ans. : True

80. charAt() method of string object returns the character at the specified position.

Ans. : True

81. indexOf() method of string object returns the index of the middle occurrence of the specified character in the given string.

Ans. : False

82. lastIndexOf() method of string object returns the index of the last occurrence of specified character in given string.

Ans. : True

83. substr() method of string object returns the characters you specified.

Ans. : True

84. trim() method of string objects adds the white spaces from both sides of a string.

Ans. : False

85. toLowerCase() method of string object converts a string to capitals.

Ans. : False

86. toUpperCase() method of string object converts the string to upper case.

Ans. : True

87. The Math object includes mathematical constants and functions.

Ans. : True

88. There is no need to create a Math object before using it.

Ans. : True

89. abs() method of math object returns square root of a number.

Ans. : False

90. cbrt() method of math object cube root of a number.

Ans. : True

91. ceil() method of math object returns the next inter greater than or equal to a given number.

Ans. : True

92. floor() method of math object returns the next integer less than or equal to a given number.

Ans. : True

93. max() method of math object returns the smallest valued number of a list of numbers.

Ans. : False

94. min() method of math object returns the power of the number.

Ans. : False

95. pow() method of math object returns the base to the exponent power.

Ans. : True

96. random() method of math object returns a random number between 0 and one.

Ans. : True

97. sqrt() method of math object returns the square root of a number.

Ans. : True

98. The time object is used to create date and time values.

Ans. : False

99. Date object is created using new keyword.

Ans. : True

100. getDate() method of date object returns the day of month.

Ans. : True

101. getDay() method of date object returns the day of the month.

Ans. : False

102. getFullYear() method of date object returns the year.

Ans. : True

103. getHours() method of Date object returns the month.

Ans. : False

104. getMinutes() method of Date object returns minutes.

Ans. : True

105. getMonth() method of Date object returns month name.

Ans. : False

106. getSeconds() method of Date object returns seconds.

Ans. : True

107. getTime() method of Date object returns date.

Ans. : False

108. now() method of Date object returns the number of a milliseconds.

Ans. : True

109. setDate() method of Date object set day of the month of a date object.

Ans. : True

110. setFullYear() method of Date object sets year.

Ans. : True

111. setHours() method of Date object set the seconds.

Ans. : False

112. setMinutes() method of Date objects sets minutes.

Ans. : True

113. setMonth() method of Date object sets month.

Ans. : True

114. setSeconds() method of Date object sets hours.

Ans. : False

115. setTime() method of Date object sets a date to a specified number of milliseconds.

Ans. : True

116. Number object helps us to work with numbers.

Ans. : True

117. MIN_VALUE property of number object returns the largest minimum value.

Ans. : True

118. MAX_ VALUE property of number objects returns the largest minimum value.

Ans. : False

119. NaN property of number of object returns Not a Number value.

Ans. : True

120. isInteger() method of number of object determine whether the given value is a character.

Ans. : False

121. parseFloat() method of number object converts the given string into a floating point number.

Ans. : True

122. parseInt() method of number object converts the given string into a integer number.

Ans. : True

123. isFixed() method of number object returns the string that represents a number with exact digits after a decimal point.

Ans. : True

124. An array is an object that can store a collection of items.

Ans. : True

125. Arrays are used to store single value in single variable.

Ans. : False

126. Items of array can be accessed by referring to its index number.

Ans. : True

127. Index of first element of an array is one.

Ans. : False

128. marks[0] is the first element of the array.

Ans. : True

129. Index property of Array object represents two based index of the matching the string.

Ans. : False

130. Length property of Array object reflects number of elements in array.

Ans. : True

131. concat() method of Array object joins two or more arrays and returns a copy of joined array.

Ans. : True

132. copyWithin() method of Array object adds array elements within the array to and from a specified positions.

Ans. : False

133. find() method of Array object returns the value of the first element in an array that satisfies a test in testing.

Ans. : True

134. forEach() method of Array object search the array and returns it's position.

Ans. : False

135. indexOf() method of Array object search the array for an element and returns its position.

Ans. : True

136. isArray( ) method of Array object removes element from array.

Ans. : False

137. pop() method of Array objects removes the last element of an array and returns that element.

Ans. : True

138. push() method of Array object add new elements to the end of an array and returns the new length.

Ans. : True

139. reverse() method of Array object returns the elements in an array.

Ans. : False

140. sort() method of Array object sorts the elements of an array.

Ans. : True

MCQ (One Correct Answers)

3.1 Introduction

1. ..... is an interpreted scripting language.

(a) PHP (b) C++ (c) HTML (d) JavaScript

Ans. : (d)

2. ..... is a set of instructions used to produce various kinds of outputs.

(a) Design (b) Software (c) Program (d) Hardware

Ans. : (c)

3. The programs in JavaScript language are called .....

(a) Website (b) Scripts (c) Web server (d) Software

Ans. : (b)

4. ..... is an object oriented scripting language and supports event based programming facility.

(a) JavaScript (b) C++ (c) Excel (d) Word

Ans. : (a)

5. ..... is platform independent scripting language.

(a) MSWord (b) JavaScript (c) PHP (d) C++

Ans. : (b)

6. ..... is knows as Universal client side scripting language.

(a) Word (b) Powerpoint (c) Tally (d) JavaScript

Ans. : (d)

7. In ..... scripting the script resides on the client computer.

(a) Client Side (b) Server Side (c) My Side (d) Website

Ans. : (a)

8. In ..... scripting the script resides on the web server.

(a) Client side (b) My side (c) Server Side (d) Website

Ans. : (c)

9. ..... scripting does not need any server interaction.

(a) Server Side (b) Website (c) My side (d) Client Side

Ans. : (d)

10. ..... scripting communicates to the server.

(a) Client Side (b) Software Side

(c) Server Side (d) Website

Ans. : (c)

11. ..... scripts are used for validation purpose.

(a) Client Side (b) Server Side (c) Website (d) Web Browser

Ans. : (a)

12. ..... scripts requires web browser as on interface.

(a) Server Side (b) Webpage (c) Website (d) Client Side

Ans. : (d)

13. ..... scripts requires web server software to execute.

(a) Client Side (b) Server Side (c) Peer (d) Home

Ans. : (b)

14. ..... is a JavaScript based open source frontend web framework developed for single page application.

(a) Vue JS (b) Response (c) Angular JS (d) React

Ans. : (c)

15. ..... is JavaScript based framework for building interactive user interface.

(a) Vue JS (b) Response (c) React (d) Uue JS

Ans. : (a)

16. ..... consists of JavaScript libraries for building UI for single page application and mobile application..

(a) Angular JS (b) Vue JS (c) Respond (d) React

Ans. : (d)

17. Functions in JavaScript are declared using ..... Keyword.

(a) Function (b) Object (c) Method (d) var

Ans. : (a)

3.2 Switch case and Looping Structures

18. JavaScript has a built-in multiway decision statement known as .....

(a) Condition (b) Switch (c) Break (d) Continue

Ans. : (b)

19. ..... refers to the execution of statement or a group of statements of code for a fixed number of times.

(a) Statement (b) Function (c) Iteration (d) Method

Ans. : (c)

20. ..... loop combines initialization, condition and loop iteration in single statement.

(a) for (b) Break (c) Switch (d) Continue

Ans. : (a)

21. ..... means increment or decrement value of a running variable.

(a) Switch (b) Method (c) Object (d) Iteration

Ans. : (d)

22. ..... statement is used to jump out of loop.

(a) Respond (b) Continue (c) Break (d) React

Ans. : (c)

23. What it is necessary to skip statement block and take the control at the beginning for next iteration ..... statement is used.

(a) Break (b) Continue (c) React (d) Response

Ans. : (b)

3.3 Objects in JavaScript

24. The ..... keyword is used to create new object in JavaScript.

(a) Next (b) Wend (c) Loop (d) New

Ans. : (d)

25. An ..... can group data together with functions needed to manipulate it.

(a) Method (b) Function (c) Object (d) Response

Ans. : (c)

26. All tangible things are known as .....

(a) Method (b) Objects (c) Function (d) Variable

Ans. : (b)

27. DOM stands for .....

(a) Document Object Model (b) Document One Model

(c) Design One Model (d) Document Object Manage

Ans. : (a)

28. The way in which HTML document content is accessed and modified is called as .....

(a) Design Object Model (b) Develop Object Model

(c) Do Object Model (d) Document Object Model

Ans. : (d)

29. ..... property of DOM object returns the <head> element of the document.
(a) head (b) body (c) title (d) link

Ans. : (a)

30. ..... property of DOM object sets or returns title of the document.
(a) head (b) body (c) source (d) Title

Ans. : (d)

31. ..... property of DOM object returns URL of the HTML document.
(a) SRC (b) HREF (c) URL (d) LINK

Ans. : (c)

32. ..... method of DOM object writes HTML expressions or JavaScript code to a document.
(a) write() (b) read() (c) close() (d) ReadOnly()

Ans. : (a)

33. ..... method of DOM object adds a new line character after each statement.
(a) close() (b) writeln() (c) read() (d) readOnly()

Ans. : (b)

34. Using ..... method id property is used to find an element.
(a) write (b) URL (c) writeln (d) getElementById()

Ans. : (d)

35. The ..... property is useful for getting html element and changing its content.
(a) write (b) URL (c) innerHTML (d) writeln

Ans. : (c)

36. ..... object is parent of all other objects.
(a) window (b) math (c) string (d) number

Ans. : (a)

37. ..... object represents an open window in a browser.
(a) Math (b) Array (c) String (d) Window

Ans. : (d)

38. ..... property of window object sets or returns the name of the window.
(a) location (b) name (c) document (d) status

Ans. : (b)

39. ..... property of window object returns the location object for the window.

(a) Window (b) Array (c) Math (d) Document

Ans. : (d)

40. ..... property of window object returns the location object for the window.

(a) name (b) location (c) status (d) closed

Ans. : (b)

41. ..... property of window object sets or returns the text in the status bar of a window.

(a) name (b) location (c) status (d) closed

Ans. : (c)

42. ..... property of window object returns a Boolean valve indicating whether a window has been closed or not.

(a) closed (b) status (c) document (d) name

Ans. : (a)

43. ..... method of window object display the alert box containing message with OK button.

(a) open() (b) close() (c) alert() (d) prompt()

Ans. : (c)

44. ..... method of window object displays the confirm dialog box containing message with ok and cancel button.

(a) blur() (b) confirm() (c) print() (d) focus()

Ans. : (b)

45. ..... method of window object displays a dialog box to get input from the user.

(a) alert() (b) open() (c) confirm() (d) prompt()

Ans. : (d)

46. ..... method of window object opens the new window.

(a) open() (b) close() (c) focus() (d) blur()

Ans. : (a)

47. ..... method of window object closes the current window.

(a) open() (b) close() (c) blur() (d) alert()

Ans. : (b)

48. ..... method of window object removes focus from the current window.

(a) print() (b) open() (c) prompt() (d) blur()

Ans. : (d)

49. ..... method of window object sets focus to the current window.

(a) focus() (b) open() (c) blur() (d) close()

Ans. : (a)

50. ..... method of window object prints the content of current window.

(a) alert() (b) setTimeout()

(c) print() (d) open()

Ans. : (d)

51. ..... method of window object calls a function or evaluates an expression after a specified number of milliseconds.

(a) open() (b) setTimeout()

(c) blur() (d) focus()

Ans. : (b)

3.4 JavaScript Events

52. ..... are the actions done by users or an application that occurs on the webpage .

(a) Events (b) Methods (c) Object (d) Functions

Ans. : (a)

53. ..... event occurs when user leaves or looses focus of an element.

(a) onchange (b) onblur (c) onfocus (d) onload

Ans. : (b)

54. ..... event occurs when an element gets focus .

(a) onload (b) onblur (c) onfocus (d) onchange

Ans. : (c)

55. ..... event occurs when user changes content of an element or selects drop down value .

(a) onblur (b) onfocus (c) onload (d) onchange

Ans. : (d)

56. ..... event occurs when user selects some text of an element .

(a) onselect (b) onblur (c) onchange (d) onsubmit

Ans. : (a)

57. ..... event occurs when user clicks submit button .

(a) onblur (b) onchange (c) onfocus (d) onsubmit

Ans. : (d)

58. ..... event occurs when user clicks reset button .

(a) onload (b) onreset (c) onchange (d) onsubmit

Ans. : (d)

59. ..... event occurs when page/image has been loaded .

(a) onblur (b) onsubmit (c) onload (d) onunload

Ans. : (c)

60. ..... event occurs when document page has been unloaded or closes .

(a) onsubmit (b) onunload (c) onselect (d) onload

Ans. : (b)

3.5 JavaScript built-in Objects

61. ..... object is used to store or manipulate text .

(a) Math (b) Date (c) Number (d) String

Ans. : (d)

62. ..... property of string object returns number of characters in a string.

(a) value (b) length (c) object (d) len

Ans. : (b)

63. ..... method of string object returns the character at the specified position.

(a) indexOf() (b) substr() (c) charAt() (d) trim()

Ans. : (c)

64. ..... method of string object returns the index of the first occurrence of specified character in given string.

(a) indexOf() (b) substr() (c) substring() (d) trim()

Ans. : (a)

65. ..... method of string object returns the index of last occurrence of specified character in given string.

(a) substr() (b) charAt() (c) lastIndexOf() (d) trim()

Ans. : (c)

66. ..... method of string object removes white space from both sides of a string.

(a) trim() (b) substr() (c) indexOf() (d) substring()

Ans. : (a)

67. ..... method of string object converts a string to lower case.

(a) toUpperCase() (b) substr()

(c) trim() (d) toLowerCase()

Ans. : (d)

68. ..... method of string object converts a string to upper case.

(a) toLowerCase() (b) toUpperCase()

(c) trim() (d) substring()

Ans. : (b)

69. The built in ..... object includes mathematical constants and functions.
(a) String (b) Date (c) Math (d) Math
Ans. : (c)

70. ..... method of math object returns the absolute value of a number.
(a) abs() (b) cbrt() (c) min() (d) sqrt()
Ans. : (a)

71. ..... method of Math object returns the cube root of a number.
(a) sqrt() (b) max() (c) ceil() (d) cbrt()
Ans. : (d)

72. ..... method of math object returns the next integer grater than or equal to a given number.
(a) abs() (b) cbrt() (c) ceil() (d) floor()
Ans. : (c)

73. ..... method of math object returns the next integer less than or equal to a given number.
(a) abs() (b) floor() (c) min() (d) max()
Ans. : (b)

74. ..... method of math object returns the highest valued number in a list of numbers.
(a) min() (b) pow() (c) sqrt() (d) max()
Ans. : (d)

75. ..... method of math object returns the lowest valued number in a list of numbers.
(a) pow() (b) max() (c) min() (d) floor()
Ans. : (c)

76. ..... method of math object returns the base to the exponent power.
(a) pow() (b) floor() (c) abs() (d) cbrt()
Ans. : (a)

77. ..... method of math object returns a random number between 0 and 1.
(a) abs() (b) random() (c) pow() (d) sqrt()
Ans. : (b)

78. ..... method of math object returns the square root of a number.
(a) cbrt() (b) ceil() (c) sqrt() (d) abs()
Ans. : (c)

79. ..... object is used to create date and time values.
(a) math (b) Date (c) string (d) Number
Ans. : (b)

80. ..... method of date object returns the day of the month.

(a) getDay() (b) getHours() (c) getMonth() (d) getDate()

Ans. : (d)

81. ..... method of date object returns the day of the week.

(a) getDay() (b) getHours() (c) getMonth() (d) getDate()

Ans. : (a)

82. ..... method of date object returns the year.

(a) getDate() (b) setSeconds() (c) getFullYear() (d) setDate()

Ans. : (c)

83. ..... method of date object returns the hour.

(a) getHours() (b) now() (c) getTime() (d) setHours()

Ans. : (a)

84. ..... method of date object returns the minutes.

(a) getHours() (b) getMonth() (c) now() (d) getMinutes()

Ans. : (d)

85. ..... method of date object returns the month.

(a) getSeconds() (b) getMonth()

(c) setHours() (d) getTime()

Ans. : (b)

86. ..... method of date object returns the seconds.

(a) getSeconds() (b) getDate()

(c) getMonth() (d) now()

Ans. : (a)

87. ..... method of date object sets the day of the month.

(a) setHours() (b) setTime() (c) setDate() (d) setMinutes()

Ans. : (c)

88. ..... method of date object sets the full year.

(a) setTime() (b) setFullYear() (c) now() (d) getMonth()

Ans. : (b)

89. ..... method sets the hours of a date object.

(a) now() (b) getDay() (c) getMonth() (d) setHours()

Ans. : (d)

90. ..... method sets the minutes of a date object.

(a) setMinutes() (b) getDay() (c) now() (d) setHours()

Ans. : (a)

91. ..... method sets the month of a date object.

(a) setTime() (b) getDay() (c) setMonth() (d) getDate()

Ans. : (c)

92. ..... method sets the seconds of a date object.

(a) setHours() (b) setSeconds() (c) setMonth() (d) setTime()

Ans. : (b)

93. ..... method sets a date to a specified number of milliseconds after/before Jan 1, 1970.

(a) setTime() (b) setSeconds() (c) now() (d) setHours()

Ans. : (a)

94. ..... object helps us to work with number.

(a) Math (b) Number (c) Array (d) Date

Ans. : (b)

95. ..... property of Number object returns the largest minimum value.

(a) MAX_VALUE (b) NaN

(c) MIN_VALUE (d) Fixed

Ans. : (c)

96. ..... property of number object represents not a number value.

(a) NaN (b) Value (c) Fixed (d) Index

Ans. : (a)

97. ..... Method of Number object determines whether the given value is a integer.

(a) parseFloat() (b) isFixed() (c) isInteger() (d) parseInt()

Ans. : (c)

98. ..... method of number object determines whether the given value is Integer.

(a) parseFloat() (b) parseInt() (c) isFixed() (d) NaN

Ans. : (a)

99. ..... method of number object converts the given string into a integer number.

(a) isInteger() (b) isFixed() (c) parseFloat() (d) parseInt()

Ans. : (d)

100. ..... method of Number object returns the string that represents a number with exact digits after a decimal point.

(a) isInteger() (b) isFixed() (c) parseInt() (d) parseFloat()

Ans. : (b)

101. How to declare string variable ?

(a) var str – new str ( );
(b) var a = I. T.;
(c) a = str. Str;
(d) var str = "Information Technology";

Ans. : (d)

102. An ..... is an object that can store a collection of items.

(a) Array (b) String (c) Number (d) Math

Ans. : (a)

103. ..... are used to hold more than one value at a time.

(a) Number (b) Math (c) Array (d) Date

Ans. : (c)

104. To create an array in JavaScript the correct method is .....

(a) var d = new d [one, two, three]
(b) var d = (one, two three)
(c) var arr = ["One", "Two", "Three"]
(d) var d = (One), (Two), (Three)

Ans. : (c)

105. To access and set the items in any array ..... is referred.

(a) indexnumber
(b) element
(c) array
(d) object

Ans. : (a)

106. The index of the first element of an array is .....

(a) One (b) Two (c) Three (d) Zero

Ans. : (d)

107. ..... property of Array object represents the zero based index of the match in the string.

(a) index (b) length (c) NaN (d) Close

Ans. : (a)

108. ..... property of Array object reflect number of elements in array.

(a) index (b) length (c) NaN (d) Value

Ans. : (b)

109. ..... method of Array object joins two or more arrays, and returns a copy of the joined arrays.

(a) find() (b) concat() (c) indexOf() (d) pop()

Ans. : (b)

110. ..... method of Array object copies array elements within the array, to and from specific positions.

(a) find() (b) search() (c) copyWithin() (d) indexOf()

Ans. : (c)

111. ..... method of Array object returns the value of the first element in an array that satisfies a test in testing.

(a) concat() (b) pop() (c) push() (d) find()

Ans. : (d)

112. ..... method of Array object calls a function for each array element.

(a) concat() (b) forEach() (c) pop() (d) push()

Ans. : (b)

113. ..... method of Array object search the array for an element and returns its position.

(a) concat() (b) forEach() (c) indexOf() (d) pop()

Ans. : (c)

114. ..... method of Array object checks whether an object is an array.

(a) find() (b) pop() (c) forEach() (d) isArray()

Ans. : (d)

115. ..... method of Array object removes the last element of an array and returns that element.

(a) pop() (b) push() (c) find() (d) reverse()

Ans. : (a)

116. ..... method of Array object add new elements to the end of an array, and returns the new length.

(a) pop() (b) push() (c) sort() (d) find()

Ans. : (b)

117. ..... method of Array object reverses the order of the elements in an array.

(a) find() (b) isArray() (c) pop() (d) reverse()

Ans. : (d)

118. ..... method of Array object sorts the elements of an array.

(a) concat() (b) sort() (c) pop() (d) find ()

Ans. : (b)

MCQ (Two Correct Answers)

3.1 Introduction

1. Features of JavaScript are .....

(a) It needs special software

(b) JavaScript is light weight scripting language

(c) Cannot create new function

(d) It is object oriented scripting

Ans. : (b), (d)

2. There are two types of Scripting .....
   (a) Server side (b) My side (c) Browser side (d) Client side

Ans. : (a), (d)

3. Client Side Scripting .....
   (a) These scripts are paced inside HTML document
   (b) In this type the script resides on Client Computer.
   (c) In this type, the script resides on web server
   (d) To execute script it must be activated by client then it is executed on web server.

Ans. : (a), (b)

3.2 Switch case and Looping Structures

4. Types of loops in JavaScript are .....
   (a) for .....loop (b) while .....loop
   (c) for .....next (d) while .....wend

Ans. : (a), (b)

5. Correct method of for loop are .....

(a)
```
for (i = 1; i< = 5; i++)
    {
    document . write(i);
        }
```

(b)
```
for (i = 1, i! = 4);
    {
    document.write (i);
    }
```

(c)
```
for (i = 1; i < = 5; i + +)
    {
    document.writeln(i);
    }
```

(d)
```
{i – 1, ic = 5, i ++)
    {
     document.write (i),
    }
```

Ans. : (a), (c)

3.3 Objects in JavaScript

6. JavaScript supports following types of objects .....
   (a) Variables (b) built-in objects
   (c) User defined objects (d) loops

Ans. : (b), (c)

7. Following are the built in objects in JavaScript .....
   (a) Math (b) Time (c) Array (d) Month

Ans. : (a), (c)

8. Following are the properties of Document Object Model .....
   (a) Src (b) head (c) URL (d) title

Ans. : (a), (c)

9. Following are the methods of Document Object Model .....
   (a) body (b) write() (c) URL (d) writeln()

Ans. : (b), (d)

10. Following are the properties of Window object .....
    (a) name (b) location (c) alert() (d) confirm()

Ans. : (a), (b)

11. Following are the methods of Window object .....
    (a) open() (b) status (c) closed (d) close()

Ans. : (a), (d)

12. confirm() method of window object displays confirm dialog box containing message with ..... and ..... button.
    (a) GO (b) OK (c) Cancel (d) Click

Ans. : (b), (c)

3.4 JavaScript Events

13. Following are the event handlers in JavaScript .....
    (a) onsubmit (b) write() (c) onchange (d) writeln()

Ans. : (a), (c)

3.5 JavaScript built-in Objects

14. Following are the methods of string objects .....
    (a) chartAt() (b) width (c) length (d) trim()

Ans. : (a), (d)

15. To find the highest and lowest valued number in a list of numbers which Math Object methods are used in JavaScript .....
    (a) ceil() (b) sqrt() (c) max() (d) min()

Ans. : (c), (d)

16. Following are the methods of Math objects .....
    (a) substr() (b) abs() (c) trim() (d) random()

Ans. : (b), (d)

17. In JavaScript following methods of String object returns the characters you specified.
    (a) substring() (b) indexOf() (c) substr() (d) lastIndexOf()

Ans. : (a), (c)

18. Different ways to create new Date object are .....

(a) var d = new Date(); (b) var d = Date()

(c) var d = month() (d) var d = new Date (DateString);

Ans. : (a), (d)

19. Following are the methods of Date object .....

(a) setDateTime() (b) getDateTime()

(c) getTime() (d) getDay()

Ans. : (c), (d)

20. Following properties of Number Object returns the largest minimum and maximum value .....

(a) MIN_VALUE (b) MAX_VALUE

(c) toLowerCase() (d) toUpperCase()

Ans. : (a), (b)

21. Following are the properties of Number Object in Javascript .....

(a) lowercase (b) Uppercase (c) NaN (d) MAX_VALUE

Ans. : (c), (d)

22. Following are the methods of Number of object in JavaScript .....

(a) NaN (b) parseInt() (c) isFixed() (d) toLowercase()

Ans. : (b), (c)

23. Following methods are used to create Array variable in JavaScript .....

(a) var a = "One, two",

(b) var – a ["One", "Two", "Three"];

(c) array a = ("One", "Two"),

(d) var a = new Array ("One", "Two", "Three");

Ans. : (b), (d)

24. Following are the properties of Array object in JavaScript .....

(a) index (b) isFixed (c) concat (d) length

Ans. : (a), (d)

25. Following are the methods of Array object in JavaScript .....

(a) index (b) length (c) forEach() (d) isArray()

Ans. : (c), (d)

26. Following methods of Date object returns the number of miliseconds

(a) getTime() (b) getDate() (c) getTime() (d) now()

Ans. : (c), (d)

27. The Date object is used to create ..... and ..... values.
(a) date (b) string (c) Time (d) Number

Ans. : (a), (c)

28. The built-in Math object includes mathematical ..... and .....
(a) constants (b) functions (c) objects (d) values

Ans. : (a), (b)

MCQ (Three Correct Answers)

3.1 Introduction

1. Features of JavaScript are .....
(a) Need of special software (b) It can handle date and time effectively
(c) It cannot create new functions (d) It can not create new functions
(e) It supports event based programming
(f) It is platform dependent scripting language

Ans. : (b), (c), (e)

2. Server Side Scripting .....
(a) It is used as front end (b) Does not need any server interactions
(c) Involves languages such as HTML5, JavaScript etc.
(d) It is used as back end (e) Special software is required to execute
(f) Script resides on web server

Ans. : (d), (e), (f)

3. Popular Framework /libraries .....
(a) HTML (b) Angular JS (c) Network Frame
(d) Vue Js (e) React (f) Switch Case

Ans. : (b), (d), (e)

3.2 Switch case and Looping Structures

4. Java Script looping statements are .....
(a) for ..... loop (b) switch case
(c) while ..... loop (d) if
(e) if else if (f) Do while ..... loop

Ans. : (a), (c), (f)

3.3 Objects in JavaScript

5. JavaScript built in objects are .....
   (a) Math (b) String (c) Number
   (d) Time (e) Month (f) Year

Ans. : (a), (b), (c)

6. Properties of Document Object Model are .....
   (a) write (b) writeln (c) title
   (d) URL (e) writeln () (f) head

Ans. : (c), (d, (f)

7. Methods of Document Object Model are .....
   (a) write() (b) getElementById() (c) URL
   (d) head (e) SRC (f) writeln()

Ans. : (a), (b), (f)

8. Methods of Window Object are .....
   (a) Name (b) blur() (c) location (d) focus()
   (e) closed (f) setTimeOut()

Ans. : (b), (d), (f)

9. Select three correct properties of Window Object .....
   (a) close (b) name (c) print (d) status
   (e) open (f) closed

Ans. : (b), (d), (f)

3.4 JavaScript Events

10. Select three correct event handlers in JavaScript .....
    (a) close (b) open (c) onsubmit (d) onchange
    (e) onunload (f) write

Ans. : (c), (d),(e)

3.5 JavaScript built-in Objects

11. Methods of string object are .....
    (a) substr() (b) length (c) toLowerCase()
    (d) abs (e) indexOf() (f) ceil

Ans. : (a), (c), (e)

12. Methods of Math object are .....
    (a) sqrt() (b) substr() (c) indexOf() (d) random ( )
    (e) close() (f) floor ( )

Ans. : (a), (d), (f)

13. Methods of Date objects are .....

(a) trim() (b) getDay() (c) getHours() (d) indexOf()

(e) getTime() (f) charAt()

Ans. : (b), (c), (e)

14. Different ways to create new date object are .....

(a) var d = new Date(); (b) var d = Date()

(c) var d = date new() (d) var d = new Date(DateString);

(e) var d = new Date (date String) (f) var d = new Date(miliseconds);

Ans. : (a), (d), (f)

15. Properties of Number objects are .....

(a) length (b) onblur

(c) onfocus (d) MIN_VALUE

(e) MAX_VALUE (f) NaN

Ans. : (d), (e), (f)

16. Select three correct methods of Number object .....

(a) NaN (b) parseFloat() (c) isFixed()

(d) length (e) index (f) isInteger()

Ans. : (b), (c), (f)

17. Methods of Array object are .....

(a) sort() (b) indexof() (c) isFixed()

(d) forEach() (e) isInteger() (f) parseInt()

Ans. : (a), (b), (d)

Match the Following

3.2 Switch Case and Looping Structures

(I)

	A		B
(1)	Switch case	(a)	Combines initialization, condition and loop iteration
(2)	For loop	(b)	Skip statement block and take the control at the beginning for next iteration
(3)	Break	(c)	Server side script
(4)	Continue	(d)	Used to jump out of loop
		(e)	Decision statement

Ans. : (1) – (e), (2) – (a), (3) – (d), (4) – (b)

3.3 Objects in JavaScript

(I)

	A		B
(1)	Head	(a)	Returns title of the document
(2)	Title	(b)	Returns <body> <img> elements
(3)	URL	(c)	Returns URL of document
(4)	Body, img	(d)	Returns <head> element of the document
		(e)	Writes expression

Ans. : (1) – (d), (2) – (a), (3) – (c), (4) – (b)

(II)

	A		B
(1)	DOM	(a)	Defines logical structure of document
(2)	write()	(b)	Client Side Script
(3)	writeln()	(c)	In which id property is used to find element
(4)	getElementById()	(d)	Writes JavaScript Code
		(e)	Writes JavaScript code to a document by adding new line after each statement

Ans. : (1) – (a), (2) – (d), (3) – (e), (4) – (c)

(III)

	A		B
(1)	Location	(a)	Sets name of the window
(2)	Document	(b)	Returns Boolean value indicating whether a window
(3)	Status	(c)	Returns document object of window
(4)	Closed	(d)	Returns the text in the status bar of a window
(5)	Name	(e)	Returns the location object for the window

Ans. : (1) – (e), (2) – (c), (3) – (d), (4) – (b), (5) – (a)

(IV)

	A		B
(1)	Window object	(a)	Displays dialog box containing message with ok and cancel button
(2)	alert()	(b)	Opens the new window
(3)	confirm()	(c)	Displays dialog box to get input from the user
(4)	prompt()	(d)	Parent object of all other objects
(5)	open()	(e)	Displays box with ok button

Ans. : (1) – (d), (2) – (e), (3) – (a), (4) – (c), (5) – (b)

(V)

	A		B
(1)	close()	(a)	Removes focus from the current window
(2)	blur()	(b)	Prints the content of current window
(3)	focus()	(c)	Closes the current window
(4)	print()	(d)	Calls a function after specified number of miliseconds
(5)	setTimeOut()	(e)	Sets focus to the current window

Ans. : (1) – (c), (2) – (a), (3) – (e), (4) – (b), (5) – (d)

3.4 JavaScript Events

(I)

	A		B
(1)	On blur	(a)	Occurs when user changes content of an element
(2)	On focus	(b)	Occurs when user selects some text of an element
(3)	On change	(c)	Occurs when an element get focus
(4)	On select	(d)	Occurs when user leaves field or losses focus of an element
		(e)	Closes window

Ans. : (1) – (d), (2) – (c), (3) – (a), (4) – (b)

(II)

	A		B
(1)	Onsubmit	(a)	Occurs when user clicks on reset button
(2)	Onreset	(b)	Prints the contents of the window
(3)	Onload	(c)	Occurs when document page has been unloaded or closes
(4)	Onunload	(d)	Occurs when user clicks submit button
		(e)	Occurs when page image has been loaded

Ans. : (1) – (d), (2) – (a), (3) – (e), (4) – (c)

3.5 JavaScript built-in Objects

(I)

	A		B
(1)	Length	(a)	Returns the character at the specified position
(2)	chartAt()	(b)	Returns the index of last occurrence of specified character in given story
(3)	indexOf()	(c)	Returns the characters you specified
(4)	lastIndexOf()	(d)	Returns the index of the first occurrence of the character
(5)	substr()	(e)	Returns a number of character in a string

Ans. : (1) – (e), (2) – (a), (3) – (d), (4) – (b), (5) – (c)

(II)

	A		B
(1)	substring()	(a)	Returns the characters you specified
(2)	trim()	(b)	Converts a string into lower case
(3)	toLowerCase()	(c)	Returns length of string
(4)	toUpperCase()	(d)	Converts the string into Upper case
		(e)	Removes white spaces from both sides of a string

Ans. : (1) – (a), (2) – (e), (3) – (b), (4) – (d)

(III)

	A		B
(1)	abs()	(a)	Returns next integer greater than or equal to a given number
(2)	cbrt()	(b)	Returns the highest valued number in a list of Numbers
(3)	ceil()	(c)	Returns the absolute value of a number
(4)	floor()	(d)	Returns the cube root of a number
(5)	max()	(e)	Returns next integer less than or equal to a given number

Ans. : (1) – (c), (2) – (d), (3) – (a), (4) – (e), (5) – (b)

(IV)

	A		B
(1)	min()	(a)	Returns the base to the exponent power
(2)	pow()	(b)	Returns the square root of a number
(3)	random()	(c)	Returns the cube root of a number
(4)	sqrt()	(d)	Returns a random number between 0 and 1
		(e)	Returns the lowest valued number in a list of number

Ans. : (1) – (e), (2) – (a), (3) – (d), (4) – (b)

(V)

	A		B
(1)	getDate()	(a)	Returns the year
(2)	getDay()	(b)	Returns the Time
(3)	getFullYear()	(c)	Returns the day of the week
(4)	getHours()	(d)	Returns the hour
		(e)	Returns the day of the month

Ans. : (1) – (e), (2) – (c), (3) – (a), (4) – (d)

(VI)

	A		B
(1)	getMinutes()	(a)	Returns the number of miliseconds
(2)	getMonth()	(b)	Returns the minutes
(3)	getSeconds()	(c)	Sets the month
(4)	getTime()	(d)	Returns the month
		(e)	Returns the seconds

Ans. : (1) – (b), (2) – (d), (3) – (e), (4) – (a)

(VII)

	A		B
(1)	setHours()	(a)	Sets the days of the month of a date object
(2)	now()	(b)	Returns the year
(3)	setDate()	(c)	Set the full year of a date object
(4)	setFullYear()	(d)	Returns the number of miliseconds
		(e)	Sets the hours of a date object

Ans. : (1) – (e), (2) – (d), (3) – (a), (4) – (c)

(VIII)

	A		B
(1)	setMinutes()	(a)	Sets the month of a date object
(2)	setMonth()	(b)	Set a date to a specified number of miliseconds
(3)	setSeconds()	(c)	Returns day of the week
(4)	setTime()	(d)	Set the minutes of a date object
		(e)	Sets the seconds of a date object

Ans. : (1) – (d), (2) – (a), (3) – (e), (4) – (b)

(IX)

	A		B
(1)	MIN_VALUE	(a)	Represent not a Number value
(2)	MAX_VALUE	(b)	Determines whether the given value is a Integer
(3)	NaN	(c)	Returns the largest minimum value
(4)	isInteger( )	(d)	Converts string into Floating point number
		(e)	Returns the largest maximum value

Ans. : (1) – (c), (2) – (e), (3) – (a), (4) – (b)

(X)

	A		B
(1)	parseFloat()	(a)	Used to create date and time values
(2)	parseInt()	(b)	Returns the string that represents a number with exact digits after a decimal point
(3)	isFixed()	(c)	Converts a given string into a floating point number
(4)	Date object	(d)	Converts the given string into integer number

Ans. : (1) – (c), (2) – (d), (3) – (b), (4) – (a)

(IX)

	A		B
(1)	concat()	(a)	Returns the value of the first element in an array that satisfies a test
(2)	copyWithin()	(b)	Search the array for an element and return its position
(3)	find()	(c)	Calls a function for each array element
(4)	forEach()	(d)	Joint two or more arrays and returns a copy of joined array
(5)	indexOf()	(e)	Copies array elements within the array, to and from specified positions.

Ans. : (1) – (d), (2) – (e), (3) – (a), (4) – (c), (5) – (b)

(XII)

	A		B
(1)	isArray()	(a)	Adds a new elements to the end of an array, and returns the new length
(2)	pop()	(b)	Sorts the elements of an array
(3)	Push()	(c)	Reverse the order of the elements in an array
(4)	reverse()	(d)	Checks whether an object is an array
(5)	sort( )	(e)	Removes the last element of an array, and returns the element

Ans. : (1) – (d), (2) – (e), (3) – (a), (4) – (c), (5) – (b)

JavaScript Theory with Examples

3.2 Switch case and Looping Structures

Switch Case :

The switch statement is used to perform different actions based on different conditions.

Syntax

```
switch(expression)
 {
  case x:
    // code block
    break;
  case y:
    // code block
    break;
  default:
    // code block
}
```

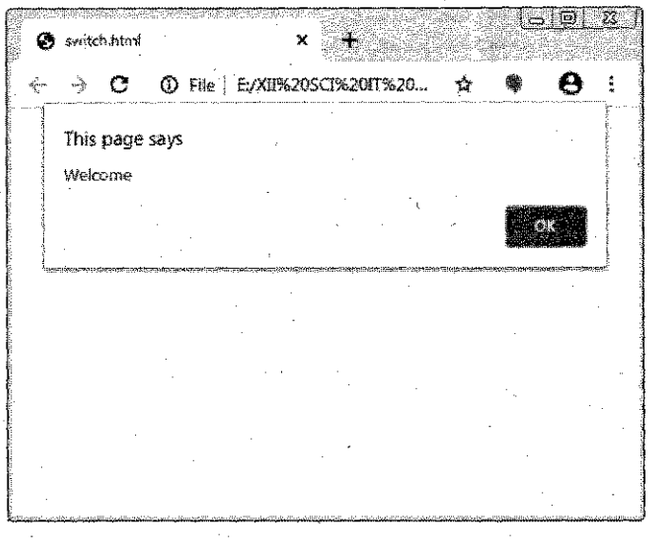
Example : Program to print 4 different Greeting messages using switch case

Coding :

```
<html>
<script type="text/javascript">
var msg=2;
switch(msg)
{
case 1:
alert("Hello");
break;
case 2:
alert("Welcome");
break;
case 3:
alert("How r u");
break;
```

```
case 4:
alert("Take care Good bye");
break;
default:
alert("Invalid choice");
}
</script>
</html>
```

Coding :



Looping statement : Loops can execute a block of code a number of times.

For Loop

Syntax

```
The for loop has the following syntax:
For (initialization; condition; iteration)
 {
code block to be executed
}
```

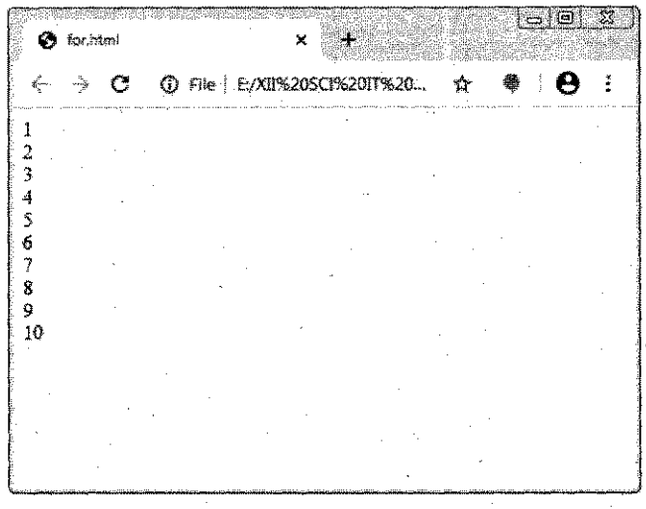
Example : Program to print numbers from 1 to 10 using for loop.

Coding :

```
<html>
<script type="text/javascript">
```

```
var i;
for(i=1;i<=10;i++)
{
document.write(i+"<br>");
}
</script>
</html>
```

Output :



Note : "language" attribute of <script> tag is replace by "type" attribute in all programs as it is standardised.

- **While Loop : The while loop loops through a block of code as long as a specified condition is true.**

Syntax :

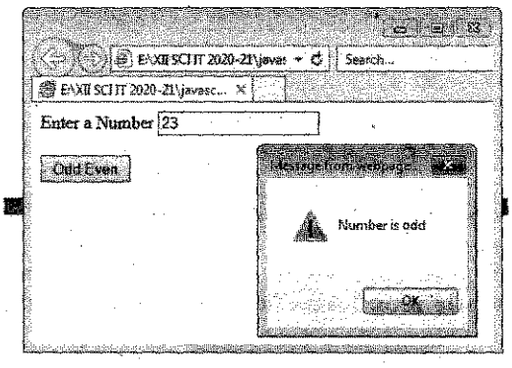
```
Initialization;
while (condition)
{
code block to be executed
}
```

Example : Program to check whether the entered number is Odd or Even.

```
<html>
<body>
<form name="frm1">
```

```
Enter a Number
<input type="number" name="t1"><br><br>
<input type="button" name="b1" value="Odd Even" onClick="even()">
</form>
</body>
<script type="text/javascript">
function even()
{
var a;
a=frm1.t1.value;
if(a%2==0)
alert("Number is even");
else
alert("Number is odd");
}
</script>
</html>
```

Output :



- **Do while Loop : The do/while loop is a variant of the while loop. This loop will execute the code block once, before checking if the condition is true, then it will repeat the loop as long as the condition is true.**

Syntax :

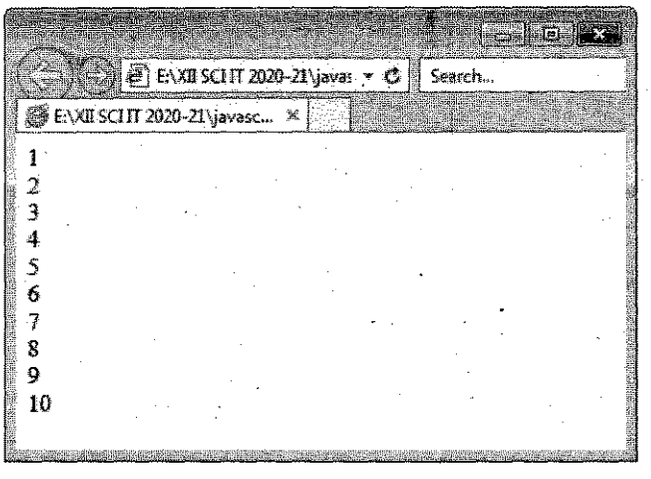
```
Initialization;
do {
// code block to be executed
}
while (condition);
```

➢ **Example : Program to print numbers from 1 – 10 using do while loop.**

Coding :

```
<html>
<script type="text/javascript">
var i;
i=1;
do
{
document.write(i+"<br>");
i++;
}
while(i<=10);
</script>
</html>
```

Output :



➢ **Break Statement : The break statement" jumps out" of a loop.**

Program to check whether the number is prime number of not.

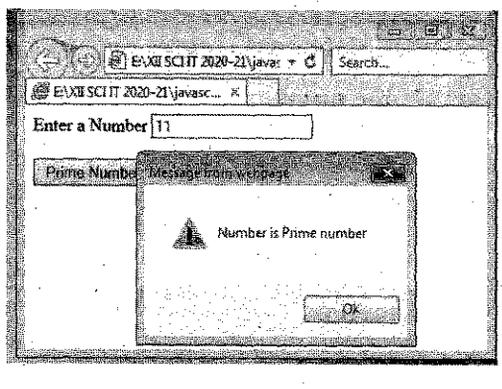
Coding :

```
<html>
<body>
<form name="frm1">
Enter a Number
```

```
<input type="text" name="t1"><br><br>
<input type="button" name="b1" value="Prime Number"

onClick="prime()">
</form>
</body>
<script type="text/javascript">
function prime()
{
var i,a,p;
a=parseInt(frm1.t1.value);
p=1;
for(i=2;i<a;i++)
{
if(a%i==0)
p=0;
break;
}
if(p==1)
alert("Number is Prime number");
else
alert("Number is not a Prime number");
}
</script>
</html>
```

Output :



3.3 Objects in JavaScript

JavaScript is an object based scripting language. A JavaScript object is an entity having properties and methods. Prosperities and methods of object's are accessed with "." operator. JavaScript supports two types of objects built-in objects and user defined objects.

DOM(Document Object Model) :

When a web page is loaded, the browser creates Document Object Model of the page.

The DOM is a W3C (World Wide Web Consortium) standard. "The W3C Document Object Model (DOM) is a platform and language-neutral interface that allows programs and scripts to dynamically access and update the content, structure, and style of a document."

Following are the predefined methods and properties for DOM object :

Property	Description
head	Returns the <head> element of the document
Title	Sets or returns title of the document.
URL	Returns full URL of the HTML document.
body, img	Returns <body>, <img> elements respectively.
Method	**Description**
write()	Writes HTML expressions or JavaScript code to a document.
writeln()	Same as write(), but adds a newline character after each statement.
getElementById()	There are many ways of accessing form elements, of which the easiest is by getElementById() method. In which id property is used to find an element.

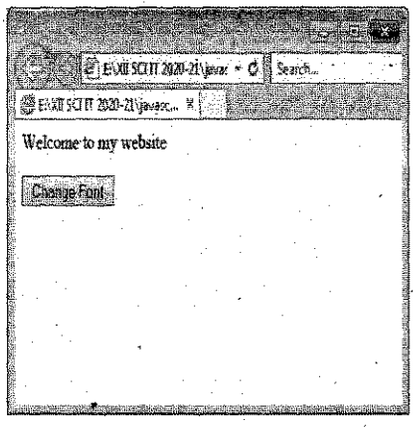
Example :

```
<html>
<script type="text/javascript">
function dom()
{
var s="<h2 style=color:red>";
var t="Document Object Model";
var c="</h2>";
document.getElementById('para').
```

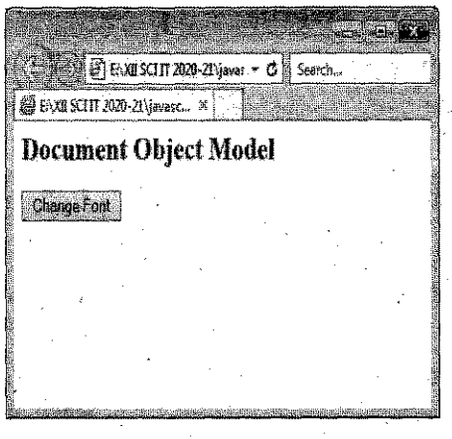
```
innerHTML=s+t+c;
}
</script>
<body>
<p id="para">Welcome to my website</p>
<form>
<input type="button" name="b1" value="Change Font" onClick="dom()">
</form>
</body>
</html>
```

Output :

Before Button click



After Button Click



- **Window Object : Window object is the parent object of all other objects. It represents an open window in a browser. An object of a window is created automatically by the browser. Following are the methods and properties of Window objet.**

Property	Description
name	Sets or returns the name of a window.
location	Returns the Location object for the window.
document	Returns the Document object for the window.
status	Sets or returns the text in the status bar of a window.
closed	Returns a Boolean value indicating whether a window has been closed or not.

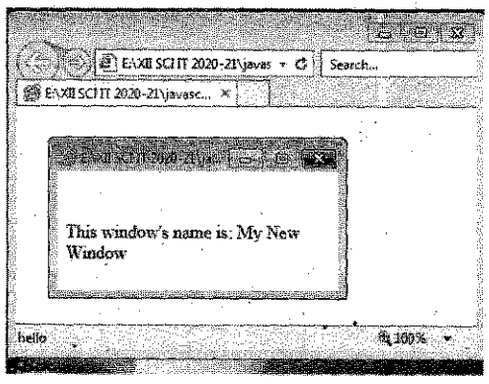
Method	Description
alert()	Displays the alert box containing message with ok button.
confirm()	Displays the confirm dialog box containing message with ok and cancel button.
prompt()	Displays a dialog box to get input from the user.
open()	Opens the new window.
close()	Closes the current window.
blur()	Removes focus from the current window.
focus()	Sets focus to the current window.
print()	Prints the content of current window.
setTimeout()	Calls a function or evaluates an expression after a specified number of milliseconds.

➢ **Program to make use of some properties of Window object**

Coding :

```
<html>
<script type="text/javascript">
window.status="hello";
var a= window.open("", "My New Window", "width=200,height=100");
a.document.write("<br><br>This window's name is: " + a.name);
</script>
</html>
```

Output :

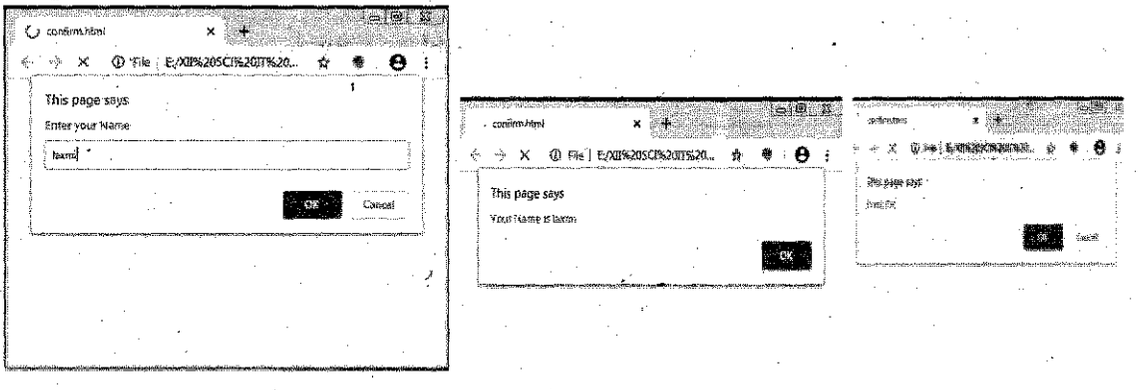


➢ **Program to display alert, prompt and confirm methods of Window Object.**

Coding :

```
<html>
<script type="text/javascript">
var n;
n=prompt("Enter your Name");
alert("Your Name is "+n);
confirm("Press OK");
</script>
</html>
```

Output :-



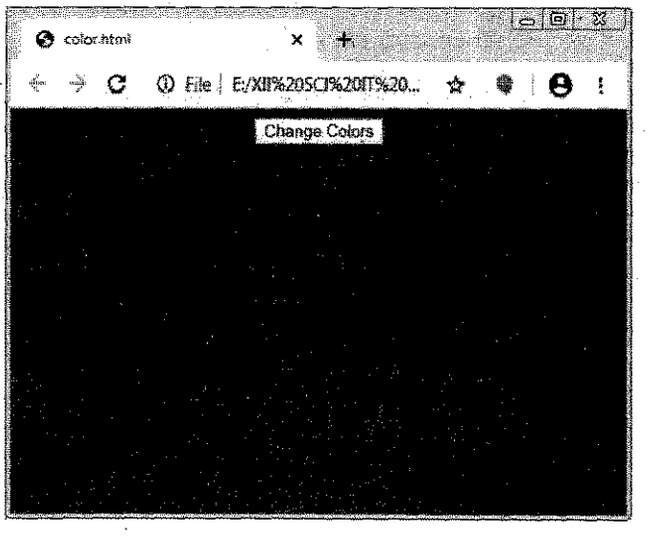
➢ **Program to change background colour of the page in every 4 seconds, there should be altleast 4 distinct colours except default colour.**

Coding :

```
<html>
<script type="text/javascript">
function color1()
{
document.bgColor="red";
window.setTimeout("color2()",4000);
}
function color2()
{
document.bgColor="green";
window.setTimeout("color3()",4000);
```

```
}
function color3()
{
document.bgColor="blue";
window.setTimeout("color4()",4000);
}
function color4()
{
document.bgColor="yellow";
window.setTimeout("color1()",4000);
}
</script>
<body>
<form name="frm1">
<center>
<input type="button" name="b1" value="Change Colors"
onMouseOver="color1()">
</center>
</form>
</body>
</html>
```

Output :



➢ **Program to make use of open, close and print methods of Window object.**

Coding :

```
<html>
<script type="text/javascript">
window.open("http://www.gmail.com"); // will open gmail website
window.print();
window.close(); // will close the current window
</script>
</html>
```

3.4 JavaScript Events

➢ **Events are the actions done by user that occurs on the web page. Following are some of the events used with form objects.**

Event handler	Description
onblur	It occurs when user leaves field or losses focus of an element.
onfocus	It occurs when an element gets focus.
onchange	It occurs when user changes content of an element or selects dropdown value. E.g. for textbox, password, select box, textarea etc.
onselect	It occurs when user selects some text of an element.
onsubmit	It occurs when user clicks submit button.
onreset	It occurs when user clicks reset button.
onload	It occurs when page/image has been loaded.
onunload	It occurs when document/page has been unloaded or closes.

3.5 JavaScript built-in Objects

➢ **JavaScript has several built-in objects. These objects provide different properties and methods that are useful while creating web pages.**

String Object :

String is used to store characters of text with single or double quotes. It is used to store and manipulate text.

Property	Description
Length	Returns the number of characters in a string

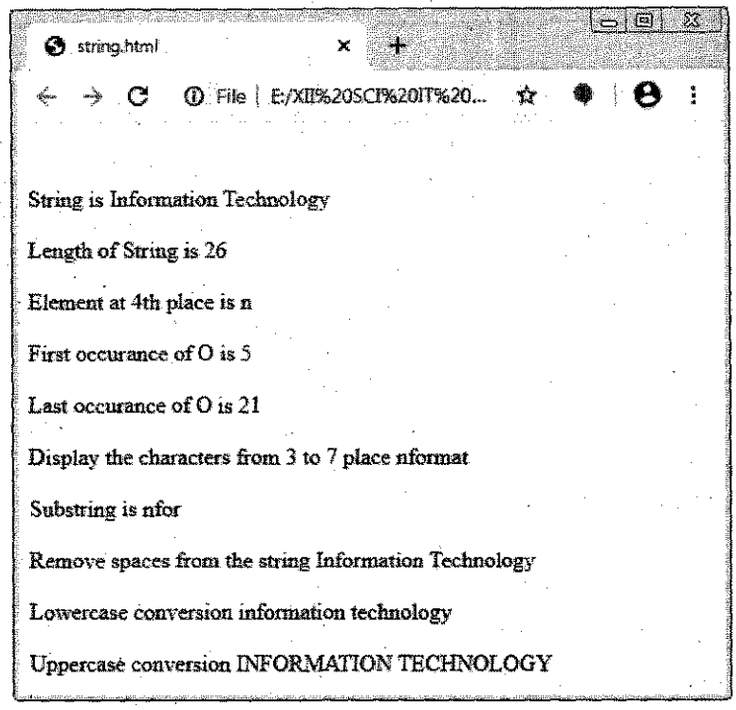
Method	Description
charAt()	Returns the character at the specified position (in Number).
indexOf()	Returns the index of the first occurence of specified character in given string, or -1 if it never occurs, so with that index you can determine if the string contains the specified character.
lastIndexOf()	Returns the index of the last occurrence of specified character in given string.
substr()	Returns the characters you specified: (14,7) returns 7 characters, from the 14th character.
substring()	Returns the characters you specified: (7,14) returns all characters between the 7th and the 14th.
trim()	The trim() method removes whitespace from both sides of a String
toLowerCase()	Converts a string to lower case
toUpperCase()	Converts a string to upper case

➢ **Example : Program to make the use of string object.**

Coding :

```
<html>
<script type="text/javascript">
var n=" Information Technology ";
document.write("<br><br>String is "+n);
document.write("<br><br>Length of String is "+n.length);
document.write("<br><br>Element at 4th place is "+n.charAt(3));
document.write("<br><br>First occurrence of O is "+n.indexOf('o'));
document.write("<br><br>Last occurrence of O is "+n.lastIndexOf('o'));
document.write("<br><br>Display the characters from 3 to 7 place
"+n.substr(3,7));
document.write("<br><br>Substring is "+n.substring(3,7));
document.write("<br><br>Remove spaces from the string "+n.trim());
document.write("<br><br>Lowercase conversion "+n.toLowerCase());
document.write("<br><br>Uppercase conversion "+n.toUpperCase());
</script>
</html>
```

Output :



Math Object :

The math object includes mathematical constants and functions. Following table consists list of Math objects.

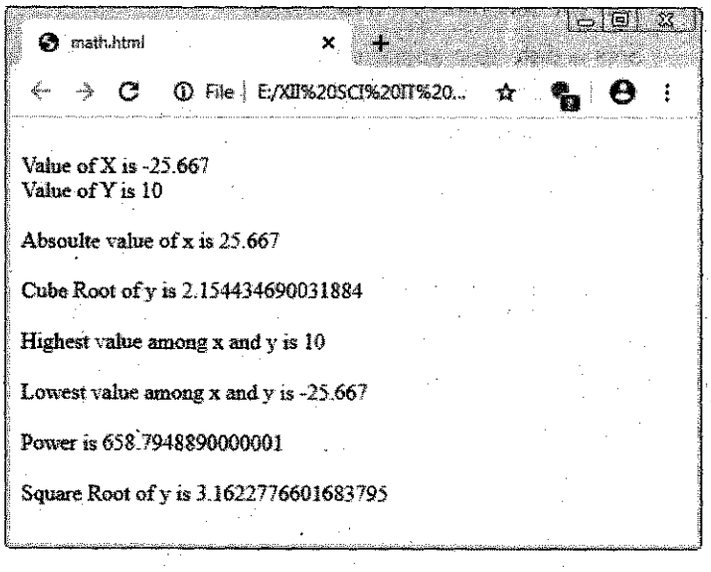
Method	Description
abs()	Returns the absolute value of a number.
cbrt(x)	Returns the cube root of a number.
ceil(x)	Returns the next integer greater than or equal to a given number (rounding up).
floor(x)	Returns the next integer less than or equal to a given number (rounding down).
max(x, y, ...)	Returns the highest-valued number in a list of numbers.
min(x, y, ...)	Returns the lowest-valued number in a list of numbers.
pow(x, y)	Returns the base to the exponent power, that is, xy.
random(x)	Returns a random number between 0 and 1 (including 0, but not 1).
sqrt(x)	Returns the square root of a number.

➢ **Program to make use of Math Object**

Coding :

```
<html>
<script type="text/javascript">
var x=-25.667;
var y=10;
var z=2;
document.write("<br> Value of X is "+x);
document.write("<br> Value of Y is "+y);
document.write("<br><br> Absoulte value of x is "+Math.abs(x));
document.write("<br><br> Cube Root of y is "+Math.cbrt(y));
document.write("<br><br>Highest value among x and y is "+Math.max(x,y));
document.write("<br><br>Lowest value among x and y is "+Math.min(x,y));
document.write("<br><br>Power is "+Math.pow(x,z));
document.write("<br><br>Square Root of y is "+Math.sqrt(y));
</script>
</html>
```

Output :



Date Object :

Date object is used to create date and time values. It is created using **new** keyword.

Method	Description
getDate()	Returns the day of the month (from 1-31)
getDay()	Returns the day of the week (from 0-6)
getFullYear()	Returns the year (four digits).
getHours()	Returns the hour (from 0-23).
getMinutes()	Returns the minutes (from 0-59).
getMonth()	Returns the month (from 0-11).
getSeconds()	Returns the seconds (from 0-59).
getTime()	Returns the number of milliseconds since midnight Jan 1, 1970.
now()	Returns the number of milliseconds since midnight Jan 1, 1970.
setDate()	Sets the day of the month of a date object.
setFullYear()	Sets the full year of a date object.
setHours()	Sets the hours of a date object.
setMinutes()	Set the minutes of a date object.
setMonth()	Sets the month of a date object.
setSeconds()	Sets the seconds of a date object.
setTime()	Sets a date to a specified number of milliseconds after/before Jan 1, 1970.

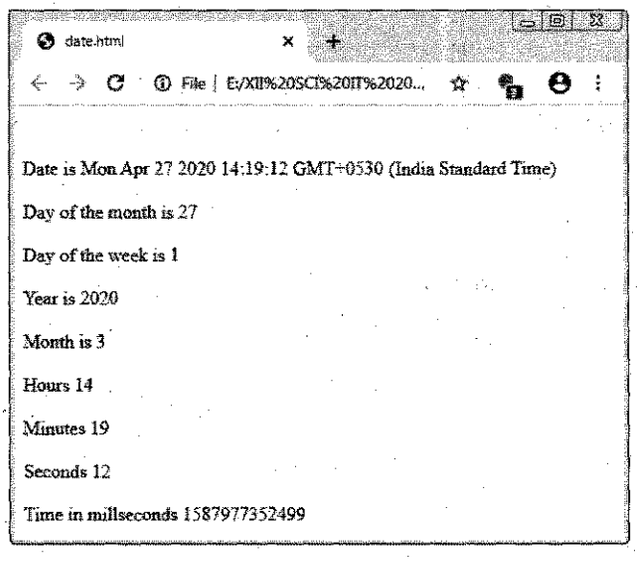
➢ **Program to make use of various methods of date object.**

Coding :

```
<html>
<script type="text/javascript">
var d=new Date();
document.write("<br><br> Date is "+d);
document.write("<br><br> Day of the month is "+d.getDate());
document.write("<br><br> Day of the week is "+d.getDay());
document.write("<br><br> Year is "+d.getFullYear());
document.write("<br><br> Month is  "+d.getMonth());
document.write("<br><br> Hours "+d.getHours());
document.write("<br><br> Minutes "+d.getMinutes());
document.write("<br><br> Seconds "+d.getSeconds());
```

```
document.write("<br><br> Time in millseconds "+d.getTime());
</script>
</html>
```

Output :



Number Object :

It helps in working with numbers. Property and Methods of number object are :

Property	Description
MIN_VALUE	Returns the largest minimum value.
MAX_VALUE	Returns the largest maximum value.
NaN	It represents 'Not a Number' value.
Method	Description
isInteger()	It determines whether the given value is a Integer
parseFloat()	It converts the given string into a floating point number.
parseInt()	It converts the given string into a integer number.
isFixed()	It returns the string that represents a number with exact digits after a decimal point.

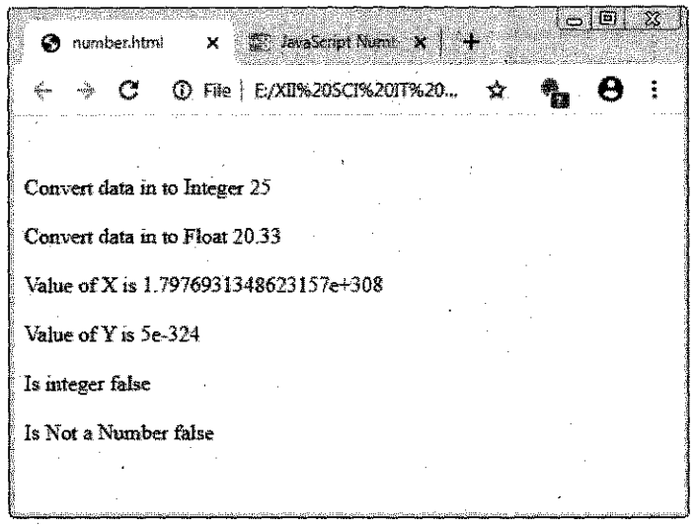
➢ **Program to make the use of Number property and methods.**

Coding :

```
<html>
<script type="text/javascript">
var a,b;
```

```
var x=Number.MAX_VALUE;
var y=Number.MIN_VALUE;
a=25.36;
b=" 20.33 ";
document.write("<br><br> Convert data in to Integer "+parseInt(a));
document.write("<br><br> Convert data in to Float "+parseFloat(b));
document.write("<br><br>Value of  X is "+x);
document.write("<br><br>Value of  Y is "+y);
document.write("<br><br>Is integer "+Number.isInteger(b));
document.write("<br><br>Is Not a Number "+Number.isNaN(b));
</script>
</html>
```

Output :



Array Object :

An array is an object that can store a collection of items. Arrays are used to store multiple values in single variable. Array is a special variable which can hold more than one values at a time. Property and Methods of array object are :

Property	Description
Index	The property represents the zero-based index of the match in the string
Length	Reflect number of elements in array.

Method	Description
concat()	Joins two or more arrays, and returns a copy of the joined arrays
copyWithin()	Copies array elements within the array, to and from specied positions.
find()	Returns the value of the first element in an array that satisfies a test in testing.
forEach()	Calls a function for each array element.
indexOf()	Search the array for an element and returns its position.
isArray()	Checks whether an object is an array.
pop()	Removes the last element of an array, and returns that element.
push()	Adds new elements to the end of an array, and returns the new length.
reverse()	Reverses the order of the elements in an array.
sort()	Sorts the elements of an array.

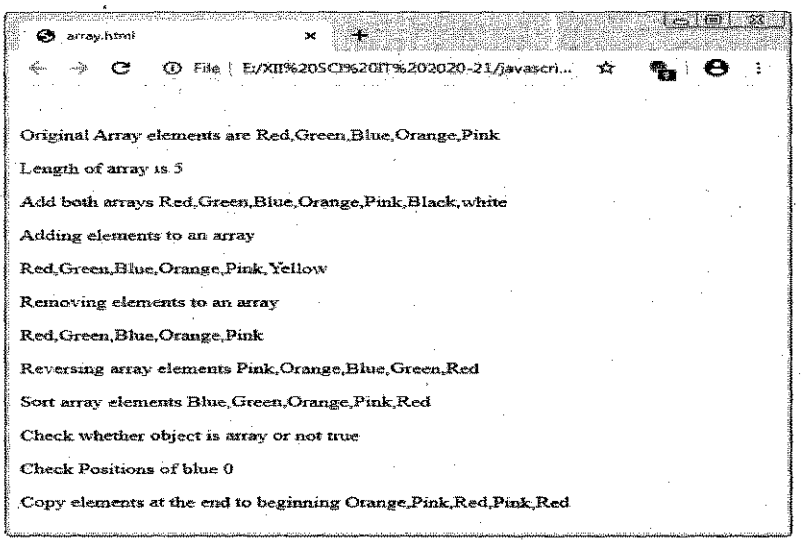
- **Program to make use of methods and property of Array Objects.**

Coding :

```
<html>
<script type="text/javascript">
var color=["Red","Green","Blue","Orange","Pink"];
var color1=["Black","white"];
document.write("<br><br> Original Array elements are "+color);
document.write("<br><br>Length of array is "+color.length);
document.write("<br><br>Add both arrays "+color.concat(color1));
document.write("<br><br>Adding elements to an array ");
color.push("Yellow");
document.write("<br><br>");
document.write(color);
document.write("<br><br>Removing elements to an array ");
color.pop();
document.write("<br><br>"+color);
document.write("<br><br>Reversing array elements "+color.reverse());
document.write("<br><br> Sort array elements "+color.sort());
document.write("<br><br>Check whether object is array or not
"+Array.isArray(color));
```

```
        document.write("<br><br>Check Positions of blue "+color.indexOf("Blue"));
        document.write("<br><br>Copy elements at the end to beginning
    "+color.copyWithin(0,2));
        </script>
        </html>
```

Output :



Answer the Following

3.1 Introduction

1. Explain the features of JavaScript.

Ans. :

- JavaScript is light weight scripting language.
- No need of special software to run JavaScript Programs
- JavaScript is object oriented scripting language
- It can handle date and time very effectively.
- It is case sensitive language.

2. Explain difference between Client Side and Server Side Scripting.

Ans. : Client Side Scripting :

(a) It is used at frontend which users can see from the browser.

(b) Client side scripting does not need any server interaction.

(c) Client Side scripting language involves languages such as HTML5, JavaScript etc.

(d) Client side scripting is used for validation purpose.

Server Side Scripting :

(a) It is used at the backend, where the source code is not visible or hidden at the client browser.

(b) When a server side script is processed it communicates to the server.

(c) Server side scripting language involves languages such as PHP, ASP.NET, Python etc.

(d) Server side scripting is useful in customizing the web pages and implements the dynamic changes in the web site.

3.2 Switch case and Looping Structures

3. Explain Switch case.

Ans. :

JavaScript has decision control statement known as switch. The switch statement test the value of given expression against the list of case values and when the match is found a block of statement associated with that case is executed.

Syntax of switch case is :

```
switch(expression)
 {
  case x:
   // code block
   break;
  case y:
   // code block
   break;
  default:
   // code block
 }
```

4. Explain For loop with syntax.

Ans. :

The JavaScript for loop iterates the elements for the fixed number of times. It should be used if number of iteration is known. The syntax of for loop is given below.

```
for (initialization; condition; increment)
{
   code to be executed
}
```

5. Explain while loop with syntax.

Ans. : The JavaScript while loop *iterates the elements for the infinite number of times.* It should be used if number of iteration is not known. The syntax of while loop is given below.

```
while (condition)
{
  code to be executed
}
```

6. Explain Do while loop with syntax.

Ans. : The JavaScript do while loop iterates the elements for the infinite number of times like while loop. But, code is executed at least once whether condition is true or false. The syntax of do while loop is given below.

```
do{
  code to be executed;
} while (condition);
```

7. Explain Break and Continue statement in JavaScript.

Ans. :

1. **Break statement :** The break statement is used to jump out of a loop. It breaks the loop and continues executing the code after the loop.
2. **Continue statement :** The continue statement "jumps over" one iteration in the loop. It breaks iteration in the loop and continues executing the next iteration in the loop.

3.3 Objects in JavaScript

8. Explain DOM (Document Object Model).

Ans. : Every web page resides inside a browser window which can be considered as an object. A Document object represents the HTML document that is displayed in that window. The Document object has various properties that refer to other objects which allow access to and modification of document content. The way document content is accessed and modified is called the Document Object Model, or DOM.

9. Explain Methods and Property of DOM.

Ans. :

Property	Description
head	Returns the <head> element of the document
Title	Sets or returns title of the document.
URL	Returns full URL of the HTML document. body, img Returns <body>, <img> elements respectively.

Method	Description
write()	Writes HTML expressions or JavaScript code to a document.
writeln()	Same as write(), but adds a newline character after each statement.
getElementById()	There are many ways of accessing form elements, of which the easiest is by getElementById() method. In which id property is used to find an element.

10. Explain alert, prompt and confirm methods of Window Object.

Ans. :

alert()	Displays the alert box containing message with ok button.
confirm()	Displays the confirm dialog box containing message with ok and cancel button.
prompt()	Displays a dialog box to get input from the user.

3.4 JavaScript Events

11. Explain onblur, onsubmit, onload, onfocus event handlers in JavaScript.

Ans. :

Event handler	Description
Onblur	It occurs when user leaves field or losses focus of an element.
Onfocus	It occurs when an element gets focus.
Onsubmit	It occurs when user clicks submit button.
onload	It occurs when page/image has been loaded.

3.5 JavaScript built-in Objects

12. Explain methods of String object (any 5) in JavaScript.

Ans. :

Method	Description
charAt()	Returns the character at the specified position (in Number).
indexOf()	Returns the index of the first occurrence of specified character in given string, or -1 if it never occurs, so with that index you can determine if the string contains the specified character.
substring()	Returns the characters you specified: (7,14) returns all characters between the 7th and the 14th.
trim()	The trim() method removes whitespace from both sides of a string
toLowerCase()	Converts a string to lower case

13. Explain methods of Math object (any 5) in JavaScript.

Ans. :

Method	Description
abs(x)	Returns the absolute value of a number.
cbrt(x)	Returns the cube root of a number.
ceil(x)	Returns the next integer greater than or equal to a given number (rounding up).
max(x, y, ...)	Returns the highest-valued number in a list of numbers.
pow(x, y)	Returns the base to the exponent power, that is, xy.

14. Explain methods of Date object (any 5) in JavaScript.

Ans. :

Method	Description
getDate()	Returns the day of the month (from 1-31)
getSeconds()	Returns the seconds (from 0-59).
setMinutes()	Set the minutes of a date object.
setMonth()	Sets the month of a date object.
setTime()	Sets a date to a specified number of milliseconds after/before Jan 1, 1970.

15. Explain methods of Number object (any 4) in JavaScript.

Ans. :

Method	Description
isInteger()	It determines whether the given value is a Integer
parseFloat()	It converts the given string into a floating point number.
parseInt()	It converts the given string into a integer number.
isFixed()	It returns the string that represents a number with exact digits after a decimal point.

16. Explain methods of Array object (any 5) in JavaScript.

Ans. :

Method	Description
concat()	Joins two or more arrays, and returns a copy of the joined arrays
indexOf()	Search the array for an element and returns its position.
pop()	Removes the last element of an array, and returns that element.
push()	Adds new elements to the end of an array, and returns the new length.
reverse()	Reverses the order of the elements in an array.

Practice JavaScript Programs

1. **Program to print Addition, Subtraction, Multiplication and Division of two numbers. Accept numbers from user.**

Coding :

```
<html>
<script type="text/javascript">
var a,b,res;
a=parseInt(prompt("Enter First Number"));
b=parseInt(prompt("Enter Second Number"));
res=a+b;
document.write("<br><br>Addition is "+res);
res=a-b;
document.write("<br><br>Substraction is "+res);
res=a*b;
document.write("<br><br>Multiplication is "+res);
res=a/b;
document.write("<br><br>Division is "+res);
</script>
</html>
```

2. **Program to print Addition, Subtraction, Multiplication and Division of two numbers using switch case. Accept numbers from user.**

Coding :

```
<html>
<body>
<form name="frm1">
Enter First Number
<input type="text" name="t1"><br><br>
Enter Second Number
<input type="text" name="t2"><br><br>
Enter your choice between 1 - 4
<input type="text" name="t3"><br><br>
<input type="button" name="b1" value="Check" onClick="res()">
</form>
```

```
</body>
<script type="text/javascript">
function res()
{
var a,b,c,r;
a=parseInt(frm1.t1.value);
b=parseInt(frm1.t2.value);
c=parseInt(frm1.t3.value);
switch(c)
{
case 1:
r=a+b;
alert("Addition is "+r);
break;
case 2:
r=a-b;
alert("Substraction is "+r);
break;
case 3:
r=a*b;
alert("Multiplication is "+r);
break;
case 4:
r=a/b;
alert("Division is "+r);
break;
default:
alert("Invalid choice");
}
}
</script>
</html>
```

3. Program to display numbers from 1 to 50.

Coding :

```
<html>
<script type="text/javascript">
var i;
document.write("<br>Numbers from 1-50 are <br>");
for(i=1;i<=50;i++)
{
document.write("\t"+i);
}
</script>
</html>
```

4. Program to display Even numbers from 25 to 50.

Coding :

```
<html>
<script type="text/javascript">
var i;
document.write("<br>Even Numbers from 25-50 are <br>");
for(i=26;i<=50;i=i+2)
{
document.write("\t"+i);
}
</script>
</html>
```

5. Program to print Multiplication table of the entered number.

Coding :

```
<html>
<script type="text/javascript">
var n,i,m;
n=prompt("Enter a Number");
document.write("<br>Multiplication Table is <br>");
for(i=1;i<=10;i++)
{
```

```
m=n*i;
document.write(n+" x "+i+" = "+m+"<br><br>");
}
</script>
</html>
```

6. Program to print factorial of a number, accept number from the user.

Coding :

```
<html>
<script type="text/javascript">
var n,i,f=1;
n=prompt("Enter a Number");
for(i=n;i>=1;i--)
{
f=f*i;
}
document.write("<br>Factorial is "+f);
</script>
</html>
```

Exercise

Fill in the blanks

1. _____ script resides onserver computer.

Ans. : Server Side

2. _____ statement is used to jump out of loop.

Ans. : Break

3. _____ defines logical structure of document.

Ans. : DOM (Document Object Model)

4. _____ property of window object returns Boolean value in- dictating whether window is closed or not.

Ans. : closed

5. _____ event occurs when an element looses its focus.

Ans. : onblur

State whether given statement is true or false.

1. JavaScript is case sensitive language.

Ans. : True

2. Math.ceil() function is used to return the nearest integer less than or equal to given number.

Ans. : False

3. MAX_VALUE property of number object returns smallest possible value.

Ans. : False

4. getDay() method of Date object returns month in number.

Ans. : False

5. onKeydown event occurs when user moves mouse pointer.

Ans. : False

Multiple choice questions. Select one correct answer.

1. JavaScript is _____ language.

   (a) Compiled (b) Interpreted

   (c) Both a and b (d) None of the above

Ans. : (c)

2. Select correct method name of String object _____.

   (a) charAt() (b) characterAt()

   (c) valueAt() (d) lengthAt()

Ans. : (a)

3. _____ method displays message box with Ok and Cancel button.

   (a) Confirm() (b) Alert()

   (c) both a and b (d) None of these

Ans. : (a)

4. We can declare all types of variables using keyword _____.

   (a) var (b) dim (c) variable (d) declare

Ans. : (a)

5. Trace output of following JavaScript code.

```
var str="Information Technology";
document.write(str. lastIndexOf("o");
```

   (a) 18 (b) 19 (c) 20 (d) 21

Ans. : (c)

Multiple choice questions. Select two correct answer.

1. Valid two methods of Date object are _____ and _____.
   (a) setTime() (b) getValidTime()
   (c) getTime() (d) setValidTime()

Ans. : (a, c)

2. Properties of document object are _____ and _____.
   (a) URL (b) title (c) name (d) status

Ans. : (a, b)

3. _____ and _____ are event / event handler used with text object in JavaScript.
   (a) onBlur (b) onMove (c) onFocus (d) onAction

Ans. : (a, c)

Multiple choice questions. Select three correct answers.

1. Select three correct methods of window object _____.
   (a) write() (b) alert() (c) writeln() (d) close()
   (e) open() (f) charAt()

Ans. : (b, d, e)

2. JavaScript features are _____, _____ and _____.
   (a) supports event based facilities (b) is platform dependent language
   (c) case insensitive scripting language (d) provide inbuilt objects
   (e) can handle date and time effectively (f) requires special software to run

Ans. : (b, c, e)

3. Inbuilt objects in JavaScript are _____, _____ and _____.
   (a) Time (b) Date (c) Inheritance
   (d) Array (e) Number (f) function

Ans. : (b, d, e)

Explain the following.

1. What are similarities and differences between client side scripting and server side scripting.

Ans. : Refer answer the following Q. 2.3.1.

2. Briefly explain features of JavaScript.

Ans. : Refer answer the following Q. 1.3.1.

3. Explain switch case conditional statement in JavaScript with example.

Ans. : Refer answer the following Q. 1.3.2.

Write event driven JavaScript program for the following.

1. **Display Addition, substraction, multiplication, division of two numbers, which were accepted from user.**

Coding :

```
<html>
<script type="text/javascript">
var a,b,res;
a=parseInt(prompt("Enter First Number"));
b=parseInt(prompt("Enter Second Number"));
res=a+b;
document.write("<br><br>Addition is "+res);
res=a-b;
document.write("<br><br>Substraction is "+res);
res=a*b;
document.write("<br><br>Multiplication is "+res);
res=a/b;
document.write("<br><br>Division is "+res);
</script>
</html>
```

2. **Display number sequence from 100 to 150 in following format.**
   (100 101 102.....150)

Coding :

```
<html>
<script type="text/javascript">
var i;
document.write("<br>Numbers from 100-150 are <br>");
for(i=100;i<=150;i++)
{
document.write("\t"+i);
}
</script>
</html>
```

3. **Find and display factorial of given number.**

Coding :

```
<html>
<script type="text/javascript">
var n=4,i,f=1;
```

```
for(i=n;i>=1;i--)
{
f=f*i;
}
document.write("<br>Factorial of 4 is "+f);
</script>
</html>
```

4. Accept any string from user and count and display number of vowels occurs in it.

Coding :

```
<html>
<script type="text/javascript">
var n,i,ch,cnt=0;
n=prompt("Enter a String");
for(i=0;i<n.length;i++)
{
ch=n.charAt(i);
if(ch=='a' || ch=='A' ||ch=='e' || ch=='E' ||ch=='i' || ch=='i' ||

ch=='o' || ch=='O' || ch=='u' || ch=='U')
{
cnt=cnt+1;
}
}
document.write("Number od vowels in string are "+cnt);
</script>
</html>
```

Match the following

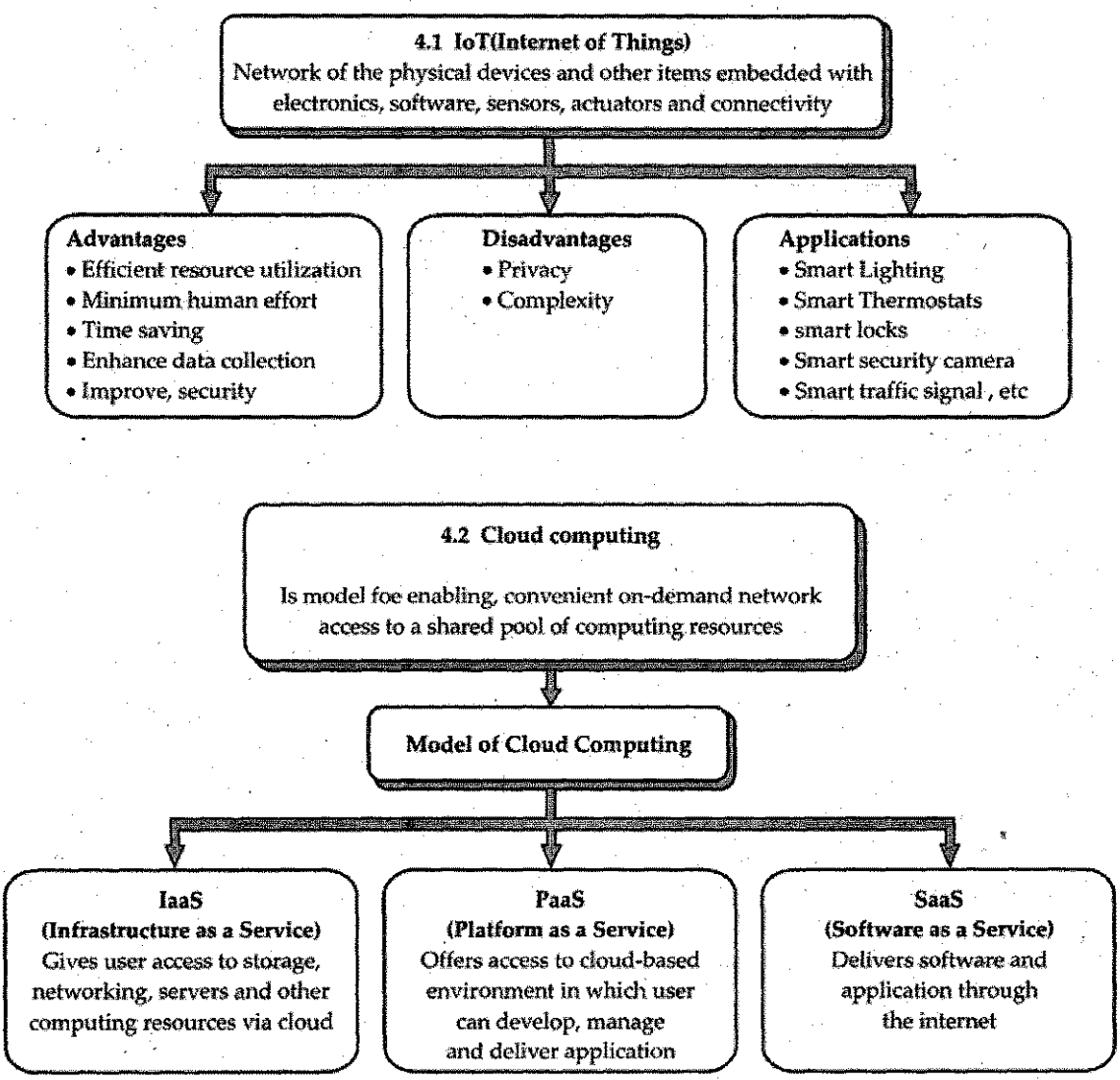
A		B	
1.	ceil()	(a)	Writes HTML expression or JavaScript code to a document.
2.	floor()	(b)	Sets focus to current window.
3.	write()	(c)	Removes white spaces from both sides of string.
4.	focus()	(d)	Returns next integer greater than or equal to given number.
5.	trim()	(e)	Returns the next integer less than or equal to given number.

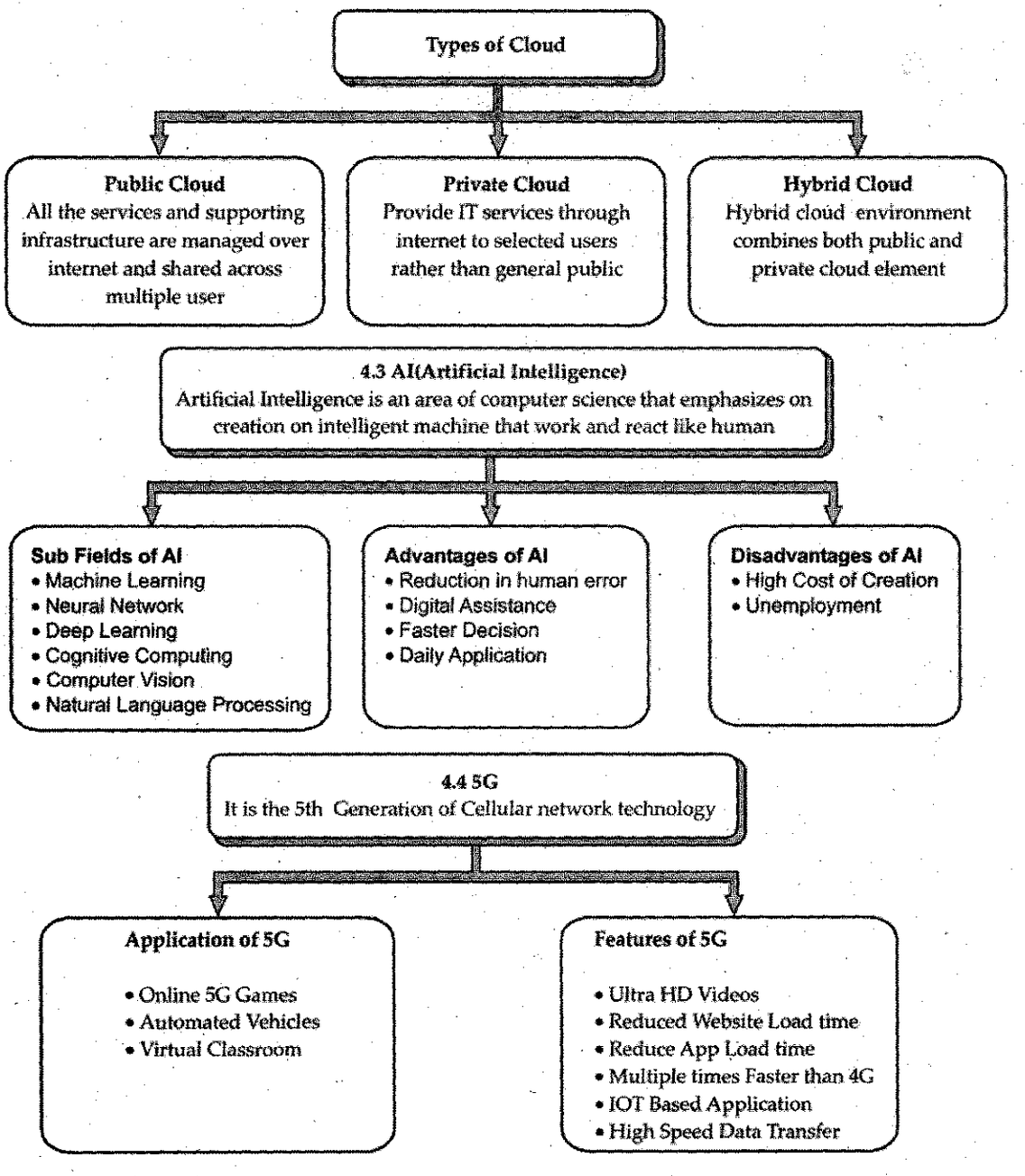
Ans. : 1. – d, 2. - e, 3. - a, 4. - b, 5. - c

❑❑❑

4 Emerging Technologies

Chapter at a Glance




Types of Cloud
Public Cloud
All the services and supporting infrastructure are managed over internet and shared across multiple user
Private Cloud
Provide IT services through internet to selected users rather than general public
Hybrid Cloud
Hybrid cloud environment combines both public and private cloud element
4.3 AI(Artificial Intelligence)
Artificial Intelligence is an area of computer science that emphasizes on creation on intelligent machine that work and react like human
Sub Fields of AI
• Machine Learning
• Neural Network
• Deep Learning
• Cognitive Computing
• Computer Vision
• Natural Language Processing
Advantages of AI
• Reduction in human error
• Digital Assistance
• Faster Decision
• Daily Application
Disadvantages of AI
• High Cost of Creation
• Unemployment
4.4 5G
It is the 5th Generation of Cellular network technology
Application of 5G
• Online 5G Games
• Automated Vehicles
• Virtual Classroom
Features of 5G
• Ultra HD Videos
• Reduced Website Load time
• Reduce App Load time
• Multiple times Faster than 4G
• IOT Based Application
• High Speed Data Transfer

Fill in the Blanks

4.1 IoT(Internet of Things)

1. IoT stands for _____.

Ans. : Internet of Things

2. The internet of things is the _____ of physical devices ,vehicles , home appliances etc.

Ans. : network

3. IoT helps to _____ human efforts.

Ans. : reduce

4. _____ is the primary factor in automation which can save through IoT platform.

Ans. : Time

5. IoT devices can collect data from _____.

Ans. : Environment

6. The data collected using IoT devices can be used to take _____.

Ans. : decisions

7. _____ based security systems can make home or office environment secure.

Ans. : IoT

8. _____ Allows users to schedule, monitor and remotely control home temperatures.

Ans. : Smart thermostats

9. Illumination of light is controlled on the basic of day light is example of _____.

Ans. : Smart Lighting

10. Smart Home is the application of _____ Technology.

Ans. : IoT

4.2 Cloud Computing

11. SaaS stands for_____.

Ans. : Software as a Service

12. IaaS Stands for_____.

Ans. : Infrastructure as a Service

13. PaaS Stands for_____.

Ans. : Platform as a Service

14. _____ gives user access to storage, networking, servers and other computing resources via the cloud.

Ans. : IaaS

15. Instead of purchasing hardware outright, users pay for _____ on demand.

Ans. : IaaS

16. Amazon Web Services (AWS) is an example of_____ .

Ans. : IaaS

17. In IaaS _____ is Scalable depending on processing and storage needs.

Ans. : Infrastructure

18. IaaS provides automated and scalable _____ that provide a high degree of control and flexibility for the user.

Ans. : Environment

19. PaaS provide a _____ with tools to test , develop and host application in the same environment.

Ans. : Platform

20. _____ provide a platform with tools to test , develop and host application in the same environment.

Ans. : PaaS

21. _____ enables organization to focus on development without having a worry about underplaying infrastructure.

Ans. : PaaS

22. SaaS service provider delivers _____ and application through internet.

Ans. : Software

23. In _____ user do not install application on their local devices.

Ans. : SaaS

24. In SaaS the application reside on a remote cloud network accessed through the web or an _____.

Ans. : API

25. In SaaS the application reside on a remote cloud network accessed through the _____ or an API.

Ans. : web

26. _____ vendors provide users with software and application via a subscription model.

Ans. : SaaS

27. Users do not have to manage , install or upgrade software , _____ manage this.

Ans. : SaaS providers

28. _____ is secure on cloud.

Ans. : Data

29. GitHub is an example of _____.

Ans. : SaaS

30. In _____ all the services and supporting infrastructure are shared across multiple users.

Ans. : public cloud

31. _____ is more efficient and inexpensive than other cloud solution.

Ans. : public cloud

32. In _____ cloud all data is protected behind the firewall.

Ans. : Private

33. _____ solutions are preferred for enhanced security and privacy by the users.

Ans. : Private cloud

34. _____ cloud environment combines both Public and Private element.

Ans. : Hybrid

35. _____ cloud allows greater flexibility.

Ans. : Hybrid

36. Hybrid cloud allow greater _____.

Ans. : Flexibility

37. _____ computing solutions are inexpensive than the actual overall infrastructure set up for the I.T services.

Ans. : Cloud

38. Cloud computing solutions are_____ than the actual overall infrastructure set up for the I.T services.

Ans. : Inexpensive

39. _____ computing solution are more reliable than in-house I.T infrastructure.

Ans. : Cloud

40. _____ computing solutions are more portable

Ans. : Cloud

4.3 AI (Artificial Intelligence)

41. AI stands for_____

Ans. : Artificial Intelligence

42. _____ is an area of computer science that emphasizes on creation of intelligent machines that work and react like human.

Ans. : Artificial intelligence

43. Machine learning is a sub field of_____.

Ans. : Artificial Intelligence

44. Deep Learning is a sub field of_____.

Ans. : Artificial Intelligence

45. _____ imitate the brain's array of interconnected neurons.

Ans. : Neural networks

46. _____ is used for application like image and speech recognition.

Ans. : Deep Learning

47. _____ computing is about creating a "natural ,human-like interaction", including using the abilities to interpret speech and respond to it.

Ans. : Cognitive

48. _____ employs pattern recognition and deep learning to understand content of pictures and videos.

Ans. : Computer Vision

49. _____ involves analyzing and understanding human language and responding it.

Ans. : Natural Language Processing

50. Artificial Intelligence helps to _____ human errors.

Ans. : reduce

51. Chatbot are example of _____.

Ans. : Digital Assistance

4.4 5G

52. 5G Stands for_____

Ans. : fifth generation

53. 5G is the next generation of_____ communication.

Ans. : wireless

54. _____ is the next generation of wireless communication.

Ans. : 5G

55. LTE stand for_____.

Ans. : Long Term Evolution

56. 5G technologies may use a variety of _____.

Ans. : Spectrum Bands

57. _____ is the faster method of data transfer.

Ans. : 5G

True or False

4.1 IoT(Internet of Things)

1. The internet of thing is the network of physical devices only.

Ans. : False

2. With the help of IoT devices can communicate and interact over the internet, and they can be remotely monitored and controlled.

Ans. : True

3. IoT helps to minimize the human efforts.

Ans. : True

4. Time is the primary factors in automation which can be saved through IoT platforms.

Ans. : True

5. The data collected using IoT devices is used for taking decisions.

Ans. : True

6. The designing ,developing, maintaining and enabling the large technology to IoT system is easy.

Ans. : False

4.2 Cloud Computing

7. IaaS provide automated and static environment.

Ans. : False

8. In IaaS enterprises saves the cost of buying and maintaining their own hardware.

Ans. : True

9. PaaS provides a platform tools to test, develop and host application in the same environment.

Ans. : True

10. PaaS Do not provide collaborative work if teams works remotely.

Ans. : False

11. In SaaS a service provider delivers software and application through the internet.

Ans. : True

12. PaaS vendors provides users with software and application via a subscription model.

Ans. : False

13. SaaS provider manage, install and ,update the software.

Ans. : True

14. Public cloud are more efficient and inexpensive than private and hybrid cloud.

Ans. : True

15. In Private cloud all the services and supporting infrastructure is shared among across the multiple users.

Ans. : False

16. Private cloud is accessible to selected public rather than general public.

Ans. : True

17. Hybrid cloud allows greater flexibility.

Ans. : True

18. Cloud computing solution are inexpensive than the actual overall infrastructure.

Ans. : True

19. Cloud computing solution are not reliable than In-house I.T infrastructure.

Ans. : False

20. Cloud computing solutions are more portable.

Ans. : True

4.3 AI(Artificial Intelligence)

21. Artificial intelligence is an area of computer science that emphasizes on creation of intelligent machines that work and reach like human.

Ans. : True

22. Computer is programmed properly with artificial intelligence gives 100% accuracy.

Ans. : True

23. Chatbot are example of Digital Assistance

Ans. : True

24. AI helps to take faster decision as compare to humans.

Ans. : True

25. AI creates Unemployment.

Ans. : True

26. Creation cost is high in AI.

Ans. : True

4.4 5G.t

27. 4G is the next generation of wireless communication

Ans. : False

28. 5G technologies may use variety of spectrum brands.

Ans. : True

29. 5G is the fastest method of a data transfer.

Ans. : True

MCQ (One Correct Answers)

4.1 IoT(Internet of Things)

1. The internet of things is the _____ of physical devices ,vehicles , home appliances etc.

   (a) collection (b) network

   (c) relation (d) group

Ans. : (a) network

2. IoT helps to _____ human efforts.
   (a) remove (b) reduce (c) increase (d) stop

Ans. : (b) reduce

3. IoT device can collect data from _____.
   (a) environment (b) internet
   (c) books (d) documents

Ans. : (a) environment

4.2 Cloud Computing

4. SaaS Stand for _____.
   (a) Software as a Service (b) Software as a self
   (c) Software as Secure (d) Software as a Section

Ans. : (a) Software as a service

5. PaaS Stand for _____.
   (a) Platform as a Service (b) Platform as a self
   (c) Platform as Secure (d) Platform as a Section

Ans. : (a) Platform as a service

6. IaaS Stand for _____.
   (a) Infrastructure as a Service (b) Infrastructure as a self
   (c) Infrastructure as Secure (d) Infrastructure as a Section

Ans. : (a) Infrastructure as a service

7. In _____ cloud services and supporting infrastructure are shared across multiple users.
   (a) public (b) private (c) secure (d) hybrid

Ans. : (a) public

8. In _____ cloud services all the data is protected behind the firewall.
   (a) public (b) private (c) secure (d) hybrid

Ans. : (a) private

4.3 AI(Artificial Intelligence)

9. _____ imitate the brain's array of interconnected neurons.
   (a) Machine learning (b) Neural network
   (c) Deep learning (d) Computer vision

Ans. : (b) Neural network

10. _____ is about creating a "natural, human-like interaction".

(a) Machine learning (b) Neural network

(c) Cognitive computing (d) Computer vision

Ans. : (b) Cognitive computing

4.4 5G

11. _____ is the next generation of wireless communication.

(a) 5G (b) 4G (c) 3G (d) 6G

Ans. : (b) 5G

12. LTE stands for_____

(a) Long Term Evolution (b) Long Term Evolve

(c) Large Term Evolution (d) Long Test Evolution

Ans. : (b) Long Term Evolution

MCQ (Two Correct Answers)

4.2 Cloud Computing

1. Primary service models of cloud computing are _____.

(a) SaaS (b) PaaS (c) FaaS

(d) DaaS (e) CaaS

Ans. : (a), (b)

2. Example of SaaS are _____.

(a) Amazon Web Services (b) Microsoft Azure VM

(c) GitHub (d) Google's G Suit (e) SAP

Ans. : (a), (b)

3. Example of SaaS are _____.

(a) GitHub (b) SAP (c) Dropbox

(d) AWS (e) Microsoft Azure VM

Ans. : (a), (c)

4. Following are the types of cloud.

(a) Public Cloud (b) Private Cloud

(c) Personal Cloud (d) secure Cloud

Ans. : (a), (b)

5. In SaaS the application reside on a remote cloud network accessed through the _____ or an _____

(a) web (b) file (c) API

(d) wifi (e) Bluetooth

Ans. : (a), (c)

4.3 AI(Artificial Intelligence)

6. Disadvantages of AI are _____.

(a) Digital Assistance (b) Faster Decisions

(c) Cost of creation (d) Unemployment

(e) Daily application

Ans. : (c), (d)

MCQ (Three Correct Answers)

4.1 IoT(Internet of Things)

1. Internet of Things (IoT) is the network of _____.

(a) Physical devices (b) sensors

(c) actuators (d) wires

Ans. : (a), (b), (c)

2. Advantages of IoT are _____.

(a) Time saving (b) Enhance data collection

(c) Improve security (d) privacy

Ans. : (a), (b), (c)

4.2 Cloud Computing

3. Primary service models of cloud computing are _____.

(a) SaaS (b) PaaS (c) FaaS (d) IaaS

Ans. : (a), (b), (d)

4. Example of SaaS are _____.

(a) Amazon Web Services (b) Microsoft Azure VM

(c) Google Compute Engine (d) Google's G Suit

Ans. : (a), (b), (c)

5. Example of SaaS are _____.

(a) GitHub (b) SAP (c) Dropbox (d) AWS

Ans. : (a), (b), (c)

6. Types of Cloud are _____.

(a) Public Cloud (b) Private Cloud

(c) Personal Cloud (d) Hybrid Cloud

Ans. : (a), (b), (d)

Match the Following

4.1 IoT(Internet of Things)

A	B
1. Smart City	(a) Network of physical devices, sensors, connectivity ,etc
2. Internet Of Things	(b) IoT

Ans. : 1. = (b) 2. = (a)

4.2 Cloud Computing

A	B
1. Public Cloud	(a) Software as a Service
2. IaaS	(b) Shared across multiple users
3. SaaS	(c) Infrastructure as a Service
4. PaaS	(d) All data is protected behind the firewall
5. Hybrid Cloud	(e) Platform as a service
6. Private Cloud	(f) Allows greater flexibility

Ans. :

1. = (b) 2. = (c) 3. = (a) 4. = (e) 5. = (f) 6. = (d)

4.3 AI (Artificial Intelligence)

A	B
1. Artificial Intelligence	(a) imitate the brain's array of interconnected neurons
2. Machine Learning	(b) image and speech recognition
3. Neural Network	(c) creating a "natural, human-like interaction"
4. Deep Learning	(d) Area of Computer Science

A		B	
5.	Cognitive computing	(e)	Analyze and understand human language
6.	Computer Vision	(f)	Digital assistance
7.	Natural Language Processing	(g)	Automates analytical model building
8.	Chatbot	(h)	OK Google
9.	Google's	(i)	understanding the content of pictures and videos

Ans. :

1. = (d) 2. = (g) 3. = (a) 4. = (b) 5. = (c)

6. = (i) 7. = (e) 8.= (f) 9. = (h)

4.4 5G

A		B	
1.	5G	(a)	Long Term Evolution
2.	LTE	(b)	fifth generation

Ans. : 1. = (b) 2. = (a)

Answer Briefly

4.1 IoT (Internet of Things)

1. Define IoT with example.

Ans. :

Definition :

(i) IoT stands for Internet of Things, which is a way of connecting all the devices and objects around us into a common cloud network.

(ii) It helps in creating opportunities for more direct integration of the physical world into computer based systems.

(iii) It improves efficiency, reduces cost and human efforts.

(iv) IOT extends Internet connectivity beyond standard devices, like desktops, laptops, smart phones and tablets, to any range of traditionally dumb or non-internet enabled devices and everyday object.

(v) **Following are some examples of IoT :**

(vi) **Smart lighting** - Illumination of light is controlled on the basis of day light.

(vii) **Smart thermostats** - Allows users to schedule monitor and remotely control home temperatures.

(viii) Smart locks and garage door openers, Password based or facial recognition based doors and locks.

(ix) **Smart security cameras** – Security cameras that can identify known and unknown person and raise alarm, in case of security threat.

(x) **Smart traffic signals** – Signal that can adjust their timing to accommodate commutes and holiday traffic and keep cars moving.

---

2. Explain advantages and disadvantages of IoT.

Ans. :

Advantages of IoT are as follows :

(i) **Efficient resource utilization :** If we know the functionality and the way that how each device works, we definitely increase the efficient resource utilization.

(ii) **Minimize human effort :** As the devices of IoT interact and communicate with each other and do lot of task for us, then they minimize the human effort.

(iii) **Time saving :** Time is the primary factors in automation which can be saved through IOT platform.

(iv) **Enhance Data Collection :** IoT devices can collect data from environment like weather, sound, pollution etc. This data then can be used to take decisions.

(v) **Improve security : IoT** based security systems helps in increasing security.

Disadvantages of IoT are as follows :

(i) **Privacy :** IoT uses internet due to which personal data may get hack.

(ii) **Complexity :** The designing, developing, maintaining of IoT system is quite complicated.

---

3. Give some application of IoT.

Ans. :

Following are some applications of IoT :

(i) **Smart thermostats** - Allows users to schedule monitor and remotely control home.

(ii) **Smart lighting** - Illumination of light is controlled on the basis of day light.

(iii) Smart locks and garage door openers, Password based or facial recognition based doors and locks.

(iv) **Smart security cameras** – Security cameras that can identify known and unknown person and raise alarm, in case of security threat.

(v) **Smart traffic signals** – Signal that can adjust their timing to accommodate commutes and holiday traffic and keep cars moving.

4.2 Cloud Computing

4. Explain detail about Cloud Computing.

Ans. :

(i) Cloud computing is the on-demand availability of computer system without direct active management by the user.

(ii) There are three primary service models of cloud computing that are Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS).

(iii) **Infrastructure as a service (IaaS) :** IaaS provides automated and scalable environments that provide a high degree of control and flexibility for the user.

(iv) **Platform as a service (PaaS) :** A service provider offers access to a cloud-based environment in which users can develop, manage and deliver applications.

(v) **Software as a service (SaaS) :** A service provider delivers software and applications through the internet or an API.

(vi) There are three basic types of deployment of cloud computing that are Public, Private and Hybrid.

(vii) In public cloud, all the services and supporting infrastructure are managed off-site over the internet and shared across multiple users.

(viii) Private cloud provides I.T services through the internet or a private network to selected users rather than to general public.

(ix) Hybrid cloud environments combines both Public and Private cloud elements.

5. Explain models of Cloud Computing.

Ans. :

(i) Cloud Computing is the on-demand availability of computer system without direct active management by the user.

(ii) There are three primary service models of cloud computing that are Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS).

(iii) **Infrastructure as a service (IaaS)**

- IaaS provides automated and scalable environments that provide a high degree of control and flexibility for the user.
- Instead of purchasing hardware , users pay for IaaS on demand.
- **Examples :** Amazon web services (AWS), Microsoft Azure VM, Google Compute Engine (GCE)

(iv) **Platform as a service (PaaS)**

- A service provider offers access to a cloud-based environment in which users can develop, manage and deliver applications.

- PaaS provides a platform with tools to test, develop and host applications in the same environment
- **Examples :** Google App Engine

(v) **Software as a service (SaaS)**

- A service provider delivers software and applications through the internet or an API.
- Applications are accessible from almost any internet-connected device, from virtually anywhere in the world.
- **Examples :** Google's G suite, GitHub , Dropbox.

---

6. Explain types of Cloud Computing.

Ans. :

(i) There are three basic types of deployment of cloud computing that are Public, Private and Hybrid.

(ii) **Public Cloud :** In public cloud, all the services and supporting infrastructure are managed off-site over the internet and shared across multiple users.

(iii) **Public Cloud :** These are more efficient and inexpensive than private and hybrid cloud solutions.

(iv) **Private Cloud :** As the name suggests private cloud provides I.T services through the internet or a private network to selected users rather than to general public.

(v) In private cloud data is protected behind the firewall.

(vi) Private cloud solutions are preferred for enhanced security and privacy by the users.

(vii) **Hybrid Cloud :** Hybrid cloud environments combines both Public and Private cloud elements.

(viii) Communication in hybrid cloud is done over an encrypted connection and allow for the portability of data and applications.

(ix) Hybrid cloud allows greater flexibility as compared to that of public and private cloud solutions

---

7. Explain some benefits of Cloud Computing.

Ans. :

Benefits of Cloud Computing are as follows :

(i) **Cost saving :** Cloud computing solutions are inexpensive than physical infrastructure.

(ii) **Reliable :** Cloud computing solutions are more reliable than In-house I.T infrastructure.

(iii) **Mobility :** Cloud computing solutions are more portable because user can access data anytime, anywhere as required.

(iv) **Scalability :** Cloud computing is more scalable than physical storage.

(v) **Automatic update :** Data on cloud gets updated automatically

4.3 AI(Artificial Intelligence)

8. Give brief idea about AI.

Ans. :

(i) Artificial Intelligence is the study of making intelligent machine's that can perform operation like human being.

(ii) AI is different from robotics, but related to some extent, in which machines sense their environment, perform calculations and do physical tasks either by themselves.

Different fields of AI are as follows :

(iii) **Machine learning** is the study of computer algorithms that improve automatically through experience.

(iv) **Neural networks** imitate the brain's array of interconnected neurons, and relay information between various units to find connections and derive meaning from data.

(v) **Deep learning** utilizes really big neural networks and a lot of computing power to find complex patterns in data, for applications such as image and speech recognition.

(vi) **Natural language** processing involves analyzing and understanding human language and responding to it.

9. Define AI with sub fields of AI.

Ans. :

(i) Artificial intelligence (AI) is an area of computer science that emphasizes on creation of intelligent machines that work and reacts like humans.

(ii) AI is different from robotics, but related to some extent, in which machines sense their environment, perform calculations and do physical tasks either by themselves or under the direction of people.

(iii) Different fields of AI are as follows:-

(iv) Machine learning is the study of computer algorithms that improve automatically through experience.

(v) Neural networks imitate the brain's array of interconnected neurons, and relay information between various units to find connections and derive meaning from data.

(vi) Deep learning utilizes really big neural networks and a lot of computing power to find complex patterns in data, for applications such as image and speech recognition.

(vii) Natural language processing involves analyzing and understanding human language and responding to it.

(viii) Cognitive computing is about creating a "natural, human-like interaction", including using the ability to interpret speech and respond to it.

(ix) Computer vision employs pattern recognition and deep learning to understand the content of pictures and videos, and to enable machines to use real-time images to make sense of what's around them.

10. What are the advantages and disadvantages of AI?

Ans. :

Advantages of Artificial Intelligence are as follows :

(i) **Reduction in human error :** Computers if programmed properly with artificial Intelligence gives 100% accuracy as compared to task performed by human as there is always a chance for human mistakes.

(ii) **Digital Assistance :** Some of the highly advanced organizations use digital assistants to interact with users which save the need for human resources. Example- Chabot

(iii) **Faster Decisions :** Using AI alongside other technologies, we can make machines take decisions faster than a human and carry out actions quicker.

(iv) **Daily Applications :** Daily applications such as Apple's Siri, Window's Cortana, and Google's OK Google are frequently used in our daily routine whether it is for searching a location, taking a selfie, making a phone call, replying to a mail and many more.

Disadvantages of AI are as follows :

(i) **High Costs of Creation :** As the machines used in AI based environments are very complex and high in price, it increases the cost for overall set up.

(ii) **Unemployment :** As AI is replacing the majority of the repetitive tasks and other works with robots. This will reduce human interference but cause major problems in the employment standards.

4.4 5G

11. Explain concept of 5G.

Ans. :

(i) 5G is the fifth generation of cellular network technology.

(ii) 5G is the next generation of wireless communications. It is expected to provide Internet connections that are multiple times faster than 4G LTE (Long Term Evolution).

(iii) 5G technology may use a variety of spectrum bands, including millimeter wave (mmWave) radio spectrum, which can carry very large amounts of data at a short distance.

(iv) The drawback of the higher frequencies is that they are more easily obstructed by the walls of buildings, trees and other foliage, and even changes in the weather.

(v) The new 5G networks will be able to transmit very large amounts of data—but only a few blocks at a time.

(vi) 5G networks are digital cellular networks, in which the service area covered by providers is divided into small geographical areas called cells.

(vii) 5G can support up to a million devices per square kilometer, compared to 4G.

12. Explain features of 5G.

Ans. :

(i) It is much faster than 4G.

(ii) It reduces website load time.

(iii) It enables high speed data transfer.

(iv) It can stream high resolution videos easily.

(v) It is more reliable than 4G.

(vi) IoT based application are easy to build using 5G.

Exercise

Fill in the Blanks

1. IoT is Referred as _____.

Ans. : Internet of Things

2. Smart Home is the application of _____ Technology.

Ans. : IoT

3. Amazon is the _____ service provider.

Ans : Saas

Match the Following

(1)

'A'		'B'	
1.	Smart City	(a)	Software as a Service
2.	Amazon Web Server	(b)	Platform as a Service
3.	PaaS	(c)	Cloud Computing
4.	SaaS	(d)	IOT

Ans. : 1. - (d), 2. – (c), 3. – (b), 4. – (a)

State whether the following statement is True or False

1. PaaS provides a platform tools to test, develop and host application in the same environment.

Ans. : True

2. Cloud computing means to store and access data and programs over the internet.

Ans. : True

Answer Briefly

1. Give some application of IoT.

Ans. :

Following are some applications of IoT :

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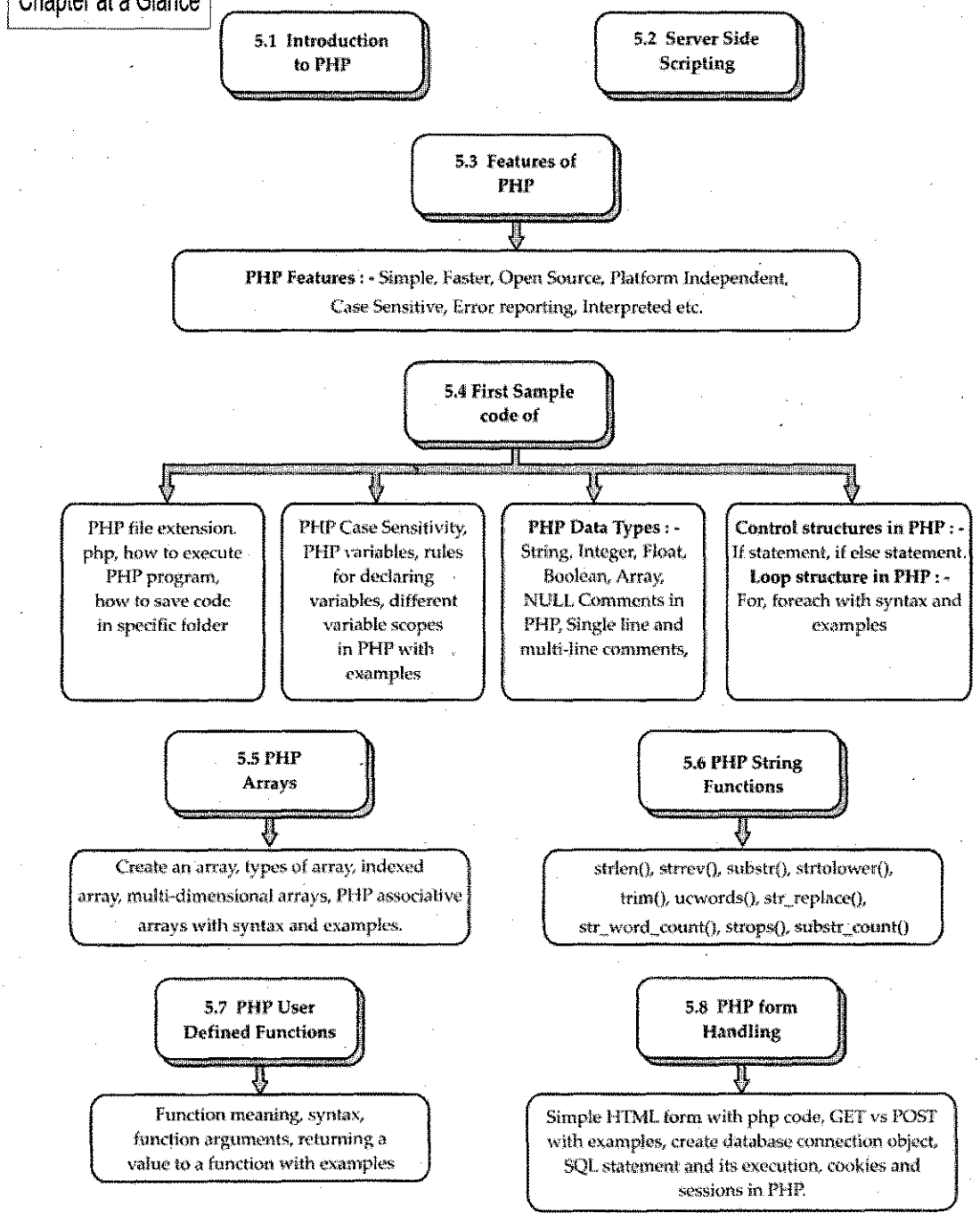
(vii) 5G can support up to a million devices per square kilometer, compared to 4G.

❑❑❑

5 Server-Side Scripting (PHP)

Chapter at a Glance



Fill in the Blanks

5.2 Server Side Scripting

1. A ..... is a Computer system that serves as a central repository of data and programs.

Ans. : Server

2. The server side environment that runs a scripting language is called .....

Ans. : Web Server

3. PHP is ..... side scripting language.

Ans. : Server

5.3 Features of PHP

4. PHP is ..... language, there is no need for compilation.

Ans. : Interpreted

5.4 First Sample code of PHP

5. PHP files have extension .....

Ans. : .php

6. ..... keyword is used to display text on web page.

Ans. : echo

7. ..... is a symbol or name that stands for a value.

Ans. : Variable

8. A variable starts with the ..... sign followed by the name of the variable.

Ans. : $

9. A variable declared outside a function has a ..... scope and can only be accessed outside a function.

Ans. : Global

10. A variable declared within a function has a ..... scope and can only be accessed within that function.

Ans. : Local

11. ..... are the statements in PHP code, which are not visible in the output of the program.

Ans. : Comments

12. The ..... statement allows programmer to make decision based on one more conditions.

Ans. : if

13. The ..... statement allows programmer to make decision based on either this or that condition.

Ans. : if else

14. ..... are used to execute the same block of code repeatedly as long as certain condition is satisfied.

Ans. : loop

15. ..... loop works only on arrays.

Ans. : foreach

16. ..... functions returns the length of a string.

Ans. : strlen()

17. ..... functions counts the number of words in a string.

Ans. : str_word_count()

18. ..... function reverses a string.

Ans. : strrev()

19. ..... function searches for a specific text within a string.

Ans. : strpos()

20. ..... function replaces some characters with some other characters in a string.

Ans. : str_replace()

21. ..... function returns a part of a string.

Ans. : substr()

22. ..... function converts a string to lowercase.

Ans. : strtolower()

23. ..... function counts the number of times a substring occurs in a string.

Ans. : substr_count()

24. ..... converts the first character of each word in a string to uppercase.

Ans. : ucwords()

25. ..... functions removes whitespace and other predefined characters from both sides of a string.

Ans. : trim()

5.5 PHP String Functions

26. A ..... is series of characters.

Ans. : string

27. A ..... is a block of statements that can be used repeatedly in a program.

Ans. : function

5.6 PHP Arrays

28. An ..... is a special variable which can hold more than one value at a time.

Ans. : array

29. An ..... stores multiple values in single variable.

Ans. : array

30. The ..... PHP functions is used to create an array variable.

Ans. : array()

31. There are ..... types of arrays in PHP.

Ans. : Three

32. The ..... arrays are the arrays with numeric index.

Ans. : Indexed

33. The ..... arrays are the arrays with named keys.

Ans. : Associative

34. The ..... arrays are the arrays containing one or more arrays.

Ans. : Multi-dimensional

35. The ..... function is used to return the length of an array.

Ans. : count()

5.7 PHP User Defined Functions

36. A ..... is a block of statements that can be repeatedly in a program.

Ans. : function

37. Information can be passed to functions through .....

Ans. : Arguments

38. ..... are specified after the function name, inside the parentheses.

Ans. : Arguments

39. The ..... statement is used to let a function return a value.

Ans. : return

5.8 PHP Form Handling

40. The form data is sent with the ..... method.

Ans. : HTTP POST

41. ..... is an array of variables passed via the URL parameters.

Ans. : $_GET

42. ..... is an array of variables passed via the URL parameters.

Ans. : $_POST

43. Information sent from a form with ..... method is visible to everyone.

Ans. : GET

44. ..... method may be used for sending non sensitive data.

Ans. : GET

45. Information sent from a form with .....method is invisible to everyone.

Ans. : POST

46. .....method has no limits on the amount of information to send.

Ans. : POST

47. ..... object helps to connect PHP code with any database server.

Ans. : PDO()

48. ..... method in PHP is used to check whether variable has value or not.

Ans. : isset()

49. A ..... is a small text file that the server sends on the user's computer.

Ans. : Cookie

50. ..... is used to identify user or its machine and track activities created on the user computer.

Ans. : Cookie

51. When browser requests server page ..... are sent along with the request.

Ans. : cookie

52. ..... is used to store user information on server to track user activities.

Ans. : session

53. ..... helps web application to maintain user information on all the pages.

Ans. : Session

True or False

5.1 Introduction to PHP

1. PHP is widely used open source general purpose scripting language.

Ans. : True

2. PHP does not supports databases.

Ans. : False

3. PHP runs on client side.

Ans. : False

5.2 Server Side Scripting

4. The server side environment that runs a scripting language is termed web server.

Ans. : True

5. PHP hides the code from the user.

Ans. : True

5.3 Features of PHP

6. PHP is very difficult to use.

Ans. : False

7. There is no need of compilation for PHP code.

Ans. : True

8. PHP is faster than other scripting language.

Ans. : True

9. You need to pay for use of PHP.

Ans. : False

10. PHP is platform independent.

Ans.: True

11. PHP is case sensitive only at the time of variable declaration.

Ans. : True

5.4 First Sample code of PHP

12. The PHP code can also be embedded with HTML tags using <? PHP and ? >

Ans. : True

13. PHP files are saved with .html extension.

Ans. : False

14. echo keyword is used to display text on web page.

Ans. : True

15. Variables are used to store values.

Ans. : True

16. A variable starts with $ sign, followed by name of variable.

Ans. : True

17. A variable name can starts with a number.

Ans. : False

18. A variable name can contain only alpha-numeric characters and underscores.

Ans. : True

19. A variable declared outside a function has a GLOBAL SCOPE.

Ans. : True

20. A variable declared within a function has a LOCAL SCOPE.

Ans. : True

21. Variables can store data of different types.

Ans. : True

22. To check data type of variable var _ put ( ) method is used.

Ans. : False

23. Comments are the non executable statement in PHP code.

Ans. : True

24. If statement allows to make decision based on one or more conditions.

Ans. : True

25. For each loop works only on arrays.

Ans. : True

26. StrLength() function returns the length of a string.

Ans. : False

27. Str_word_count() function counts the number of words in a string.

Ans. : True

28. Strrev() function reverses a string.

Ans. : True

29. Strpos() function returns a string.

Ans. : True

30. Str_replace() function replaces some characters with some other characters in a string.

Ans. : True

31. Substr() function returns a part of a string.

Ans. : True

32. Strlower() function converts a string to lower case.

Ans. : False

33. Substr_count() function counts the number of times a substring occurs in a string.

Ans. : True

34. Ucwords() function converts the first characters of each word in a string to uppercase.

Ans. : True

35. trim() function adds white space and other pre defined characters from both sides of a string.

Ans. : True

5.5 PHP String Functions

36. A string is a series of characters.

Ans. : True

37. A function is a block of statements that can be used repeatedly in a program.

Ans. : True

5.6 PHP Arrays

38. Array can store multiple values at a time.

Ans. : True

39. In PHP, array() function is used to create a array.

Ans. : True

40. Syntax of creating array variable is a = arr (values).

Ans. : False

41. In PHP there are six types of arrays.

Ans. : False

42. An array with a numeric index is called indexed arrays.

Ans. : True

43. Multi-dimensional arrays are the arrays with named keys.

Ans. : False

44. Associative array contains one or more arrays.

Ans. : False

45. Array index always starts with zero.

Ans. : True

46. The len() function is used to return the length of an array.

Ans. : false

47. PHP can handle multiple levels of multi dimensional arrays.

Ans. : True

48. We can create our own functions in PHP.

Ans. : True

5.7 PHP User Defined Functions

49. A function is a block of statements that can be used repeatedly in a program.

Ans. : True

50. A function name cannot start with a number.

Ans. : True

51. Information can be passed to functions through methods.

Ans. : False

52. Arguments are specified after the function name, inside the parentheses.

Ans. : True

53. Return statement is used to return a value of a function.

Ans. : True

5.8 PHP Form Handling

54. The form data is sent with the HTTP Post method.

Ans. : True

55. The PHP superglobals $_GET and $_POST are used to collect form data.

Ans. : True

56. $_GET and $_POST syperglobals which means that they are never accessible.

Ans. : False

57. $_GET is an array of variables passed via the URL parameters.

Ans. : True

58. $_POST is an array of variables passed via the HTTP POST method.

Ans. : True

59. Information sent from a form with GET method is not visible to everyone.

Ans. : False

60. GET has limits on the amount of information to send.

Ans. : True

61. GET should NEVER be used for sending passwords or other sensitive information.

Ans. : True

62. Information sent from a form with POST method is invisible to everyone.

Ans. : True

63. POST has limits on the amount of information to send.

Ans. : False

64. isset() method in PHP is used to check whether variable has value or not.

Ans. : True

65. A cookie is a small text file the client sends on the user's computer.

Ans. : False

66. When browser requests server page, cookies are sent along with the request.

Ans. : True

67. Cookies store visited page on browser to optimize search.

Ans. : True

68. Session is used to store user information on server to track user activities.

Ans. : True

69. Session helps web application to maintain user information on all the pages.

Ans. : True

70. PHP Data Object helps us to connect PHP code in Uniform Method of access to multiple databases.

Ans. : True

MCQ (One Correct Answers)

5.1 Introduction to PHP

1. ..... is a widely used open source server side programming language which runs on various platforms.

(a) Word (b) PHP (c) Excel (d) PowerPoint

Ans. : (b)

5.2 Server Side Scripting

2. A ..... is a Computer system that serves as a central repository of data and programs.

(a) Server (b) Network (c) Client (d) Object

Ans. : (a)

3. The server side environment that runs a scripting language is termed .....

(a) Browser (b) Computer (c) Web server (d) Client

Ans. : (c)

5.3 Features of PHP

4. ..... is a script executed on server which generate dynamic HTML pages.

(a) PHP (b) MS Word (c) MSExcel (d) Client

Ans. : (a)

5.4 First Sample code of PHP

5. The PHP code can also be embedded with HTML tags using .....

(a) <!Php!> (b) <?php and ?>

(c) <=php> (d) <#php#>

Ans. : (b)

6. PHP files are saved with ..... extension.

(a) .html (b) .xml (c) .js (d) .php

Ans. : (d)

7. ..... keyword is used to display text on web page.

(a) echo (b) print (c) write (d) cin

Ans. : (a)

8. ..... is a symbol or name that stands for a value.

(a) Method (b) condition (c) Variable (d) Value

Ans. : (c)

9. A variable in PHP starts with the ..... sign followed by name of the variable.

(a) # (b) @ (c) = (d) $

Ans. : (d)

10. PHP variable name cannot starts with a .....

(a) Number (b) Character

(c) Alphanumeric (d) Dollar

Ans. : (a)

11. Correct method for declaring PHP variable is .....

(a) # age (b) $ age (c) @ age (d) age

Ans. : (b)

12. A variable declaration ..... a function has a GLOBAL SCOPE.

(a) inside (b) middle (c) outside (d) topside

Ans. : (c)

13. A variable declared ..... a function has a LOCAL SCOPE

(a) Inside (b) outside (c) between (d) within

Ans. : (d)

14. PHP stores all ..... variables in an array called $ GLOBAL[Index]

(a) local (b) global (c) Static (d) within

Ans. : (b)

15. To check data type of variable in PHP ..... method is used.

(a) var_dump() (b) var _del()

(c) var_remove() (d) var_delete()

Ans. : (a)

16. ..... are the statements in PHP code which are not visible in the output of the program.

(a) Methods (b) comments (c) Objects (d) values

Ans. : (b)

17. How to add a single line comment in PHP ?

(a) // (b) # (c) $ (d) @

Ans. : (a)

18. How to a multiline comment in PHP ?

(a) // (b) # (c) $ (d) /* and */

Ans. : (d)

19. ..... statement allows programmer to make decision, based on one or more conditions.

(a) if (b) loop (c) variable (d) method

Ans. : (a)

20. ..... statement allows programmer to make decisions based on either this or that decision.

(a) loop (b) if else

(c) variable (d) method

Ans. : (b)

21. ..... are used to execute the same block of code repeatedly as long as a certain condition is satisfied.

(a) Variable (b) Method (c) Object (d) loops

Ans. : (d)

22. ..... loop works only on arrays.

(a) for next (b) for (c) foreach (d) forone

Ans. : (c)

23. ..... function returns the length of a string.

(a) strrev() (b) strlen() (c) strlength() (d) substr()

Ans. : (b)

24. ..... function counts the number of words in a string.

(a) strlen() (b) str_word_count()

(c) substr() (d) trim()

Ans. : (b)

25. ..... function reverses a string.

(a) strrev() (b) trim() (c) UCwords() (d) strops()

Ans. : (a)

26. ..... function searches for a specific text within a string.

(a) substr() (b) strrev() (c) strpos() (d) str_replace()

Ans. : (c)

27. ..... function replaces some characters with same other character in a string.

(a) strrev() (b) str _replace()

(c) trim() (d) strpos()

Ans. : (b)

28. ..... function returns a part of a string.

(a) substr() (b) trim() (c) strrev() (d) str_len()

Ans. : (a)

29. ..... function converts a string to lowercase.

(a) UCwords() (b) strtolower()

(c) strlower() (d) trim()

Ans. : (b)

30. ..... function counts the number of times substring occurs in a string.

(a) substr() (b) substr_count()

(c) trim() (d) strlen()

Ans. (b)

31. ..... function converts the first character of each word in a string to upper case.

(a) substr() (b) strtolower()

(c) trim() (d) ucwords()

Ans.: (d)

32. ..... function removes whitespace and other predefined characters from both sides of a string.

(a) trim() (b) strlen() (c) straps() (d) strrev()

Ans. : (a)

5.5 PHP String Functions

33. A ..... is series of characters.

(a) String (b) Number (c) Object (d) Value

Ans. : (a)

34. A ..... is a block of statements that can be used repeatedly in a program.

(a) function (b) class (c) method (d) variable

Ans. : (a)

5.6 PHP Arrays

35. ..... is a variable which can hold more than one value at a time.

(a) Array (b) Method (c) Object (d) Constant

Ans. : (a)

36. In PHP ..... function is used to create array.

(a) arr() (b) array() (c) value() (d) variable()

Ans. : (b)

37. Syntax of creating array variable is .....

(a) @ a = array() (b) #a = arr()

(c) = array() (d) $a = array (values)

Ans. : (d)

38. There are ..... types of arrays in PHP.

(a) Two (b) One (c) Three (d) Four

Ans. : (c)

39. ..... arrays are the arrays with a numeric index.

(a) Associative (b) Indexed

(c) Multi-dimensional (d) Normal

Ans. : (b)

40. ..... arrays are the arrays with named keys.

(a) Indexed (b) Associative

(c) Dimensional (d) Normal

Ans. : (b)

41. ..... arrays are arrays containing one or more arrays.

(a) Multi-dimensional (b) Indexed

(c) Associative (d) Numbered

Ans. : (a)

42. Array index always starts with .....

(a) one (b) two (c) zero (d) four

Ans. : (c)

5.7 PHP User Defined Functions

43. A ..... is a block of statements that can be repeatedly in a program.

(a) function (b) condition (c) object (d) value

Ans. : (a)

44. Information can be passed to functions through .....

(a) Condition (b) arguments (c) array (d) variable

Ans. : (b)

5.8 PHP Form Handling

45. The form data is sent with the ..... method.

(a) HTTP POST (b) FTP POST

(c) STP POST (d) SMPT POST

Ans. : (a)

46. ..... is an array of variables passed via the URL parameters.

(a) $_GET (b) #GET (c) ._GET (d) @_GET

Ans. : (a)

47. ..... is an array of variables passed via the HTTP POST method.

(a) $POST (b) $_POST (c) @_POST (d) #_POST

Ans. : (b)

48. Information sent from a form with ..... method is visible to everyone.

(a) POST (b) GET (c) HTTP (D) FTP

Ans. : (b)

49. Information sent from a form with ..... method is invisible to everyone.

(a) POST (b) GET (c) HTTP (d) FTP

Ans. : (a)

50. ..... NEVER be used for sending sensitive information.

(a) POST (b) HTTP (c) GET (d) FTP

Ans. : (c)

51. ..... method in PHP is used to check whether variable has value or not.

(a) outset() (b) inset() (c) noset() (d) isset()

Ans. : (d)

52. A ..... is a small text file that the server sends on the user's computer.
(a) Cookie (b) session
(c) Presentation (d) Method

Ans.: (a)

53. ..... are sent along when browser requests server pages.
(a) Cookie (b) Session (c) Method (d) Server

Ans. : (a)

54. ..... is used to store information on server to track user activities.
(a) Cookie (b) session (c) Presentation (d) Object

Ans. : (b)

55. ..... helps web application to maintain user information on all the pages.
(a) Session (b) presentation
(c) Cookie (d) object

Ans. : (a)

MCQ (Two Correct Answers)

5.1 Introduction to PHP

1. PHP runs on following platform.
(a) Linux (b) Excel (c) Word (d) Windows

Ans. : (a), (d)

2. PHP is compatible with following servers.
(a) Unix (b) XAMMP (c) Linux (d) Apache

Ans. : (b), (d)

5.2 Server Side Scripting

3. Programming languages for server side programming are .....
(a) PHP (b) Tally (c) Excel (d) Python

Ans. : (a), (d)

5.3 Features of PHP

4. Features of PHP are .....
(a) Interpreted (b) Open source
(c) Difficult (d) Platform dependent

Ans.: (a), (b)

5.4 First Sample code of PHP

5. Popular PHP Frameworks are .....

(a) Echo (b) Laravel (c) ServerSide (d) Symfony

Ans. : (b), (d)

6. Variables are used for storing values such as ..... and .....

(a) Methods (b) Numeric values

(c) Character Strings (d) Functions

Ans. : (b), (c)

7. A variable starts with the ..... sign followed by ..... of the variable.

(a) $ (b) # (c) name (d) value

Ans. : (a), (c)

8. A variable declared ..... a function has GLOBAL SCOPE and a variable declared ..... a function has LOCAL SCOPE.

(a) inside (b) outside (c) within (d) between

Ans. : (b), (c)

9. Following are the data types used in PHP .....

(a) Boolean (b) Text (c) Number (d) Array

Ans. : (a), (d)

10. Control structures in PHP are .....

(a) for (b) if statement

(c) for each (d) if else statement

Ans. : (b), (d)

11. Loop structure in PHP are .....

(a) for (b) for each (c) if (d) if else

Ans. : (a), (b)

12. Comments in PHP is possible in following ways.

(a) // (b) \\ (c) /* and */ (d) /# and #/

Ans. : (a), (c)

13. Comments are of ..... and ..... type.

(a) Single line (b) No line (c) Two line (d) Multi-line

Ans. : (a), (d)

14. Following are the pre defined functions in PHP to manipulate string.

(a) trim() (b) substr() (c) length() (D) strreverse()

Ans. : (a), (b)

5.7 PHP User Defined Functions

15. A function name can start with a ..... or .....

(a) symbol (b) Number (c) Letter (d) Underscore

Ans. : (c), (d)

5.8 PHP Form Handling

16. Form data can be submitted by ..... or ..... method.

(a) Return (b) forward (c) GET (d) POST

Ans. : (c), (d)

17. The PHP super globals ..... and ..... are used to collect form data.

(a) $_GET (b) $POST (c) $GET (d) $_POST

Ans. : (a), (d)

18. ..... is an array of variables passed via URL parameters and ..... is an array of variables passed via HTTP POST method.

(a) $GET (b) $_GET (c) $_POST (d) $POST

Ans. : (b), (c)

19. ..... has limits on the amount of information to sends whereas ..... has no limits on the amount of information to send.

(a) Value (b) Method (c) GET (d) POST

Ans. : (c), (d)

MCQ (Three Correct Answers)

5.1 Introduction to PHP

1. PHP runs on following platforms .....

(a) Systems (b) Words (c) Linux (d) Excel

(e) Unix (f) Windows

Ans. : (c), (e), (f)

2. PHP is compatible with following servers.

(a) XAMMP (b) Linux (c) Apache

(d) Unix (e) Lightpad (f) Word

Ans. : (a), (c), (e)

5.2 Server Side Scripting

3. Programming languages for server side programming are

(a) PHP (b) Windows (c) Linux (d) Python

(e) Unix (f) Java and JSP

Ans. : (a), (d), (f)

5.3 Features of PHP

4. Features of PHP are .....

(a) Difficult (b) Simple (c) Error Creating

(d) Platform Independent (e) Error Reporting

(f) Platform Dependent

Ans. : (b), (d), (e)

5.4 First Sample code of PHP

5. Variables are used for storing values such as ....., ..., and .....

(a) Character (b) Numeric (c) Objects (d) Methods

(e) Functions (f) Memory addresses

Ans. : (a), (b), (f)

6. The scope of variable in PHP are .....

(a) Local (b) Regional (c) National (d) Global

(e) Static (f) International

Ans. : (a), (d), (e)

7. PHP data types are .....

(a) Text (b) String (c) Number (d) Integer

(e) Empty (f) Boolean

Ans. : (b), (d), (f)

8. Following are the predefined functions in PHP to manipulate string

(a) Lower() (b) strops() (c) substr() (d) strlen()

(e) upper() (f) strlength()

Ans. : (b), (c), (d)

5.6

9. In PHP three types of arrays are ....., ..., ...,

(a) inside (b) multiple (c) indexed (d) associate

(e) outside (f) multi-dimensional

Ans. : (c), (d), (f)

PHP Theory with Examples

5.1 Introduction to PHP

PHP (Hypertext Pre-processor) is a widely-used open source general-purpose scripting language. PHP runs on various platforms (Linux, Unix, Mac OS X, Windows etc.). PHP supports a wide range of databases. PHP is easy to learn and runs efficiently on the server side.

5.2 Server Side Scripting

A server is a computer system that serves as a central repository of data and programs and is shared by the clients. The server-side environment THAT runs a scripting language is termed web server. A user's request is fulfilled by running A script directly on the web server to generate dynamic html pages. This html is then sent to the client browser.

Few programming languages for server side programming are:-

1) PHP 2) Java and JSP 3) Python

5.3 Features of PHP

PHP is the most popular and frequently used worldwide server-side scripting language. Following are some of the features of PHP :

- **Simple :** It is very simple and easy to use, as compared to other scripting languages.
- **Interpreted :** It is an interpreted language, i.e. there is no need for compilation.
- **Open Source :** Open source means you need not pay for use of PHP. You can freely download and use.
- **Platform Independent :** PHP code will be run on every platform, Linux, Unix, Mac OS X, Windows.
- **Error Reporting :** PHP have some predefined error reporting constants to generate a warning or error notice.

5.4 First sample code of PHP

The PHP code usually enclosed in a special start and end processing instructions <?php and ?> that allows us to move in to and out of PHP mode. All PHP files have **.php** extension.

Simple example to display "Hello world" message on the web page

Coding :

```
<!DOCTYPE html>
<html>
<body>
<h1>My First Web Page</h1>
<?php
echo "Hello World";
?>
</body>
</html>
```

Steps to save and execute PHP programs:-

1. Type the above program and save it as "demo.php" using any text editor. (for eg Notepad, gedit).
2. Create a folder with your name (for example php).

   Note : Create folder in server's root directory. For Ubuntu the path of root directory is var/www/html. For Windows the path of root directory is c:/XAMPP/htdocs.
3. Save the "demo.php" file in your folder.
4. Open browser and type in address bar http://localhost/php/. Click on demo.php.

Output :

PHP case sensitivity

In PHP, the variable names are case sensitive. However keywords, function and class names are not case sensitive. The **echo** keyword is not case sensitive.

PHP variables

Variable is a name that stands for a value. Variables are used to store values such as numeric and character values etc.

Rules for declaring PHP variables :

- A variable starts with the $ sign, followed by the name of the variable
- A variable name must start with a letter or the underscore character
- A variable name cannot start with a number
- A variable name can only contain alpha-numeric characters and underscores (A-z, 0-9, and _)
- Variable names are case-sensitive ($name and $name are two different variables)
- There are three different variable scopes in PHP :
  1. local
  2. global
  3. static

A variable declared outside a function has a GLOBAL SCOPE and can only be accessed outside a function (variable $a). And a variable declared within a function has a LOCAL SCOPE and can only be accessed within that function (variable $b). In some cases, if we want a local variable not to be deleted then the use of "static" keyword is must.

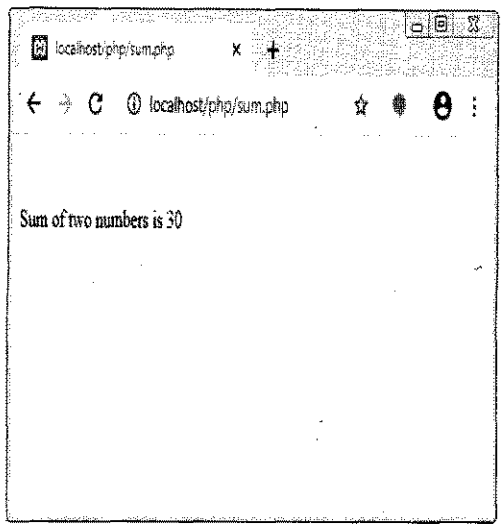
Example

PHP Program to print sum of two numbers.

Coding :

```
<?php
$a=10;
$b=20;
$c=$a+$b;
echo "<br><br> Sum of two numbers is $c";
?>
```

Output :



PHP Data Types

Variables can store different types of data. PHP supports following data types :

1) String 2) Integer
3) Float 4) Boolean
5) Array 6) Null

Note : To check the data type of the variable var_dump() method is used.

Comments in PHP

Comments are the statement in PHP block which are not executed in the program. There are two types of comments, Single line comment and multi-line comments.

How to use Single line comment

```
// Single line comment
```

How to use Multi line comment

```
/* Multi
line
comment */
```

Operators in PHP are :

1. **Arithmetic Operators**

Operator	Definition	Example
+	Addition	a+b
-	Subtraction	a-b
*	Multiplication	a*b
/	Division	a/b
%	Modulus	a%b

2. **Relational Operators**

Operator	Definition	Example
>	Greater than	a>b
<	Less than	a<b
>=	Greater than or equal to	a>=b
<=	Less than or equal to	a<=b
==	Equal to	a=b

Control Structures in PHP

1. **If statement in PHP:-**

If statement allows the programmer to make decision based on one or more conditions, and execute statement accordingly.

Syntax :-

```
if(condition)
{
Block of statements;
}
```

2. **If else if statement in PHP:-**

If else if statement allows the programmer to make decision based on either th that conditions.

Syntax:-

```
if(condition)
{
Block of statements;
}
```

```
else
{
Block of statements;
}
```

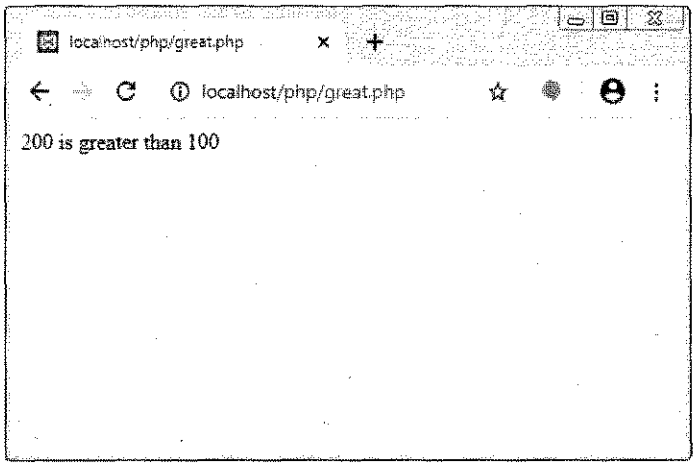
Example

PHP program to check and print greatest among two numbers.

Coding :

```
<?php
$a=100;
$b=200;
if($a>$b)
echo "$a is greater than $b";
else
echo "$b is greater than $a";
?>
```

Output:-



2. Loop Structure in PHP

Loops are used to execute the same block of code repeatedly as long as certain condition is satisfied.

Syntax For Loop

```
for(initialization;condition;increment)
{
Statements of loop;
}
```

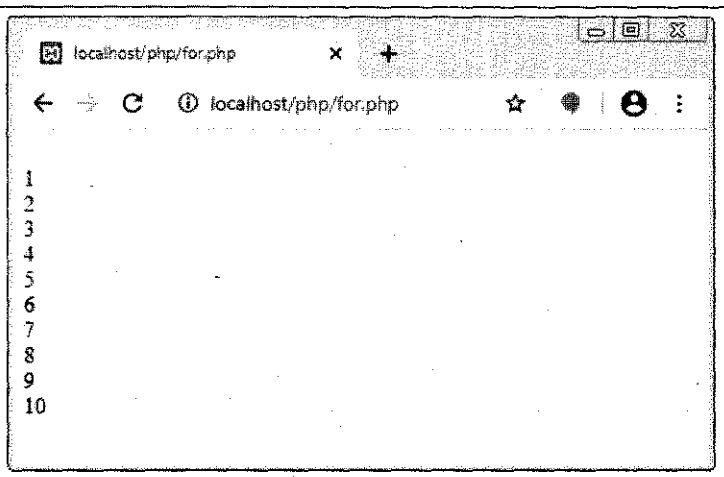
Example

PHP program to print numbers from 1 to 10 using for loop.

Coding :

```
<?php
for($i=1;$i<=10;$i++)
{
echo "<br> $i";
}
?>
```

Output:-



3. Foreach Loop

This loop works only for arrays.

Syntax:-

```
foreach($array as $value)
{
Statements of loop;
}
```

5.5 PHP String Functions

A string is a series of characters. Following are the predefined string functions in PHP.

Function	Description
strlen()	Returns the length of a string (i.e. total no. of characters)
str_word_count()	Counts the number of words in a string
strrev()	Reverses a string
strpos()	Searches for a specific text within a string and returns the character position of the first match and if no match is found, then it will return false
str_replace()	Replaces some characters with some other characters in a string
substr()	Returns a part of a string
strtolower()	Converts a string to lowercase
substr_count()	Counts the number of times a substring occurs in a string
ucwords()	Converts the first character of each word in a string to uppercase
trim()	Removes whitespace and other predefined characters from both sides of a string

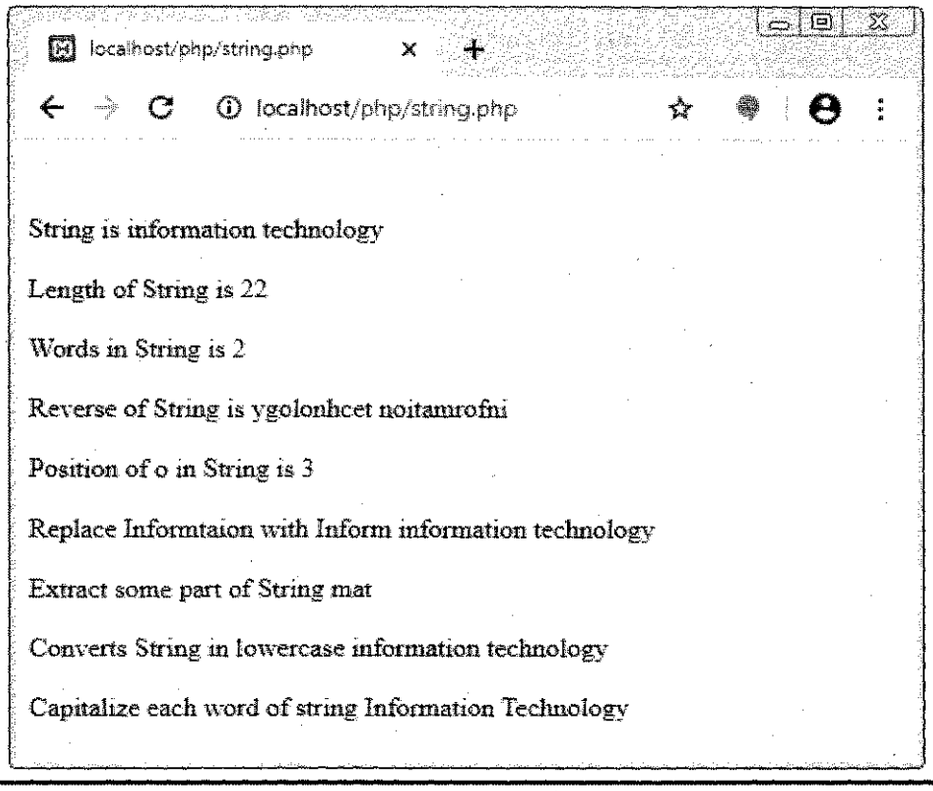
Example

PHP program to demonstrate string functions

Coding :

```
<?php
$a="information technology";
echo "<br><br> String is ".$a;
echo "<br><br> Length of String is ".strlen($a);
echo "<br><br> Words in String is ".str_word_count($a);
echo "<br><br> Reverse of String is ".strrev($a);
echo "<br><br> Position of o in String is ".strpos($a,"o");
echo "<br><br> Replace Informtaion with Inform ".str_replace
("Information","Inform",$a);
echo "<br><br> Extract some part of String ".substr($a,5,3);
echo "<br><br> Converts String in lowercase ".strtolower($a);
echo "<br><br> Capitalize each word of string ".ucwords($a);
?>
```

Output :



5.6 PHP Arrays

An array is a special variable, which can hold more than one value at a time.

Creating array in PHP :

In PHP, the array() function is used to create an array.

Syntax is:-

```
$x=array(values)
```

There are three types of arrays:

Indexed Arrays: - Arrays with a numeric index. Index always start with zero (0).

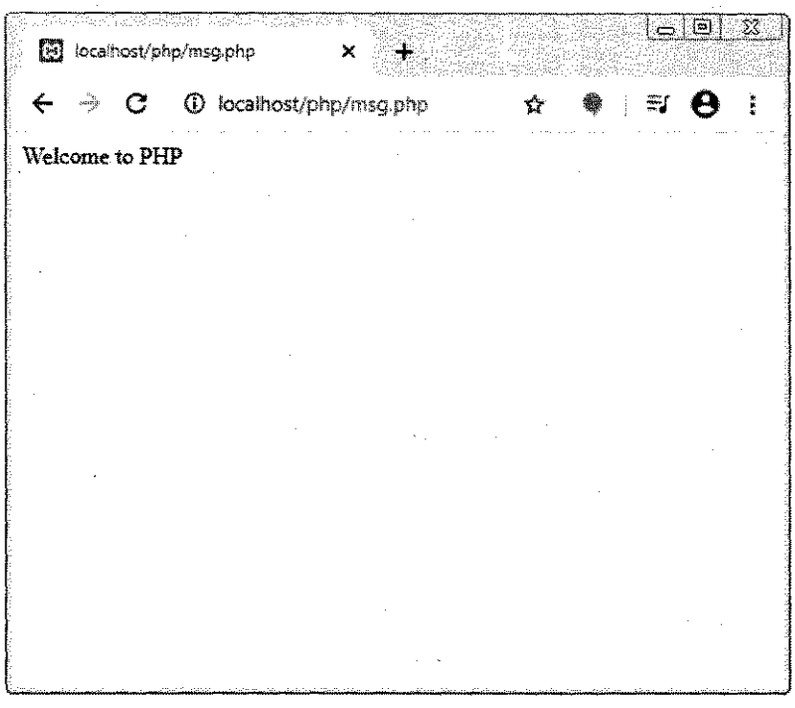
Syntax is: - $x=(value1,value2,... value n)

PHP program to print the name of colors store in array variable.

Coding

```
<?php
$x=array("Red","Blue","Brown","Pink","Purple");
echo "Color names are <br>";
```

Output :



PHP Function Arguments

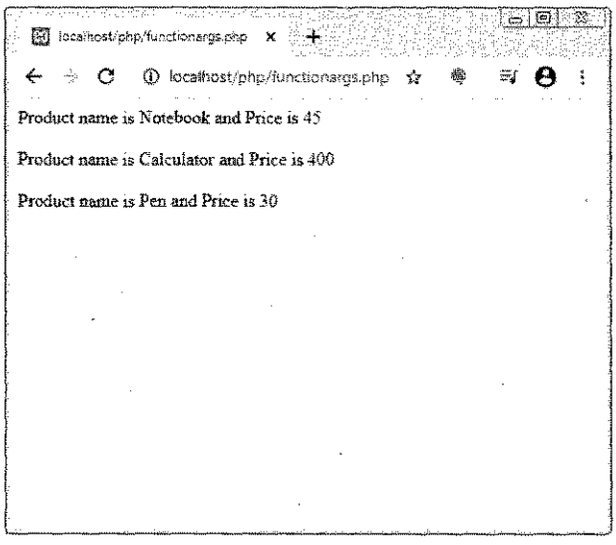
Information can be passed to function through arguments. Arguments are specified after function name.

PHP program to print Name and Price of the product by passing arguments to function.

Coding :

```
<?php
function pr($n,$price)
{
echo "Product name is $n and Price is $price <br><br>";
}
pr("Notebook",45);
pr("Calculator",400);
pr("Pen",30);
?>
```

Output :



Returning Value :

To let a function return a value, return statement is used.

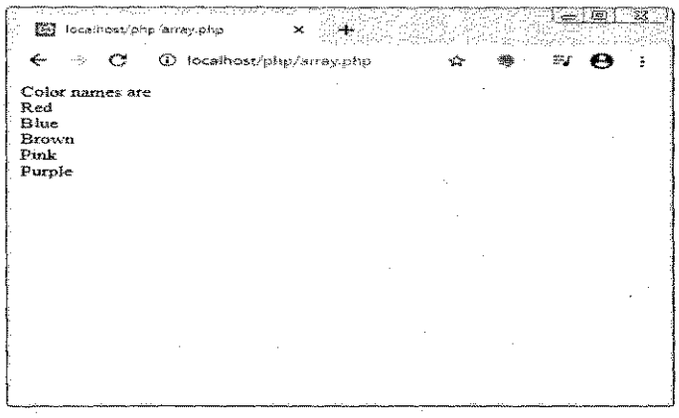
PHP program to print sum of two numbers using function.

Coding :

```
<?php
function sum(int $a,int $b)
{
$c=$a+$b;
return $c;
}
echo "10+20= " .sum(10,20). "<br><br>";
echo "11+2= " .sum(11,2). "<br><br>";
echo "31+9= " .sum(31,9). "<br><br>";
?>
```

```
foreach($x as $value)
{
echo "$value <br>";
}
?>
```

Output :



Associative Arrays : - Arrays with named index. This uses name key instead of index to identify record/value.

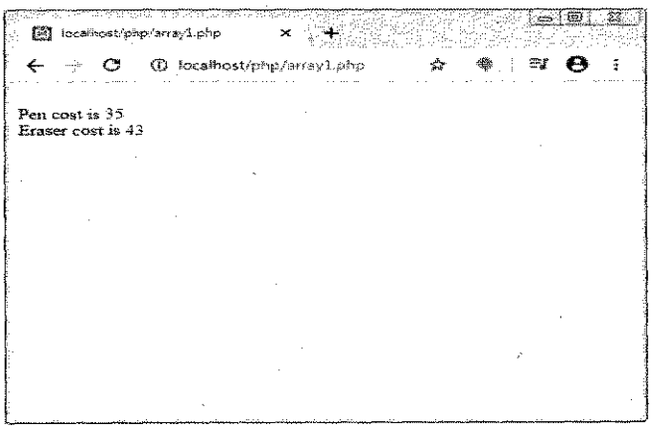
Syntax : - $x=(key1>= value1, key2>= value2, ... Key n>= value n)

PHP program to print the cost of product store in array variable.

Coding :

```
<?php
$p = array("Pen"=>"35", "Ball"=>"37", "eraser"=>"43");
echo "<br>Pen cost is ".$p['Pen'];
echo "<br>Eraser cost is ".$p['eraser'];
?>
```

Output :



Multi-dimensional Arrays : - Arrays containing one or more arrays.

PHP program to print the information about cars sold and cars in stock.

Coding :

```
<?php
$cars = array
 (
 array("Volvo",22,18),
 array("BMW",15,13),
 array("Saab",5,2),
 array("Land Rover",17,15)
 );
echo $cars[0][0].": In stock: ".$cars[0][1].", sold: ".$cars[0][2].".<br>";
echo $cars[1][0].": In stock: ".$cars[1][1].", sold: ".$cars[1][2].".<br>";
echo $cars[2][0].": In stock: ".$cars[2][1].", sold: ".$cars[2][2].".<br>";
echo $cars[3][0].": In stock: ".$cars[3][1].", sold: ".$cars[3][2].".<br>";
?>
```

5.7 PHP User Defined Functions

A function is a block of statements that can be used repeatedly in a program.

Syntax is :

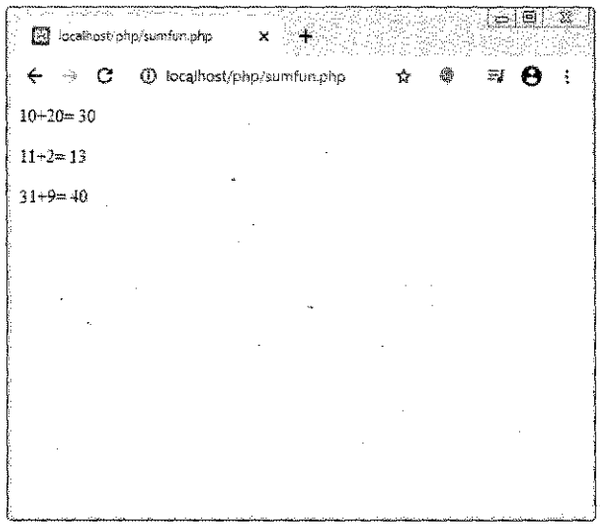
```
function functionname()
{
statements;
}
```

PHP program to print message "Welcome to PHP" using function.

Coding :

```
<?php
function msg()  // declaring a function
{
echo "Welcome to PHP";  //defining function
}
msg(); // calling function
?>
```

Output :



5.8 PHP Form Handling

Create a HTML form with two input fields to accept number from the user and a button to print addition of two numbers.

Coding :

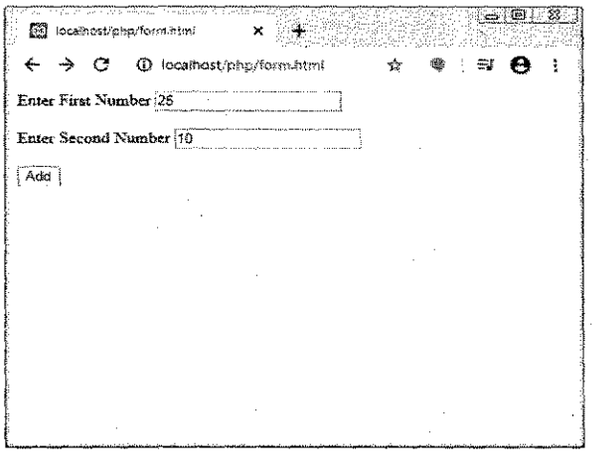
Form.html

```
<html>
<body>
<form action="add.php" method =post">
Enter First Number
<input type="text" name="t1"><br><br>
Enter Second Number
<input type="text" name="t2"><br><br>
<input type="submit" value="Add">
</form>
</body>
</html>
```

add.php

```
<?php
$t1=$_GET["t1"];
$t2=$_GET["t2"];
$c=$t1+$t2;
echo "<br><br> Sum of two numbers is $c";
?>
```

Output :



The PHP superglobals $_GET and $_POST are used to collect form data.

GET vs POST

Both GET and POST are treated as superglobals which means that they are always accessible regardless of scope. It can be accessed from any function, class or file without having to do anything special.

Example to create admission form for student. Accept name and gender from the student. Create a college database and create table student having the fields name and gender.

Steps to create database and Table :

1) For database creation → open postgres sql terminal -→ create database college; and press enter.
2) For Table creation -→ create table student(name text, gender Boolean); press enter , table will be created.

Now type code in admission.php

```
<!DOCTYPE html>
<html>
<body>
<h1 align="center">Addmission Form</h1>
<form method="post">
<label>Enter Name</label>
<input type="text" name="name" id="id_name"><br><br>
<label>Gender</label>
<input type="radio" name="gender" id="id_gender" value="male">Male<br><br>
<input type="radio" name="gender" id="id_gender" value="female">FeMale<br><br>
<input type="radio" name="gender" id="id_gender" value="other">Other<br><br>
<input type="submit" name="submit" value="submit" id="submit">
</form>
</body>
</html>
<?php
$servername="pgsql:host=localhost;dbname=college";
$username="postgres";
$password="laxmi";
$conn=new PDO($servername,$username,$password);
if(isset($_POST['submit']))
{
$name=$_POST["name"];
$gender=$_POST["gender"];
$sql="INSERT INTO student(name,gender) VALUES ('".$name."','".$gender."')";
$conn->exec($sql);
echo "New record added successfully";
}
?>
```

Answer the following

5.2 Server Side Scripting

1. Explain Server Side Scripting?

Ans. :

(i) A server is a computer system that serves as a central control of data and programs shared by clients.

(ii) The server side environment that runs a scripting language is termed as web server.

(iii) A user's request is fulfilled by running a script directly on the web server.

(iv) It is used to provide interactive web sites.

(v) Programming language for server side programming are PHP, Python JSP.

5.3 Features of PHP

2. Explain features of PHP (any 5).

Ans. : PHP is most popular and frequently used worldwide server side scripting language. Following are features of PHP :

(i) **Simple :** It is very simple and easy to use, as compared to other scripting languages.

(ii) **Interpreted :** It is an interpreted language, i.e. there is no need for compilation.

(iii) **Faster :** It is faster than other scripting language e.g. JSP and ASP.

(iv) **Open Source :** Open source means you need not pay for use of PHP. You can freely download and use.

(v) **Platform Independent :** PHP code will be run on every platform, Linux, Unix, Mac OS X, Windows.

5.4 First sample code of PHP

3. Explain how to save and execute PHP program.

Ans. :

(i) Type the PHP code using any text editor (Notepad).

(ii) Save with .php extension in appropriate folder.

(iii) Go to browser and type http://localhost/php/first.php

4. What is a variable?

Ans. :

(i) Variable is a symbol or name that contains value.

(ii) Variables are used for storing values such as numbers or characters.

(iii) The stored values can be used in any part of the program.

5. What are the rules for declaring PHP variables?

Ans. :

Following are the rules for declaring variables in PHP:-

(i) A variable starts with the $ sign, followed by the name of the variable

(ii) A variable name must start with a letter or the underscore character

(iii) A variable name cannot start with a number

(iv) A variable name can only contain alpha-numeric characters and underscores (A-z, 0-9, and _)

(v) Variable names are case-sensitive ($age and $AGE are two different variables)

---

6. Explain variable scopes in PHP.

Ans. :

There are three different variables scopes in PHP :

- local
- global
- static

(i) A variable declared outside a function has a **GLOBAL SCOPE** and can only be accessed outside a function.

(ii) A variable declared within a function has a **LOCAL SCOPE** and can only be accessed within that function.

(iii) If we want a local variable not to be deleted then we have to use of static keyboard.

---

7. Explain PHP data types.

Ans. :

(i) String: - A string is a sequence of characters. A string can be any text inside quotes. You can use single or double quotes:

(ii) Integer:- An integer data type is a non-decimal number between -2,147,483,648 and 2,147,483,647.

(iii) Float (floating point numbers) :- A float (floating point number) is a number with a decimal point or a number in exponential form.

(iv) Boolean : A Boolean represents two possible states: TRUE or FALSE.

(v) Array:- An array stores multiple values in one single variable.

(vi) NULL:- Null is a special data type which can have only one value: NULL. A variable of data type NULL is a variable that has no value assigned to it.

---

8. Explain Single line and multi line comments in PHP.

Ans. :

(i) A comment in PHP code is a line that is not executed as a part of the program.

(ii) Its only purpose is to be read by someone who is looking at the code.

(iii) PHP supports several ways of commenting: Single line comment and multi line comment.

(iv) Single line comment can be written in two ways, they are :-

// This is a single-line comment

This is also a single-line comment

(v) Multi line comment can be written as:-

/* This is a multiple-lines comment block that spans over multiple lines */

9. Explain PHP If statement with syntax.

Ans. :

if statement - executes some code if one condition is true.

Syntax of if statement is

```
if (condition) {
  code to be executed if condition is true;
}
```

10. Explain PHP If else statement with syntax.

Ans. :

The if...else statement executes some code if a condition is true and another code if that condition is false.

Syntax of if else is

```
if (condition) {
  code to be executed if condition is true;
} else {
  code to be executed if condition is false;
}
```

11. Explain PHP for loop with syntax.

Ans. :

(i) Loops are used to execute the same block of code again and again, as long as a certain condition is true.

(ii) The for loop is used when you know in advance how many times the script should run.

Syntax

```
for (init counter; test counter; increment counter) {
  code to be executed for each iteration;
}
```

12. Explain PHP foreach with syntax.

Ans. :

The foreach loop works only on arrays, and is used to loop through each key/value pair in an array.

Syntax

```
foreach ($array as $value) {
  code to be executed;
}
```

5.5 PHP String Functions

13. Explain String functions used in PHP (any 5).

Function	Description
strlen()	Returns the length of a string (i.e. total no. of characters)
str_word_count()	Counts the number of words in a string
strrev()	Reverses a string
strpos()	Searches for a specific text within a string and returns the character position of the first match and if no match is found, then it will return false
str_replace()	Replaces some characters with some other characters in a string

5.6 PHP Arrays

14. Explain how to create arrays in PHP with syntax.

Ans. :

(i) An array stores multiple values in one single variable

(ii) In PHP the array() function is used to create an array.

(iii) Syntax to create array is :- $a=array(value)

15. Explain types of Arrays in PHP.

Ans. :

In PHP, there are three types of arrays:

(i) **Indexed arrays** - Arrays with a numeric index. For example:- $cars = array("Volvo", "BMW", "Toyota");

(ii) **Associative arrays** - Arrays with named keys. For example :- $age = array("Peter"=>"35", "Ben"=>"37", "Joe"=>"43");

(iii) Multidimensional arrays - Arrays containing one or more arrays. Fro example :- $cars = array

```
(
array("Volvo",22,18),
array("BMW",15,13),
array("Saab",5,2),
array("Land Rover",17,15)
);
```

5.7 PHP User Defined Functions

16. Explain how to declare user defined function in PHP.

Ans. :

(i) A function is a block of statements that can be used repeatedly in a program.

(ii) A function will not execute automatically when a page loads.

(iii) A function will be executed by a call to the function.

(iv) A user-defined function declaration starts with the word function :

Syntax

```
function functionName() {
  code to be executed;
}
```

17. Explain PHP function arguments.

Ans. :

(i) Information can be passed to functions through arguments. An argument is just like a variable.

(ii) Arguments are specified after the function name, inside the parentheses. You can add as many arguments as you want, just separate them with a comma.

(iii) Example is :-

```
<?php
function familyName($fname) {
  echo "$fname Refsnes.<br>";
}
familyName("Jani");
familyName("Hege");
familyName("Stale");
familyName("Kai Jim");
familyName("Borge");
?>
```

5.8 PHP Form Handling

18. Explain difference between GET and POST.

Ans. :

(i) Both GET and POST are treated as superglobals which means that they are always accessible regardless of scope.

(ii) It can be accessed from any function, class or file without having to do anything special.

(iii) $_GET is an array of variables passed via the URL parameters.

(iv) $_POST is an array of variables passed via the HTTP POST method.

---

19. Explain isset() method in PHP.

Ans. :

(i) isset() method is used in PHP to check whether variable has value or not.

(ii) This helps us to know if the button is clicked or not.

---

20. Short note on Cookies and d Session in PHP.

Ans. :

(a) Cookies:-

(i) A cookie is often used to identify a user.

(ii) A cookie is a small file that the server embeds on the user's computer.

(iii) Each time the same computer requests a page with a browser, it will send the cookie too.

(iv) With PHP, you can both create and retrieve cookie values.

(b) Session

(i) Session is used to store user information on server to track user activities.

(ii) It helps in web application to maintain user information on all the pages.

(iii) For example, if you login to gmail account, the session helps to access youtube account also.

PHP Extra Programs for Practice

1. Write a PHP code which calculates and prints addition, subtraction, multiplication, division of two numbers using form.

Ans. :

Coding :-

```
<html>
<body>
<form method="post">
Enter First Number
<input type="text" name="first"><br><br>
Enter Second Number
<input type="text" name="second"><br><br>
<input type="submit" name="submit" value="Submit">
</form>
</body>
</html>
<?php
 if(isset($_POST['submit']))
{
$first = $_POST['first'];
$second = $_POST['second'];
$sum =  $first+$second;
$sub =  $first-$second;
$mul =  $first*$second;
$div =  $first/$second;
echo "<br><br>The Addition  is: ".$sum;
echo "<br><br>The Subtraction  is: ".$sub;
echo "<br><br>The Multiplication  is: ".$mul;
echo "<br><br>The Division  is: ".$div;
}
?>
```

2. Write a PHP code which calculates and prints area and circumference of a circle. Hint(area=3.14x r^2 and c=2x3.14xr) using form.

Ans. :

Coding :

```
<html>
<body>
<form method="post">
Enter Radius
<input type="text" name="radius"><br><br>
<input type="submit" name="submit" value="Submit">
</form>
</body>
</html>
<?php
 if(isset($_POST['submit']))
{
$p=3.14;
$radius = $_POST['radius'];
$a =  $p*$radius*$radius;
$c =  $p*2*$radius;
echo "<br><br>The Area of circle  is: ".$a;
echo "<br><br>The Circumference of circle  is: ".$c;
}
?>
```

3. Write a PHP code which calculates square of a number using form.

Ans. :

Coding :

```
<html>
<body>
<form method="post">
Enter a Number
<input type="text" name="sq"><br><br>
<input type="submit" name="submit" value="Sqaure">
```

```
</form>
</body>
</html>
<?php
 if(isset($_POST['submit']))
{
$sq = $_POST['sq'];
$s=$sq*$sq;
echo "<br><br>The Square of number is: ".$s;
}
?>
```

4. Write a PHP code which calculates cube of a number using form.

Ans. :

```
<html>
<body>
<form method="post">
Enter a Number
<input type="text" name="sq"><br><br>
<input type="submit" name="submit" value="Cube">
</form>
</body>
</html>
<?php
 if(isset($_POST['submit']))
{
$sq = $_POST['sq'];
$s=$sq*$sq*$sq;
echo "<br><br>The Cube of number is: ".$s;
}
?>
```

5. Write a PHP code to check and print greatest among two numbers using form an function.

Ans. :

Coding :

```
<html>
<body>
<form method="post">
Enter First Number
<input type="text" name="f"><br><br>
Enter Second Number
<input type="text" name="s"><br><br>
<input type="submit" name="submit" value="Greatest">
</form>
</body>
</html>
<?php
function grt()
{
 if(isset($_POST['submit']))
{
$f = $_POST['f'];
$s = $_POST['s'];
if($f>$s)
echo "<br><br>The greater number is " .$f;
else
echo "<br><br>The greater number is " .$s;
}
}
grt();
?>
```

6. Write a PHP code to check and print greatest among three numbers using form.

Ans. :

Coding :

```
<html>
<body>
<form method="post">
Enter First Number
<input type="text" name="f"><br><br>
Enter Second Number
<input type="text" name="s"><br><br>
Enter Third Number
<input type="text" name="t"><br><br>
<input type="submit" name="submit" value="Greatest 3">
</form>
</body>
</html>
<?php
function grt()
{
 if(isset($_POST['submit']))
{
$f = $_POST['f'];
$s = $_POST['s'];
$t = $_POST['t'];
if($f>$s && $f>$t)
echo "<br><br>The greater number is " .$f;
else
{
if($s>$f && $s>$t)
echo "<br><br>The greater number is " .$s;
else
{
if($t>$f && $t>$s)
echo "<br><br>The greater number is " .$t;
```

```
}
}
}
}
grt();
?>
```

7. Write a PHP code to check and print whether the number is Odd or Even using form.

Ans. :

Coding :

```
<html>
<body>
<form method="post">
Enter a Number
<input type="text" name="f"><br><br>
<input type="submit" name="submit" value="Even Odd">
</form>
</body>
</html>
<?php
 if(isset($_POST['submit']))
{
$f = $_POST['f'];
if($f%2==0)
echo "<br><br>The number is Even number";
else
echo "<br><br>The number is Odd number";
}
?>
```

8. Write a PHP code to check and print whether the number is positive, negative or Zero using form.

Ans. :

Coding :

```
<html>
<body>
<form method="post">
Enter a Number
<input type="text" name="f"><br><br>
<input type="submit" name="submit" value="Positive Negative Zero">
</form>
</body>
</html>
<?php
 if(isset($_POST['submit']))
{
$f = $_POST['f'];
if($f>0)
echo "<br><br>The number is Positive number";
else
{
if($f<0)
echo "<br><br>The number is Negative number";
else
echo "<br><br>The number is Zero";
}
}
?>
```

9. Write a PHP code to print even numbers between 1-20.

Ans. :

Coding :

```
<?php
for($i=2;$i<=20;$i=$i+2)
{
```

```
echo "<br>".$i;
}
?>
```

10. Write a PHP code to input a number and print the factorial of a number.

Ans. :

Coding :

```
<html>
<body>
<form method="post">
Enter a Number
<input type="text" name="f"><br><br>
<input type="submit" name="submit" value="Factorial">
</form>
</body>
</html>
<?php
$fc=1;
 if(isset($_POST['submit']))
{
$f = $_POST['f'];
for($i=$f;$i>=1;$i--)
{
$fc=$fc*$i;
}
echo "<br><br>The Factorial is ".$fc;
}
?>
```

11. Write a PHP code to print multiplication table of a number.

Ans. :

Coding :

```
<html>
<body>
<form method="post">
```

```
Enter a Number
<input type="text" name="f"><br><br>
<input type="submit" name="submit" value="Table">
</form>
</body>
</html>
<?php
 if(isset($_POST['submit']))
{
$f = $_POST['f'];
for($i=1;$i<=10;$i++)
{
$m=$f*$i;
echo "<br><br> ".$f. "x".$i."=".$m;
}
}
?>
```

12. Write a PHP code to check whether the number is prime number or not.

Ans. :

Coding :

```
<html>
<body>
<form method="post">
Enter a Number
<input type="text" name="f"><br><br>
<input type="submit" name="submit" value="Prime number">
</form>
</body>
</html>
<?php
$p=1;
 if(isset($_POST['submit']))
{
$f = $_POST['f'];
```

```
for($i=2;$i<$f;$i++)
{
if($f%$i==0)
$p=0;
}
if($p==1)
echo "<br><br>Number is Prime Number";
else
echo "<br><br>Number is not a Prime Number";
}
?>
```

13. Write a PHP code to count the number of words in the given string.

Ans. :

Coding :

```
<?php
$a="Hypertext Preprocessor";
echo "<br><br> String is ".$a;
echo "<br><br> Words in String is ".str_word_count($a);
?>
```

14. Create a website with two PHP webpage in which each webpage is connected. The first page of the website contains two form fields for taking 'name' and 'password' from users. On onclick event, details of forms should be displayed on second web page.

Ans. :

Coding :

Form.html

```
<html>
<body>
<form action="wc.php" method="post">
Enter Name
<input type="text" name="name"><br><br>
Enter Password
<input type="password" name="pass"><br><br>
<input type="submit" name="submit" value="Submit">
```

```
</form>
</body>
</html>
wc.php
<html>
<body>
Welcome
<?php
echo $_POST["name"]; ?> <br><br>
Your Password is
<?php
echo $_POST["pass"];
?>
```

Exercise

Fill in the blanks

1. PHP is _____ scripting language.

Ans. : Server

2. PHP is _____ language i.e. there is no need for compilation.

Ans. : interpreted

3. A variable starts with _____ sign followed by variable name.

Ans. : $

4. An _____ is a variable, which can hold more than one value at a time.

Ans. : array

5. Information can be passed to functions through _____.

Ans. : arguments

State True/False

1. PHP is platform dependent scripting language.

Ans. : False

2. $_POST is an array of variables passed via the URL parameters.

Ans. : False

3. A Function is a block of statements that can be used repeatedly in a program.

Ans. : True

4. PHP cannot be embedded along with HTML tags.

Ans. : False

5. GET should NEVER be used for sending sensitive information.

Ans. : True

Multiple Choice Question (1 correct)

1. The program file of PHP have _____ extension.

   (a) .asp (b) .php

   (c) .js (d) .txt

Ans. : (b)

2. A variable declared _____ a function has global scope.

   (a) outside (b) anywhere

   (c) inside (d) none

Ans. : (a)

3. The _____ function returns a part of a string.

   (a) trim() (b) ucwords()

   (c) substr() (d) strpos()

Ans. : (c)

Multiple Choice Question. (2 correct)

1. The _____ & _____ are valid datatype in PHP.

   (a) Double (b) Varchar

   (c) Integer (d) Array (e) BigInt

Ans. : (c,d)

2. Single line comment in PHP is possible using _____.

   (a) // (b) /* */

   (c) # (d) <!> (e) $

Ans. : (a,b)

Multiple Choice Question. (3 correct)

1. In PHP, three types of arrays are _____.

   (a) Indexed (b) Simple

   (c) Associative (d) Multidimensional

   (e) Complex (f) General

Ans. : (a,c,d)

2. The scope of variable can be _____.

   (a) local (b) global (c) universal

   (d) static (e) final (f) outside

Ans. : (a,b,d)

Brief Questions

1. Explain any two features of PHP?

Ans. : Refer answer the following Q1 5.3

2. What are the rules to declare variable in PHP?

Ans. : Refer answer the following Q3 5.4

3. What is server sidescripting?

Ans. : Refer answer the following Q1 5.2

4. List the supported datatypes in PHP

Ans. : Refer answer the following Q5 5.4

5. Explain any two string manipulation function.

Ans. : Refer answer the following Q1 5.5

Write Programs for the following

1. Write a PHP code which calculates square of any number using form.

Ans. : Refer PHP Extra programs for practice Program No 3

2. Write a PHP code to count no. of words in the given string.

Ans. : Refer PHP Extra programs for practice Program No 13

3. Create a website with two PHP webpage in which each webpage is connected.

   The first page of the website contains two form fields for taking 'name' and 'password' from users. On onclick event, details of forms should be displayed on second webpage.

Ans. : Refer PHP Extra programs for practice Program No 14

❑❑❑

6 E-Commerce & E-Governance

Chapter at a Glance

6.1 Introduction to E-Commerce

6.2 Definition of E-Commerce

- **Advantages of E-commerce: -** Global scope, anytime shopping, cost saving, public services.
- **Disadvantages of E-commerce : -** Setup cost, security, goods delivery, physical presence.
- **Types of E-commerce: -** Business to Consumer, Business to Business, Consumer to Consumer, Consumer to Business

6.3 E-Commerce Trade cycle

Meaning, Phases of Trade cycle are Pre-sales, Execution, Settlement, After-Sales

6.4 Modes of Payment

Credit cards, Mobile Payments, Bank Transfers, E-Wallets.

6.4 Forms of E-Commerce

M-commerce, Social Commerce.

6.6 E-Commerce Technology

Concept of Electronic Data Interchange (EDI)

6.7 E-governance

Advantages of E-Governance, Types of E-Governance are Government to Citizen, Government to Business, Government to Government, Government to Employee.

6.8 Security measures in E-Commerce

Encryption, types of encryption i.e. Symmetric and Asymmetric, Digital Signature, Digital Certificate.

Fill in the Blanks

6.1 Introduction

1. E-commerce stands for .....

Ans. : Electronic Commerce

2. ..... is nothing but buying and selling of goods.

Ans. : Commerce

6.2 Definition of E-Commerce

3. ..... is the process of buying and selling of goods and services using electronic medium.

Ans. : Electronic Commerce

4. ..... is also referred as paperless exchange of business information.

Ans. : Electronic Commerce

5. ..... Commerce focuses on the exchange of products and services through personal interactions.

Ans. : Traditional

6. ..... Commerce has limited business hours.

Ans. : Traditional

7. ..... Commerce is limited to a particular geographical location.

Ans. : Traditional

8. Modes of payment in ..... commerce include cash, cheques and credits cards.

Ans. : Traditional

9. In ..... Commerce scope is local.

Ans. : Traditional

10. ..... Commerce trading activities are online via the internet and can be considered automatic.

Ans. : Electronic

11. ..... Commerce is 24 × 7, it can be done anytime day and night.

Ans. : Electronic

12. In ..... Commerce modes of payment are bank transfer, credit card, e-wallet etc.

Ans. : Electronic

13. In ..... Commerce scope is global.

Ans. : Electronic

14. B2C stands for .....

Ans. : Business to Consumer

15. In ..... model business sells it's product directly to a customer.

Ans. : B2C (Business to Consumer)

16. B2B stands for .....

Ans. : Business to Business

17. In ..... model business sells its products to an intermediate buyer.

Ans. : B2B (Business to Business)

18. C2C stands for .....

Ans. : Consumer to Consumer

19. In ..... model, consumer helps consumer to sell their assets by publishing their information on the website.

Ans. : C2C (Consumer to Consumer)

20. C2B Stands for .....

Ans. : Consumer to Business

21. In ..... model, consumers have products or services of value that can be consumed by businesses.

Ans. : C2B (Consumer to Business)

6.3 E-Commerce Trade cycle

22. A ..... is the series of exchanges between a customer and supplier that takes place when a commercial exchange is executed.

Ans. : Trade Cycle

23. The ..... phase of Trade cycle consist of two steps like search and negotiate.

Ans. : Pre-sales

24. The ..... phase of Trade cycle consists of Order and Delivery.

Ans. : Execution

25. The ..... phase of Trade Cycle consist of Invoice and Payment.

Ans. : Settlement

26. The ..... phase of Trade Cycle consist of warranty and After Sale Services.

Ans. : After sales

6.4 Modes of Payment

27. ..... transfer is used when money is sent from one bank account to another.

Ans. : Bank

28. ..... is a type of electronic card which is used for transactions made online through a computer or a smartphone.

Ans. : E-Wallet

6.5 Forms of E-commerce

29. ..... is the buying and selling of goods and services through wireless handheld devices such as smartphones and tablets.

Ans. : M-Commerce (Mobile Commerce)

30. ..... Commerce is a form of electronic, commerce that involves social media that supports social interaction.

Ans. : Social

31. ..... Commerce is the use of networking websites such as facebook, Instagram and Twitter as vehicles to promote and sell products and services.

Ans. : Social

6.6 E-Commerce Technology

32. EDI stands for .....

Ans. : Electronic Data Interchange

33. ..... is the electronic interchange of business information using a standardized format.

Ans. : EDI (Electronic Data Interchange)

34. The ..... is a process which allows one company to send information to another company electronically rather than a paper.

Ans. : EDI (Electronic Data Interchange)

35. Business entities conducting business electronically are called .....

Ans. : Trading Partners

36. E-wallet is a type of ..... account in which a user-can store money for any future online transaction.

Ans. : Prepaid

37. ..... is computer-to-computer interchange of strictly formatted documents via telecommunication or physically transported on electronic storage media.

Ans. : EDI (Electronic Data Interchange)

6.7 E-governance

38. ..... signifies the implementation of information technology in the government processes and function.

Ans. : E-Governance

39. E-Governance is of ..... types.

Ans. : 4 (Four)

40. G2C stands for .....

Ans. : Government-to-Citizen

41. The ..... refers to the government services which enable citizens to get access to wide variety of public services.

Ans. : G2C (Government to Citizen)

42. G2B stands for .....

Ans. : Government to Business

43. The ..... is the exchange of services between Government and Business Organization.

Ans. : G2B (Government to Business)

44. The ..... consists of many services exchanged between business sectors and government.

Ans. : G2B (Government to Business)

45. G2G stands for .....

Ans. : Government to Government

46. The ..... refers to the interaction between different government departments, organizations and agencies.

Ans. : G2G (Government to Government)

47. The E-Governance which provides safe and secure inter-relationship between domestic and foreign government is .....

Ans. : G2G (Government to Government)

48. G2E stands for .....

Ans. : Government to Employee

49. The ..... is the internal part to G2G sector.

Ans. : G2E (Government to Employee)

50. The ..... governance aims to bring employees together and improvise knowledge sharing.

Ans. : G2E (Government to Employee)

6.8 Security measures in E-Commerce

51. ..... is widely used on the internet to protect user information being sent between a browser and a server.

Ans. : Encryption

52. ..... converts plain text into Cipher text.

Ans. : Encryption

53. ..... converts Cipher text into plain text.

Ans. : Decryption

54. A ..... is also known as an electronic signature.

Ans. : Digital Signature

55. A ..... guarantees the authenticity of an electronic document.

Ans. : Digital Signature

56. A ..... is an electronic password that allows a person to exchange data securely over the Internet using public key infrastructure.

Ans. : Digital Certificate

57. ..... is also known as a public key certificate or identity certificate.

Ans. : Digital Certificate

58. PKI stands for .....

Ans. : Public Key Infrastructure

True or False

6.1 Introduction

1. E-Commerce stands for Electronic commerce.

Ans. : True

2. Commerce is an important part of business.

Ans. : True

3. Commerce means buying and selling of goods and services.

Ans. : True

6.2 Definition of E-Commerce

4. E-Commerce is a process of buying and selling of goods or services using Internet.

Ans. : True

5. E-Commerce focuses on the exchange of products and services through personal interactions.

Ans. : False

6. Traditional Commerce is manual.

Ans. : True

7. E-Commerce trading activities are online via the internet.

Ans. : True

8. Traditional Commerce is limited to business hours.

Ans. : True

9. E-Commerce is 24 × 7.

Ans. : True

10. E-Commerce provides face to face interaction.

Ans. : False

11. Traditional Commerce is limited to a particular geographical location.

Ans. : True

12. E-Commerce is local.

Ans. : false

13. Modes of payments in E-commerce are bank transfer, e-wallet etc.

Ans. : True

14. Goods and delivery of services is instant with Traditional commerce.

Ans. : True

15. Traditional Commerce's Scope is global.

Ans. : false

16. E-Commerce reduces paper work.

Ans. : True

17. E-commerce increases the cost of searching a product.

Ans. : False

18. E-commerce does not allow intermediaries.

Ans. : True

19. Set-up cost of E-Commerce is expensive.

Ans. : True

20. In B2C Model business sells its products to an intermediate buyer who then sells product to the final customer.

Ans. : False

21. In B2C model business sells its product directly to customer.

Ans. : True

22. In C2C model, consumer helps consumer to sell their assets by publishing their information on website.

Ans. : True

23. OLX, Quikr, online auction are the examples of B2B model.

Ans. : False

24. In C2B model consumers have products or services of value that can be consumed by businesses.

Ans. : True

25. Types of E-commerce are B2B, C2B, C2C etc.

Ans. : True

6.3 E-Commerce Trade cycle

26. Trade Cycle is the series of exchanges between a customer and supplier that take place when a commercial exchange is executed.

Ans. : True

27. Execution phase consists of two steps like search and negotiate.

Ans. : False

28. The execution phase consists of Order and Delivery.

Ans. : True

29. The After sales phase consists of Invoice and Payment.

Ans. : False

30. Invoice means customer will receive a bill for purchased product.

Ans. : True

31. After sales phase consists of warranty and after sales services.

Ans. : True

32. Settlement means customer will do complaints about the performance of product and get maintenance service from supplier.

Ans. : False.

6.4 Modes of Payment

33. Credit cards are most common way for customers to pay online.

Ans. : True

34. Mobile payment apps are UPI, Paytm, Paypal etc.

Ans. : True

35. Bank transfer cannot be used when money is sent from one bank account to another.

Ans. : False

36. NEFT, IMPS etc. are the examples of Bank transfer.

Ans. : True

37. E-Wallet is electronic card which is used for transactions made online through a computer or smartphone.

Ans. : True

38. E-wallet is a type of post paid account.

Ans. : False

39. State bank Buddy, Paytm wallets are examples of E-wallets.

Ans. : True

6.5 Forms of E-commerce

40. Some common forms of E-commerce are C2B, B2B, C2C etc.

Ans. : False

41. M-Commerce is buying and selling of goods and services through smartphones and tablets.

Ans. : True

42. M-Commerce enables users to access online shopping by using a desktop computer.

Ans. : False

43. The applications of M-Commerce are mobile banking, E-bill payment, online auctions etc.

Ans. : True

44. Social Commerce is a form of electronic commerce that involves online media that supports social interaction.

Ans. : True

6.6 E-Commerce Technology

45. EDI stands for Electronic Data Information.

Ans. : False

46. EDI is the non-electronic interchange of business information using a standardised format.

Ans. : False

47. EDI is a process which allows one company to send information to another electronically rather than paper.

Ans. : True

48. EDI is paperless exchange of electronic information.

Ans. : True

49. Business entities conducting business electronically are called trading partners.

Ans. : True

50. Two most common documents exchanged using EDI are purchase orders and invoices.

Ans. : True

6.7 E-governance

51. E-Governance is the implementation of information technology in the government processes and function.

Ans. : True

52. E-Governance delivers SMART governance.

Ans. : True

53. Types of E-Governance are B2B, B2C, C2C.

Ans. : False

54. The G2C refers to the government services which enable citizens to get access to wide variety of public services.

Ans. : True

55. License renewals and paying tax are the examples of G2C.

Ans. : True

56. The G2B is the internal part of G2G sector.

Ans. : False

57. G2B provides access to relevant forms needed to comply.

Ans. : True

58. The G2G refers to the interaction between different government departments, organizations and agencies.

Ans. : True

59. In G2G type of e-governance, government agencies can share the same database using online communication.

Ans. : True

60. The G2E is the internal part of G2G sector.

Ans. : True

61. Checking balance of holiday is example of G2E.

Ans. : True

62. Reviewing salary payment records, applying for leave is the example of G2C.

Ans. : False

63. Digital India is a campaign launched by the Government of India is order to make Government's Services available to citizens electronically.

Ans. : True

64. e-mitra project, e-Seva project, CET are the examples of successful implementation of E-Governance.

Ans. : True

6.8 Security measures in E-Commerce

65. Encryption is used to protect user information being sent between browser and a server.

Ans. : True

66. Encryption converts plain text into coded form of data.

Ans. : True

67. Conversion of plain text into Cipher text is called decryption.

Ans. : False

68. Decryption converts Cipher text into plain text.

Ans. : True

69. Encryption is of two types Symmetric and Asymmetric.

Ans. : True.

70. Digital Signature is also known as electronic signature.

Ans. : True

71. Digital Signature is also known as public key certificate.

Ans. : False

72. Digital Signature is on electronic passwords that allows organization to exchange data securely over the Internet using PKI.

Ans. : True

MCQ (One Correct Answers)

6.1 Introduction

1. E-Commerce stands for .....

(a) Engage Commerce (b) Evolve Commerce

(c) Electronic Commerce (d) Easy Commerce

Ans. : (c)

6.2 Definition of E-Commerce

2. ..... is the process of buying and selling of goods and services using electronic medium.

(a) E-Commerce (b) Digital Certificate

(c) E-Governance (d) Digital Signature

Ans. : (a)

3. ..... Commerce focuses on the exchange of products and services through personal interactions.

(a) E-Governance (b) Electronic

(c) Digital Signature (d) Traditional

Ans. : (d)

4. ..... Commerce has limited to business hours.

(a) Traditional (b) Electronic

(c) Digital (d) E-governance

Ans. : (a)

5. ..... Commerce provides face to face interaction.

(a) Electronic (b) Traditional

(c) Digital (d) Web hasting

Ans. : (b)

6. In ..... Commerce scope is local.

(a) Electronic (b) Divisional

(c) Digital (d) Traditional

Ans. : (d)

7. ..... Commerce has no time limits, it is available 24×7.

(a) Electronic (b) Divisional

(c) Traditional (d) Digital

Ans. : (a)

8. In ..... Commerce trading activities are online via the internet.

(a) Digital (b) Traditional

(c) Electronic (d) Divisional

Ans. : (c)

9. In ..... Commerce scope is a global.

(a) Digital (b) Electronic

(c) Traditional (d) Divisional

Ans. : (b)

10. ..... Commerce reduces the paper work and lower the transaction cost.

(a) Electronic (b) Divisional

(c) Traditional (d) local

Ans. : (a)

11. ..... application provides users with more options to compare and select the cheaper and better option.

(a) Z-Commerce (b) G – Commerce

(c) E-Commerce (d) V-Commerce

Ans. : (c)

12. ..... Commerce allows the customers and the business to be in touch directly without any intermediaries.

(a) Traditional (b) Electronic (c) Divisional (d) Digital

Ans. : (b)

13. In ..... model business sells its product directly to a customer.

(a) C2B (b) B2C (c) B2B (d) C2C

Ans. : (b)

14. In ..... model, business sells its products to an intermediate buyer who then sells the product to the final customer.

(a) C2B (b) B2C (c) B2B (d) C2C

Ans. : (c)

15. In ..... model, consumer helps consumer to sells their assets by publishing their information on the website.

(a) C2B (b) B2C (c) B2B (d) C2C

Ans. : (d)

16. On-line auction is example of ..... model.

(a) C2B (b) B2C (c) B2B (d) C2C

Ans. : (d)

17. In ..... model consumers have products or services of value that can be consumed by businesses.
(a) C2B (b) B2B (c) C2C (d) B2C

Ans. : (a)

6.3 E-Commerce Trade cycle

18. A ..... is the series of exchanges between a customer and supplier that takes place when a commercial exchange is executed.
(a) EDI (b) Trade Cycle
(c) Encryption (d) Decryption

Ans. : (b)

19. ..... phase of Trade cycle consist of two steps like search and negotiate.
(a) Presale (b) Execution (c) Settlement (d) After sales

Ans. : (a)

20. ..... phase of Trade cycle consists of Order and Delivery.
(a) Presale (b) Execution (c) Settlement (d) After sales

Ans. : (b)

21. In ..... phase of Trade Cycle the customer sends an order for the selected product and receives delivery of the product.
(a) Presale (b) After sales (c) Execution (d) Settlement

Ans. : (c)

22. The ..... phase of Trade Cycle consist of warranty and After Sale Services.
(a) Presale (b) Execution (c) Settlement (d) After sales

Ans. : (d)

23. ..... services means customer will do complaints about the performance of product and get maintenance service from the suppliers.
(a) Presale (b) After sales (c) Execution (d) Settlement

Ans. : (b)

6.4 Modes of Payment

24. ..... offer a quick solution for customers to purchase on e-commerce website.
(a) Mobile Payments (b) Digital Signature
(c) Cost Payments (d) Cheque Payments

Ans. : (a)

25. Apps the BHIM, UPI, paytm are the examples of .....

(a) cheque payment (b) cash payment

(c) EDI (d) Mobile payments

Ans. : (d)

26. ..... is used when money is sent from one bank account to another.

(a) EDI (b) Bank Transfer

(c) Digital Signature (d) Trade Cycle

Ans. : (b)

27. NEFT, IMPS are the examples of .....

(a) Credit Card (b) Trade Cycle

(c) Debit Card (d) Bank Transfer

Ans. : (d)

28. ..... is a type of electronic card which is used for transactions made online through a Computer or a smart-phone.

(a) E-Wallets (b) E-Book (c) E-Pocket (d) E-Draw

Ans. : (a)

29. State Bank Buddy, paytm wallets are the examples of .....

(a) E-Book (b) E-Pocket (c) E-Wallet (d) E-Draw

Ans. : (c)

30. E-wallet is a type of ..... account in which a user can store money for any future online transaction.

(a) Pre-paid (b) Cash-paid (c) Bank paid (d) Cheque paid

Ans. : (a)

6.5 Forms of E-commerce

31. ..... is the buying and selling of goods and services through wireless handheld devices such as smartphones and tablets.

(a) Trade Cycle (b) M-Commerce

(c) Social Commerce (d) EDI

Ans. : (b)

32. ..... enables users to access online shopping platforms without using desktop computer.

(a) M-Commerce (b) EDI

(c) T-Commerce (d) Trade Cycle

Ans. : (a)

33. Mobile banking, E-bill payment, ticket booking are the examples of .....

(a) EDI (b) Trade Cycle

(c) M-Commerce (d) Digital Certificate

Ans. : (c)

34. ..... Commerce is a form of electronic commerce that involves social media that supports social interaction.

(a) Social (b) National (c) Local (d) Divisional

Ans. : (a)

35. ..... Commerce is a subset of electronic commerce that involves social media like facebook, Instagram and Twitter.

(a) Local (b) Divisional (c) National (d) Social

Ans. : (a)

6.6 E-Commerce Technology

36. EDI stands for .....

(a) Easy Data Interchange (b) Economic Data Interchange

(c) Electronic Data Interchange (d) Enable Data Interchange

Ans. : (c)

37. ..... is the electronic interchange of business information using a standardized format.

(a) EDI (b) Trade Cycle

(c) Digital Signature (d) Digital Certificate

Ans. : (a)

38. ..... is a process which allows one company to send information to another company electronically rather than a paper.

(a) Trade Cycle (b) EDI

(c) Social Commerce (d) Mobile Commerce

Ans. : (b)

39. Business entities conducting business electronically are called .....

(a) Global partners (b) Local partners

(c) Visiting partners (d) Trading partners

Ans. : (d)

6.7 E-governance

40. ..... is the implementation of information technology in the government processes and functions.

(a) E-Governance (b) E-Commerce

(c) Social Commerce (d) M-Commerce

Ans. : (a)

41. The ..... type of e-governance refers to the government services which enable citizens to get access to wide variety of public services.

(a) G2E (b) G2C (c) G2B (d) G2G

Ans. : (b)

42. License renewals and paying tax can be done through ..... type of E-Governance.

(a) G2E (b) G2G (c) G2C (d) G2B

Ans. : (c)

43. The ..... type of E-governance is the exchange of services between government and business organizations.

(a) G2C (b) G2B (c) G2G (d) G2E

Ans. : (b)

44. The ..... type of E-governance refers to the interaction between different government departments, organizations and agencies.

(a) G2C (b) G2B (c) G2G (d) G2E

Ans. : (c)

45. In ..... type of E-governance, government agencies can share the same database using on line communication.

(a) G2C (b) G2B (c) G2G (d) G2E

Ans. : (c)

46. The ..... type of E-governance is the internet part of G2G sector.

(a) G2C (b) G2B (c) G2G (d) G2E

Ans. : (d)

47. ..... type of E-Governance provides facilities to employers like applying for leave, reviewing salary payment record and checking balance of holiday.

(a) G2C (b) G2B (c) G2G (d) G2E

Ans. : (d)

6.8 Security measures in E-Commerce

48. ..... is used on the internet to protect user information being sent between a browser and a server.

(a) Encryption (b) Decryption

(c) Digital Signature (d) Digital Certificate

Ans. : (a)

49. ..... converts plain text into Cipher text.

(a) Decryption (b) Encryption

(c) Digital Signature (d) Digital Certificate

Ans. : (b)

50. ..... converts Cipher text into plain text.

(a) Decryption (b) Encryption

(c) Digital Signature (d) Digital Certificate

Ans. : (a)

51. ..... is of two types symmetric and Asymmetric.

(a) Encryption (b) Private key

(c) Public key (d) Decryption

Ans. : (a)

52. A ..... is also known as an electronic signature.

(a) Digital Certificate (b) Digital Signature

(c) Cryptography (d) EDI

Ans. : (b)

53. PKI stands for .....

(a) Public Key Infrastructure (b) Personal Key Certificate

(c) Publish Key Certificate (d) Person Key Certificate

Ans. : (a)

54. ..... is also known as Public key certificate or identity certificate.

(a) EDI (b) Digital Certificate

(c) Trade Cycle (d) Digital Signature

Ans. : (b)

55. A ..... is an electronic password that allows organization to exchange data securely over the Internet using PKI.

(a) Digital Signature (b) EDI

(c) Trade Cycle (d) Digital Certificate

Ans. : (d)

MCQ (Two Correct Answers)

6.2 Definition of E-Commerce

1. E-Commerce is also referred as paperless exchange of business information using ....., ...
   (a) EDI, (b) Electronic Fund Transfer
   (c) Private Key (d) Public Key

Ans. : (a), (b)

2. Advantages of E-Commerce are .....
   (a) Security (b) Global scope
   (c) Cost saving (d) High setup cost

Ans. : (b), (c)

3. Disadvantages of E-Commerce are .....
   (a) High set up cost (b) Late delivery
   (c) Public serves (d) Any time shopping

Ans. : (a), (b)

4. Types of E-Commerce are .....
   (a) B2C (b) C2B (c) G2G (d) G2E

Ans. : (a), (b)

5. Examples of B2C model are ....., ...
   (a) Linux (b) Flipkart (c) Amazon (d) Window

Ans. : (b), (c)

6. Examples of C2C model are .....
   (a) Network provider (b) OLX
   (c) EDI (d) Quikr

Ans. : (b), (d)

6.3 E-Commerce Trade cycle

7. Following are the phases of Trade cycle.
   (a) Pre-sales (b) EDI (c) Trade Cycle (d) Execution

Ans. : (a), (d)

8. Pre-sales consists of two steps ..... and .....
   (a) Order (b) Delivery (c) Search (d) Negotiate

Ans. : (c), (d)

9. The execution phase consists of ..... and .....

(a) Order (b) Delivery (c) Search (d) Negotiate

Ans. : (a), (b)

10. The settlement phase consist of ..... and .....

(a) Order (b) Invoice (c) Search (d) Payment

Ans. : (b), (d)

11. The After sales phase consists of ..... and .....

(a) Order (b) Delivery (c) warranty (d) After sale service

Ans. : (c), (d)

6.4 Modes of Payment

12. Modes of payments are .....

(a) M-Commerce (b) Mobile Payments

(c) E-Commerce (d) E-Wallets

Ans. : (b), (d)

13. Examples of Mobile payments apps are .....

(a) BHIM (b) EDI (c) Paytm (d) Trade Cycle

Ans. : (a), (c)

14. Examples of Bank Transfers are .....

(a) EDI (b) NEFT (c) IMPS (d) Cash Transfer

Ans. : (b), (c)

15. Examples of E-Wallets are .....

(a) Paytm Wallets (b) State Bank Buddy

(c) EDI (d) Trade Cycle

Ans. : (a), (b)

6.5 Forms of E-commerce

16. Common forms of E-commerce are ....., ...

(a) Local Commerce (b) M-Commerce

(c) National Commerce (d) Social Commerce

Ans. : (b), (d)

17. Application of M-Commerce are ..... , ...

(a) E-bill payment (b) Local Commerce

(c) Mobile Banking (d) Social Commerce

Ans. : (a), (c)

18. Social Commerce is the use of networking websites such as ....., ... as vehicles to promote and sell products and services.

(a) G-mail (b) Google Docs

(c) Facebook (d) Twitter

Ans. : (c), (d)

6.6 E-Commerce Technology

19. Two common documents can be exchanged using EDI are ..... , ...

(a) Purchase orders (b) DOCs

(c) Trading (d) Invoices

Ans. : (a), (d)

6.7 E-governance

20. Advantages of E-governance are .....

(a) Increase of overall cost (b) Decrease convenience

(c) High transparency (d) Reduced corruption

Ans. : (c), (d)

21. Type of E-Governance are .....

(a) B2C (b) C2C (c) G2E (d) G2G

Ans. : (c), (d)

22. G2C type of E-governance provides services like ..... And .....

(a) License renewals (b) Paying tax

(c) Trade Cycle (d) EDI

Ans. : (a), (b)

23. G2E type of E-governance provides ..... , ... Online facilities to employees.

(a) License renewals (b) Salary payment record

(c) Booking Tickets (d) applying for leave

Ans. : (b), (d)

24. Examples of successful implementation of E-Governance projects are ..... and .....

(a) e-seva (b) e-Mitra (c) e-tax (d) e-friend

Ans. : (a), (b)

6.8 Security measures in E-Commerce

25. Encryption is of two types ..... and .....

(a) Plaintext (b) symmetric (c) Coded text (d) asymmetric

Ans. : (b), (d)

26. Encryption consists of two processes ..... and .....

(a) EDI (b) Trade cycle

(c) Encryption (d) Decryption

Ans. : (c), (d)

27. Encryption converts ..... text into ..... text.

(a) Plain (b) Cipher (c) Random (d) General

Ans. : (a), (b)

28. Decryption converts ..... text into ..... text.

(a) Cipher (b) Plain (c) Random (d) General

Ans. : (a), (b)

29. Following are the security measure in E-commerce.

(a) EDI (b) Trade cycle

(c) Digital signature (d) Digital certificate

Ans. : (c), (d)

MCQ (Three Correct Answers)

6.2 Definition of E-Commerce

1. Advantages of E-Commerce are .....

(a) Global scope (b) Local scope

(c) Cost saving (d) Time restriction

(e) Anytime shopping (f) Involve intermediaries

Ans. : (a), (c), (e)

2. Disadvantages of E-Commerce are .....

(a) Global scope (b) Expensive

(c) Cost saving (d) Lack of personal touch

(e) Anytime shopping (f) Late deliveries

Ans. : (b), (d), (f)

3. Types of E-Commerce are .....
   (a) B2C (b) G2E (c) B2B
   (d) G2G (e) G2C (f) C2C

Ans. : (a), (c), (f)

6.3 E-Commerce Trade cycle

4. Following are the phases of Trade Cycle.
   (a) C2B (b) Presale (c) Execution (d) Settlement
   (e) B2C (f) C2C

Ans. : (b), (c), (d)

6.4 Modes of Payment

5. Following are the Modes of Payment .....
   (a) Presale (b) Execution
   (c) Settlement (d) Mobile payments
   (e) Bank transfer (f) E-wallets

Ans. : (d), (e), (f)

6. Examples of Mobile payment apps are .....
   (a) BHIM (b) Trade Cycle (c) EDI
   (d) UPI (e) Google pay (f) Google Docs

Ans. : (a), (d), (e)

6.5 Forms of E-commerce

7. Applications of M-Commerce are .....
   (a) Ticket booking (b) RTGS (c) NEFT
   (d) E-Bill payment (e) IMPS (f) Online auctions

Ans. : (a), (d), (f)

8. Social Commerce is the use of networking websites such as ..... , ... and ..... as vehicles to promote and sell products and services.
   (a) Facebook (b) Instagram (c) Twitter (d) Gmail
   (e) Google Docs (f) Google pay

Ans. : (a), (b), (c)

6.8 Security measures in E-Commerce

9. Types of E-Governance are .....
   (a) G2C (b) G2G (c) C2B
   (d) B2B (e) C2C (f) G2E

Ans. : (a), (b), (f)

10. Advantages of E-Governance are .....

(a) Increased convenience (b) No transparency

(c) Reduction in overall cost (d) Increase in cost

(e) Expanded reach of government (f) More corruption

Ans. : (a), (c), (e)

11. Examples of successful implementation of E-Governance projects are .....

(a) e-Mitra (b) B2B (c) C2B (d) e-Seva

(e) C2G (f) CET

Ans. : (a), (d), (f)

6.8 Security measures in E-Commerce

12. Security measure in E-Commerce are .....

(a) EDI (b) Trade Cycle

(c) Encryption (d) Digital Signature

(e) E-commerce (f) Digital Certificate

Ans. : (c), (d, (f)

Match the Following

6.2 Definition of E-Commerce

(I)

	A		B
(1)	Traditional Commerce	(a)	Scope is Global
(2)	E-Commerce	(b)	Sells products to an intermediate buyer
(3)	B2C	(c)	Helps consumer to sell their assets by publishing information on website
(4)	B2B	(d)	Scope is local
(5)	C2C	(e)	Consumers have products or services of value that can be consumed by business
(6)	C2B	(f)	Sells products directly to a customer

Ans. : (1) – (d), (2) – (a), (3) – (f), (4) – (b), (5) – (c), (6) – (e)

6.3 E-Commerce Trade cycle

(I)

	A		B
(1)	Presale	(a)	Consists of Order and Delivery
(2)	Execution	(b)	Consists of Warranty and After sales
(3)	Settlement	(c)	Consists of Invoice and Payment
(4)	After sales	(d)	Consists of Search and negotiate

Ans. : (1) – (d), (2) – (a), (3) – (c), (4) – (b)

6.4 Modes of Payment

(I)

	A		B
(1)	Credit cards	(a)	Money sent from one bank to another
(2)	Mobile payments	(b)	Type of prepaid account in which user can store money
(3)	Bank transfer	(c)	Cards used by customers to pay online
(4)	E-Wallets	(d)	Forms of E-commerce
		(e)	Offers quick solution for customers to purchase on e-commerce websites

Ans. : (1) – (c), (2) – (e), (3) – (a), (4) – (b)

6.5 Forms of E-commerce, 6.6 E-Commerce Technology

(I)

	A		B
(1)	M-Commerce	(a)	Form of E-commerce that involves social media that supports social interaction
(2)	Social Commerce	(b)	Electronic interchange of business information
(3)	EDI	(c)	Buying and selling of goods and services through smart phones and tablets

Ans. : (1) – (c), (2) – (a), (3) – (b)

6.7 E-governance

(I)

	A		B
(1)	G2C	(a)	Exchange of services between Government and Business organizations
(2)	G2B	(b)	Is the internet part of G2G sector
(3)	G2G	(c)	Refers to the interaction between different government departments, organization and agencies.
(4)	G2E	(d)	Refers to government services which enable citizens to access wide variety of public services.

Ans. : (1) – (d), (2) – (a), (3) – (c), (4) – (b)

6.8 Security measures in E-Commerce

(I)

	A		B
(1)	Encryption	(a)	Also known as electronic signature
(2)	Decryption	(b)	Converts plain text into cipher text
(3)	Digital Signature	(c)	Is a electronic password
(4)	Digital Certificate	(d)	Converts chipher text into plain text

Ans. : (1) – (b), (2) – (d), (3) – (a), (4) – (c)

Answer the Following

6.2 Definition of E-Commerce

1. Define E-Commerce.

Ans. :

(i) E-Commerce is defined as the process of buying and selling of goods or services using an electronic medium such as Internet.

(ii) E-commerce is also referred as a paperless exchange of business information using EDI, E-mail, Electronic fund transfer etc.

2. Explain Advantages and Disadvantages of E-Commerce.

Ans. :

Advantages of E-Commerce :

(i) Global scope : E-commerce provides the sellers with a global reach. Now sellers and buyers can meet in the virtual world, without barrier of place.

(ii) **Electronic transaction :** E-commerce reduces the paper work and significantly lower the transaction cost.

(iii) **Anytime shopping :** The great advantage of E-Commerce is the convenience. A customer can shop 24 × 7.

(iv) **No intermediaries :** Electronic commerce also allows the customer and the business to be in touch directly, without any intermediaries.

Disadvantages of E-Commerce :

(i) **Setup Cost :** The setup of the hardware and the software, the training cost of employees, the constant maintenance and upkeep are all quite expensive.

(ii) **Security :** Security is another area of concern. Credit card theft, identity theft etc. remain big concerns with the customers.

(iii) **Goods Delivery :** There may arrive some problem with fulfillment of order. Even after the order is placed there can be problems with shipping, delivery, mix-ups etc. This leaves the customers unhappy and dissatisfied.

3. Difference between Traditional Commerce and E-Commerce.

Ans. :

Traditional Commerce	E-commerce
Traditional commerce focuses on the exchange of products and services through personal interactions so it is manual.	E-commerce trading activities are online via the internet.
Traditional commerce is limited to business hours.	E-commerce is 24 × 7, it can be done anytime day and night.
Traditional commerce provides face to face interaction.	E-commerce can be termed as screen to face interaction.
Traditional commerce is limited to a particular geographical location.	E-commerce is global and has no physical limitation.
Modes of payment in traditional commerce include cash, cheques and credit cards.	In E-commerce modes of payments are bank transfer, credit card, e-wallet, mobile payment and many more.
Goods and delivery of services is instant with traditional commerce.	In E-commerce delivery of goods or services takes some time.
Traditional Commerce's scope is local.	E-commerce's scope is global.

4. Explain type of E-Commerce.

Ans. :

Types of E-Commerce are as follows :

(i) Business to Consumer (B2C) :

(a) In B2C model, business sells it's products directly to customer.

(b) Customer can view and choose to order the products shown on the website.

(c) The website will send notification and organization will dispatch the product to customer.

(d) Examples Amazon, Flipkart etc.

(ii) Business to Business (B2B) :

(a) In B2B model, business sells products to an intermediate buyer.

(b) Buyer then sells the product to final customer.

(c) Example Tata communications.

(iii) Consumer to Consumer (C2C) :

(a) In C2C model, consumer helps consumer to sell their assets like cars, bikes, rent a room etc by publishing their information on websites.

(b) Example OLX, Quikr online auction.

(iv) Consumer to Business (C2B) :

(a) In C2B model, consumers have products or services of value that can be consumed by businesses.

(b) For example A blog can be written by an author for a business to improve sale of product ebay.

6.3 E-Commerce Trade cycle

5. Explain phases of Trade Cycle.

Ans. :

A trade cycle is the series of exchanges, between a customer and supplier that take place when a commercial exchange is executed. A general trade cycle consists of following phases:

(i) **Pre-Sales :** It consist of two steps like Search and Negotiate. Customer search for required website for product to be purchased. In Negotiate step customer find a supplier who offers good quality product at cheaper price and then customer agrees the terms forwarded by supplier.

(ii) **Execution :** This phase consist of Order and Delivery. Customer sends an order for the selected product and after processing the order, customer receives delivery of the product.

(iii) **Settlement :** This phase consist of Invoice (if any) and Payment. Invoice means customer will receive a bill for purchased product and after confirmation of received product, customer will pay for the same.

(iv) **After-Sales :** This phase consists of warranty and After Sale Services. In warranty period, customer will get all maintenance services for free or at minimum cost. After sale services means customer will do complaints (if any) about the performance of product and get maintenance service from the supplier.

6.4 Modes of Payment

6. Explain various Modes of Payment.

Ans. :

(i) **Credit Cards :** Credit cards are the most common ways for customers to pay online. Merchants can reach out to an international market with credit cards by integrating a payment gateway into their business.

(ii) **Mobile Payments :** Mobile payments offer a quick solution for customers to purchase on e-commerce websites. Examples are apps like Paytm, Google Pay, BHIM etc.

(iii) **Bank Transfers :** Bank transfer is used when money is send from one bank account to another. Transferring money from bank account is fast and safe then cash withdrawal. Example NEFT, IMPS etc.

(iv) **E-wallets :** E-wallet is a type of electronic card which is sued for transactions made online through a computer or smart phone. It is a type of prepaid account in which user can store money for future transaction. Examples are State Bank Buddy, Paytm Wallets.

6.5 Forms of E-commerce

7. Write Short notes on :
   (i) M-commerce (Mobile Commerce)
   (ii) Social Commerce

Ans. :

(i) **M-commerce (Mobile Commerce) :**

(a) M-commerce is buying and selling of goods and services through wireless devices such as smart phones and tablets.

(b) M-Commerce enables the user to access online shopping platforms without using desktop computers.

(c) Applications of M-Commerce are Mobile banking, E-bill payment, ticket booking etc.

(ii) Social Commerce :

(a) Social Commerce is a form of electronic commerce that involves social media that supports social interaction.

(b) It enables shoppers to get advice from trusted individuals, find good and services and then purchase them.

(c) Social commerce is the use of networking websites such as Facebook, Instagram and Twitter to promote and sell products and services.

(d) The success is measured by the degree to which consumers interact with company's marketing through retweets, likes and shares.

6.6 E-Commerce Technology

8. Short note on Electronic Data Interchange (EDI).

Ans. :

Electronic Data Interchange (EDI)

(i) EDI is the electronic interchange of business information using a standardized format.

(ii) It is a process which allows one company to send information to another company electronically rather than on paper.

(iii) Business entities conducting business electronically are called trading partners.

(iv) In EDI, two most common documents which are exchanged are purchase order and invoices.

6.7 E-governance

9. What is E-Governance?

Ans. :

(i) E-Governance signifies the implementation of Information Technology in the Government processes.

(ii) The basic purpose of E-Governance is to simply processes for all, i.e. government, citizens, businesses etc. at all levels.

(iii) E-Governance delivers SMART (S-Simple, M-Moral, A-Accessible, R-Responsive, T-Transparent Government).

10. List the advantages of E-Governance.

Ans. :

Advantages of E-Governance are :

1. Improves delivery and efficiency of government services
2. Improved government interactions with business and industry

3. Citizen empowerment through access to information
4. More efficient government management
5. Less corruption in the administration
6. Increased transparency in administration
7. Greater convenience to citizens and businesses
8. Cost reductions and revenue growth
9. Increased legitimacy of government
10. Improved relations between the public authorities and civil society

11. Explain types of E-Governance.

Ans. :

E-Governance is of 4 types depending on the specific types of services :

1. Government to Citizen (G2C) :

(i) The Government to citizen refers to the government services which enable citizens to get access to wide variety of public services.

(ii) Most of the government services fall under G2C.

(iii) A citizen can have access to the services anytime from anywhere.

(iv) Services like license renewals and paying tax are essential in G2C.

(v) It also focuses on geographic land barriers.

2. Government to Business (G2B) :

(i) G2B is the exchange of services between Government and Business organizations.

(ii) G2B provides access to relevant forms needed to comply.

(iii) The G2B consists of many services exchanged between business sectors and government.

(iv) It aims at eliminating of paper work, cost and establish transparency in the business environment while interacting with government.

3. Government to Government (G2G) :

(i) The Government to Government refers to the interaction between different government departments, organizations and agencies.

(ii) In G2G government agencies can share the same database using online communication.

(iii) The government departments can work together.

(iv) G2G services can be at the local level or international level.

(v) It provides safe and secure inter relationship between domestic or foreign government.

4. Government to Employee (G2E) :

(i) The Government to Employee is the internal part of G2G sector.

(ii) G2E aims to bring employees together and improvise knowledge sharing.

(iii) G2E provides online facilities to the employees like applying for leave, reviewing salary payment record and checking the balance of holiday.

(iv) This sector provides human resource training and development.

(v) Examples of successful implementation of E-governance are e-Mitra, e-Seva project, CET (Common Entrance Test).

6.8 Security measures in E-Commerce

12. Explain process of Encryption.

Ans. :

(i) Encryption is widely used on the internet to protect user information being sent between a browser and a server.

(ii) This includes passwords, payment information and other personal information that should be considered private.

(iii) Encryption converts Plain text into Cipher text means non readable form of data.

(iv) Decryption is opposite of encryption i.e. it converts Cipher text into Plain text.

(v) **Encryption is of two types :** Symmetric and Asymmetric.

13. Write short notes on :

(a) Digital Signature (b) Digital Certificate

Ans. :

(a) Digital Signature :

(i) Digital Signature is also known as electronic signature.

(ii) Digital Signature guarantees the authenticity of an electronic document or message in digital communication and uses encryption technique to provide proof of original and unmodified documentation.

(iii) Digital Signatures are used in E-commerce, financial transactions.

(iv) This is the direct transfer of information between two partners.

(b) Digital Certificate :

(i) Digital Certificate is an electronic record "password" that allows a person, organization to exchange data securely over the internet using the public key infrastructure (PKI).

(ii) It is also known as public key certificate or identity certificate.

(iii) Using Digital Certificate information is transferred between two authorized partners who have digital certificates issued by supreme authority.

Exercise

Fill in the blanks.

1. E-Commerce's scope is .....

Ans. : global

2. A customer can do shopping ..... online using type of E-Commerce.

Ans. : B2C

3. The ..... phase consist of Order and Delivery.

Ans. : execution

4. E-wallet is a type of ..... account in which a user can store his/her money for any future online transaction.

Ans. : prepaid

5. EDI is ..... exchange of information.

Ans. : electronic

6. The ..... type of e-governance refers to the government services which enable citizens to get access to wide variety of public services.

Ans. : G2C

7. The e-governance which provides safe and secure inter-relationship between domestic or foreign government is .....

Ans. : G2G

State True/False.

1. C2C type of E-commerce deals with Business and Customer.

Ans. : False

2. The lack of a personal touch can be a disadvantage for many types of services and products in E-commerce.

Ans. : True

3. Checking the balance of holiday is an example of G2C.

Ans. : False

4. E-commerce provides more options to compare and select the cheaper and better options.

Ans. : True

5. M-commerce can be used through desktop computer.

Ans. : False

Multiple Choice Question. (1 correct answer)

1. Invoice and payment are included in .....phase of trade cycle.
   (a) Presale (b) execution (c) settlement (d) After sale

Ans. : (c)

2. License renewal is an example of ..... e-governance.
   (a) G2C (b) G2B (c) G2G (d) G2E

Ans. : (a)

Multiple Choice Question. (2 correct answer)

1. Encryption consist of two processes and .....
   (a) encryption (b) signature (c) decryption
   (d) digitization (e) security

Ans. : (a, c)

2. Social commerce is a subset of electronic commerce that involves social media like ..... and .....
   (a) Facebook (b) Instagram (c) gmail
   (d) whatsapp (e) software

Ans. : (a, b)

Match the following.

A	B
1. M-commerce	(a) Coded form of data
2. Cipher Text	(b) B2B
3. EDI	(c) E-bill payment
4. Wholesaler-to	(d) Paperless exchange of information
5. License renewal services	(e) G2G
6. Online facility to employees like leave	(f) G2C
7. Government agencies share same database	(g) G2E

Ans. : 1 –c , 2-a, 3-d, 4-b , 5-f, 6-g, 7-e

Answer in brief.

1. Explain phases of trade cycle.

Ans. : Refer 6.3, Q. 1

2. Explain M-Commerce.

Ans. : Refer 6.5, Q. 1

3. Describe process of encryption.

Ans. : Refer 6.8, Q. 1

4. What is E-governance.

Ans. : Refer 6.7, Q. 1

5. List out advantages of E-commerce.

Ans. : Refer 6.2, Q.2

6. Which are the different types of e-governance?

Ans. : Refer 6.7, Q. 3

7. State two examples of G2E services.

Ans. : Refer 6.7, Q. 3

8. Write any four advantages of e-governance.

Ans. : Refer 6.7, Q. 2

❑❑❑

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Note :-

Students should file minimum 12 skill sets from the SOPs as follows :

Advanced Web Designing	**- Any 05**
JavaScript	**- Any 04**
Server side scripting	**- Any 03**

1. Advanced Web Designing

➢ **SOP 1 : Creation of website using HTML5**

Create a website using HTML5 and CSS using any 4 CSS properties. Write a code for 2 separate pages having different file names such as first page as Index. html and second page as page2.html. Use any theme such as college profile or company profile etc. Every page must contain proper Meta information and design web page as follows :

1) **The index page must contain a heading which is highest among other text on pages and must be at centre of the page. There must be a paragraph which introduces general information about the theme chosen must have at least 3 physical style tags and one image with alternate text. This page must be connected to other two pages with proper navigational links.**

2) **The 2nd page must contain the feedback or enrolment form related with theme chosen with features of HTML5. The form must contain text element and email address of the company or person. Include the submit button.**

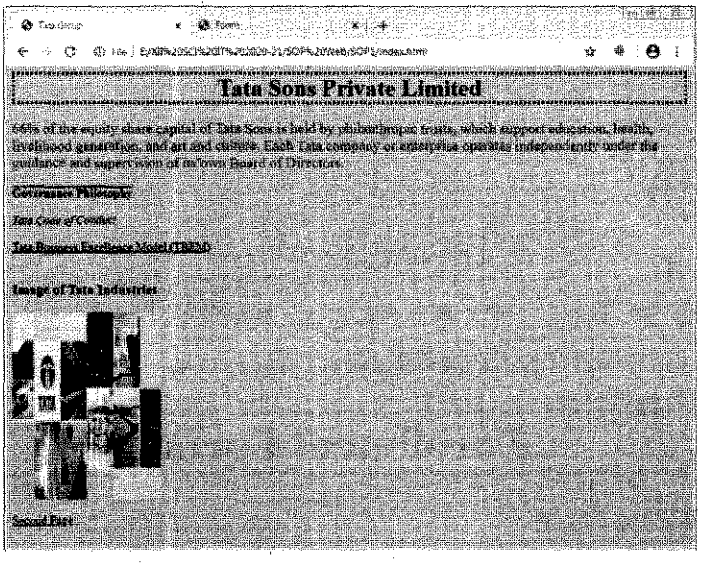
Coding :

index.html

```
<!DOCTYPE html>
<html>
<head>
<title>
Tata Group
</title>
<meta charset="utf-8">
<meta name="author" content="Physical Tags">
<style>
h1{border-style:dotted}
p{color:red;font-size:15pt}
body{background-color:pink}
b{text-decoration:overline}
u{text-align:right}
</style>
</head>
<body>
<h1 align="center">Tata Sons Private Limited</h1>
```

```
<p>
66% of the equity share capital of Tata Sons is held by philanthropic trusts, which support education, health, livelihood generation, and art and culture. Each Tata company or enterprise operates independently under the guidance and supervision of its own Board of Directors.
</p>
<b>Governance Philosophy</b><br><br>
<i>Tata Code of Conduct</i><br><br>
<u>Tata Business Excellence Model (TBEM)</u><br><br>
<h3>Image of Tata Industries</h3>
<img src="E:\XII SCI IT 2020-21\images\tata.jpg" width="200" height="250" alt="Tata Industries">
<br><br>
<a href="E:\XII SCI IT 2020-21\SOP Web\SOP1\second.html">Second Page</a>
</body>
</html>
```

Output :

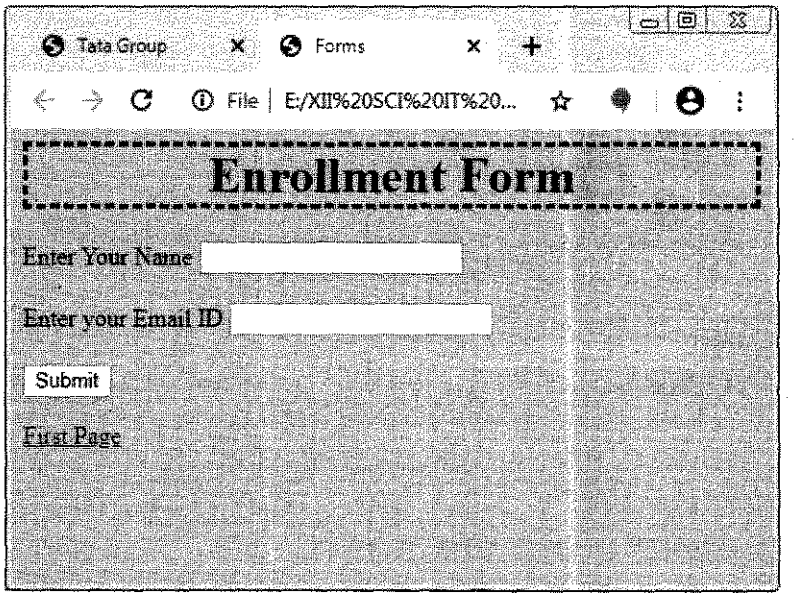


second.html

```
<!DOCTYPE html>
<html>
<head>
<title>
Forms
```

```
</title>
<meta charset="utf-8">
<meta name="author" content="Form">
<style>
h1{border-style:dashed}
body{background-color:aqua}
</style>
</head>
<body>
<h1 align="center">Enrollment Form</h1>
<form name="f1">
Enter Your Name
<input type="text" name="t1" required>
<br><br>
Enter your Email ID
<input type="email" name="emailid"><br><br>
<input type="submit" name="submitbtn" value="Submit">
</form>
<a href="E:\XII SCI IT 2020-21\SOP Web\SOP1\index.html">First Page</a>
</body>
</html>
```

Output :



➢ **SOP 2 : Create a webpage using HTML and CSS code to design a web page as the layout displayed below.**

The top section will display the heading , 'Tourist places' in header. The section on the left has list of cities. The right hand side displays tourist places of any one of the city .

Use Inline style sheet in the top section to display background color for the text 'Tourist places'. Use internal stylesheet for the left and right section with background color and font styles.

Tourist places	
City	**Tourist places in Pune**
1. Pune	• Shanivarwada
2. Banglore	• Kelkar Museum
3. Hyderabad	• Sinhgad fort
4. Delhi	

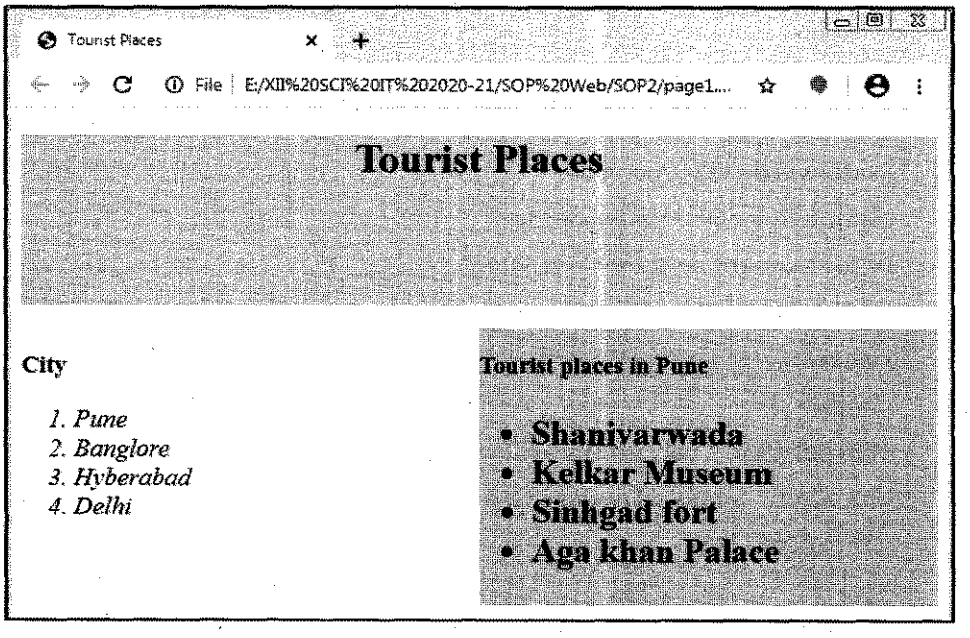
Coding :

page1.html

```
<!DOCTYPE html>
<html>
<head>
<title>
Tourist Places
</title>
<style>
section{background-color:pink;width:50%;height:50%;float:right}
aside{width:50%;float:left}
ol{font-style:italic;font-size:15pt}
ul{font-weight:bold;font-size:20pt}
</style>
</head>
<body>
<header style="background-color:skyblue;height:100pt">
<h1 align="center">Tourist Places</h1>
</header>
<br>
```

```
<aside>
<h3>City</h3>
<ol>
<li>Pune</li>
<li>Banglore</li>
<li>Hyberabad</li>
<li>Delhi</li>
</ol>
</aside>
<section>
<h3>Tourist places in Pune</h3>
<ul>
<li>Shanivarwada</li>
<li>Kelkar Museum</li>
<li>Sinhgad fort</li>
<li>Aga khan Palace</li>
</ul>
</section>
</body>
</html>
```

Output :



➢ **SOP 3 : Create a website using HTML and CSS code to design webpages as follows :**

The first webpage will accept the name of the traveller, date of travel , telephone number . It also has submit button as an image .

The second webpage has information about the name of transporter, time , seat no and destination displayed one below the other in the form of unordered list as

Name of transporter – Air Asia Time - 09:30 am

Seat no – B39 Destination - Delhi

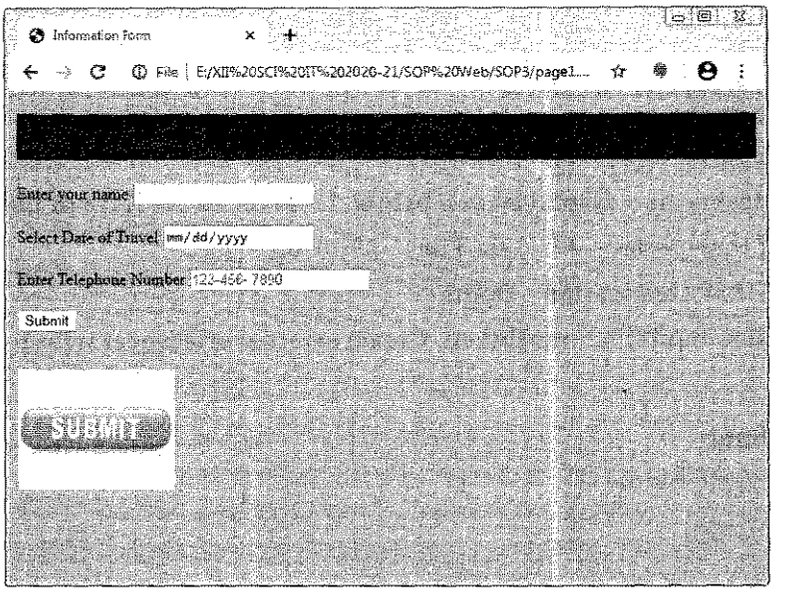
Both pages should be interlinked. Create external stylesheet with relevant tags.

Coding :

page1.html

```
<!DOCTYPE html>
<html>
<head>
<title>
Information Form
</title>
<link rel="stylesheet" type="text/css" href="external.css">
</head>
<body>
<h1 align="center">Traveller Infomation form</h1>
<form name="f1">
Enter your name
<input type="text" name="name" auotcomplete><br><br>
Select Date of Travel
<input type="date" name="trvdate"><br><br>
Enter Telephone Number
<input type="tel" name="phone" placeholder="123-456-
7890"pattern="[0-9]{3}-[0-9] {3} [0-9]{4}" required><br><br>
<input type="submit" name="submit" value="Submit">
</form>
<br><br>
<a href="E:\XII SCI IT 2020-21\SOP Web\SOP3\page2.html">
<img src="E:\XII SCI IT 2020-21\images\submit.jpg" width="150"></a>
</body>
</html>
```

Output :



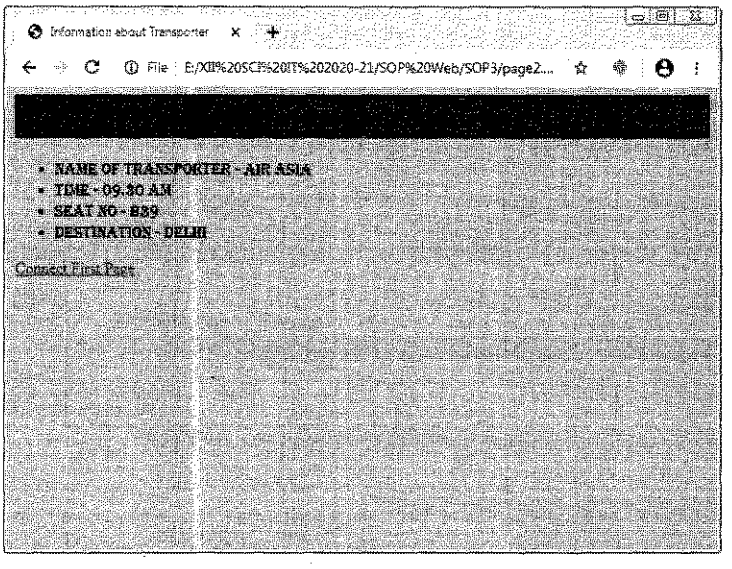
page2.html

```
<html>
<head>
<title>
Information about Transporter
</title>
<link rel="stylesheet" type="text/css" href="external.css">
</head>
<body>
<h1 align="center">Information about Transporter</h1>
<ul>
<li> Name of Transporter - Air Asia</li>
<li>Time - 09.30 am</li>
<li>Seat no - B39</li>
<li>Destination - Delhi</li>
</ul>
<a href="E:\XII SCI IT 2020-21\SOP Web\SOP3\page1.html">Connect First Page</a>
</body>
</html>
```

external.css

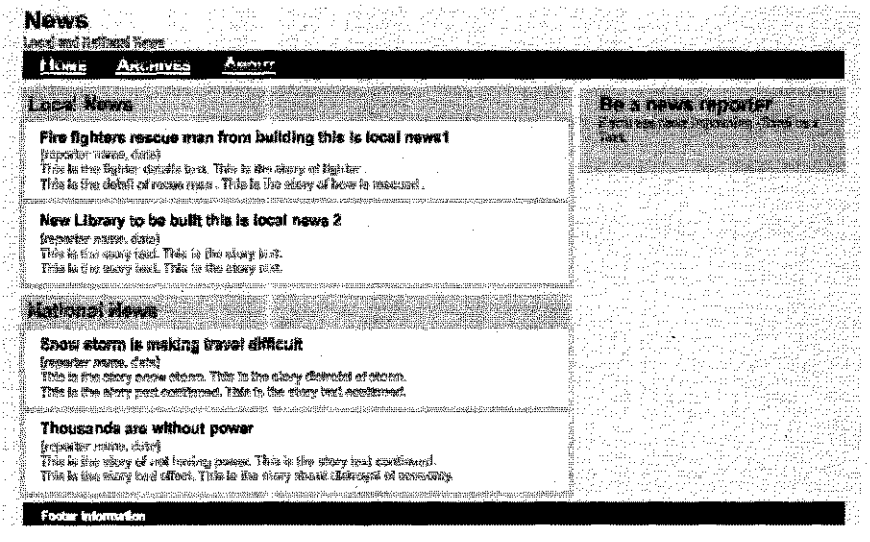
```
h1{background-color:green;border-style:double}
body{background-color:lightgreen}
ul{font-family:Algerian}
```

Output :



➢ **SOP 4 : Creation of website using HTML5 and CSS.**

Create a webpage as given layout use <nav>,<header>,<footer>,<aside>, <article> with CSS.

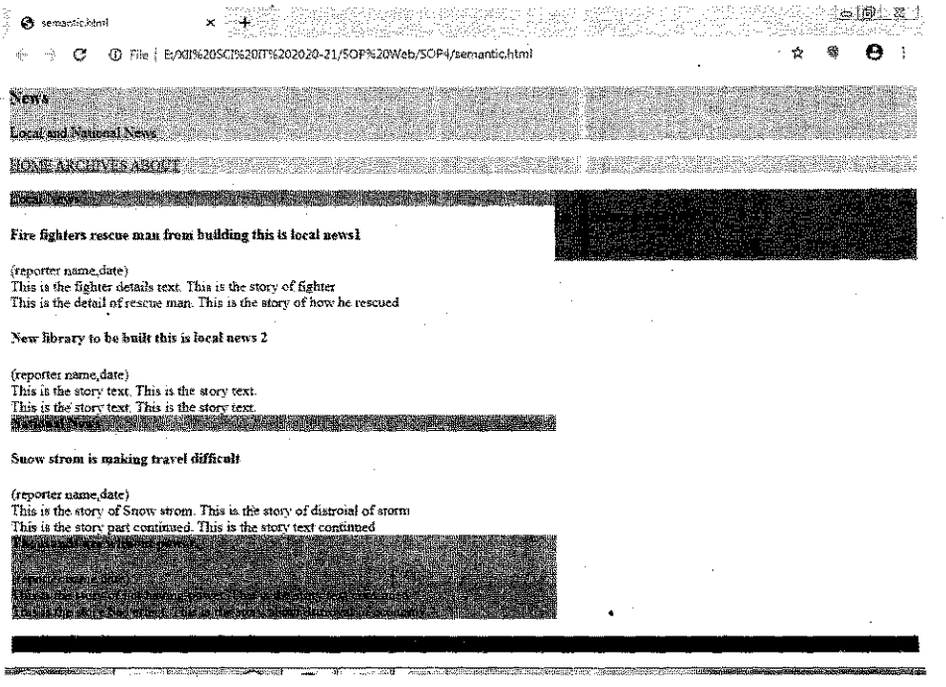


Coding :

```
Semantic.html
<!DOCTYPE html>
<html>
<head>
<style>
header{background-color:pink;width:100%;height:20%}
nav{background-color:skyblue;width:100%;height:20%}
aside{background-color:grey;width:40%;float:right}
section{background-color:lightyellow; width:60%;height:10%;float:left}
article{background-color:violet;width: 60%;height:40%}
footer{background-color:blue;width:100%;height:30%}
</style>
</head>
<body>
<header>
<h3>News</h3>
Local and National News
</header>
<br>
<nav>
<a href="http://www.home.in">HOME</a>
<a href="http://www.archives.in">ARCHIVES</a>
<a href="http://www.about.in">ABOUT</a>
<br>
</nav>
<br>
<aside>
<h3>Be a News Reporter</h3>
If you see news happening - Send us a text.</aside>
<article>Local News</article>
```

```
<section>
<h4>Fire fighters rescue man from building this is local news1</h4>
(reporter name,date)<br>
This is the fighter details text. This is the story of fighter<br>
This is the detail of rescue man. This is the story of how he rescued<br>
</section>
<br>
<section>
<h4>New library to be built this is local news 2</h4>
(reporter name,date)<br>
This is the story text. This is the story text.<br>
This is the story text. This is the story text.<br>
</section>
<br>
<article><b>National News</b></article>
<section>
<h4>Snow strom is making travel difficult</h4>
(reporter name,date)<br>
This is the story of Snow strom. This is the story of distroial of storm<br>
This is the story part continued. This is the story text continued<br>
</section>
<article>
<h4>Thousands are without power</h4>
(reporter name,date)<br>
This is the story of not having power. This is the story text continued<br>
This is the story bad effect. This is the story about dsitroyal of economy<br>
</article>
<br>
<footer>Footer Information</footer>
</body>
</html>
```

Output :



➢ **SOP 5 : Use of Audio on web pages using HTML5.**

Create a webpage named audio.html to set an audio file in web page with controls such that it uses HTML5 elements. The audio file must play as soon as the webpage loads in browser and it will start over again, every time when it is completed.

Create another webpage named audio1.html which provides multiple source file formats for the same audio file that plays a sound automatically with controls. The browser should display the message with appropriate attribute, when audio file is not supported by browser. The code must incorporate the list of sound files formats (like wav, MP3 or ogg etc).

Coding :

audio.html

```
<!DOCTYPE html>
<html>
<head>
<title>Single Audio with controls</title>
</head>
<body>
<h1 align="center">Audio with controls</h1>
<audio controls autoplay loop="-1">
```

```
<source src="C:\Users\Public\Music\Sample Music\Kalimba.mp3"
type="audio/mpeg">
</audio>
</body>
</html>
```

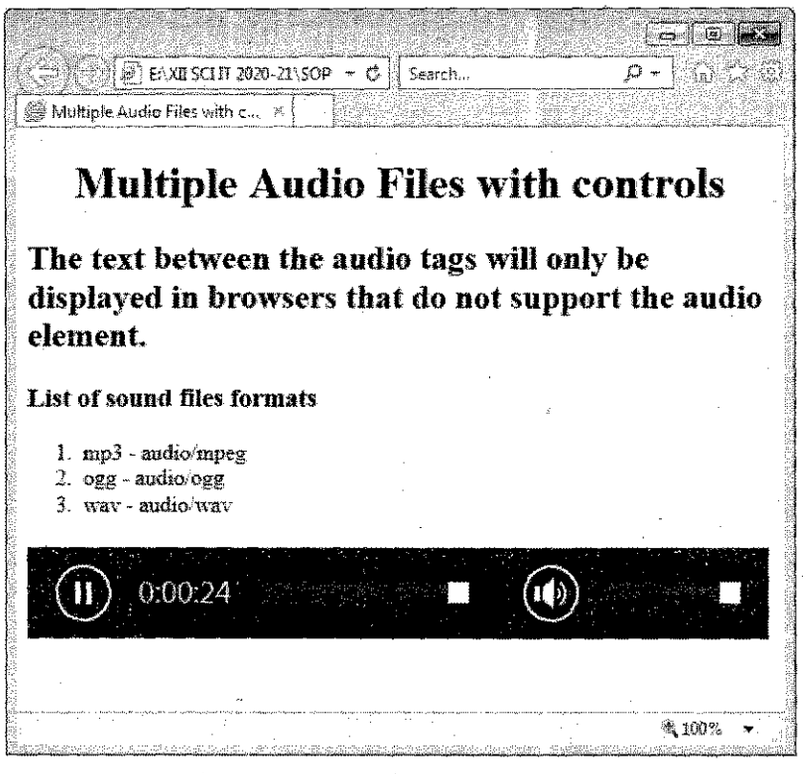
Output :

Audio1.html

```
<!DOCTYPE html>
<html>
<head>
<title>
Multiple Audio Files with controls</title>
</head>
<body>
<h1 align="center">Multiple Audio Files with controls</h1>
<h2>
The text between the audio tags will only be displayed in browsers that do not
support the audio element.</h2>
<h3>List of sound files formats</h3>
```

```
<ol>
<li>mp3 - audio/mpeg</li>
<li>ogg - audio/ogg</li>
<li>wav - audio/wav</li>
</ol>
<audio controls autoplay>
<source src="E:\XII SCI IT 2020-21\sound\test.wav" type="audio/wav">
<source src="E:\XII SCI IT 2020-21\sound\test.mp3" type="audio/mp3">
<source src="E:\XII SCI IT 2020-21\sound\test.ogg" type="audio/ogg">
Your browser does not support the audio element.
</audio>
</body>
</html>
```

Output :



➢ **SOP 6 : Use of video on web pages using html5.**

Create a webpage named video.HTML to display a video file on web page and plays automatically with controls. The dimension of video area should be 150 * 150 pixels.

Create another webpage which provide multiple source file formats for the same video file that plays a video automatically with controls. The dimension of video area should be 100*100 pixels. The browser should display the message with appropriate attribute when video file is not supported by browser. The code must incorporate the list of video files formats (like webM, MP4 or ogg etc).

Coding :

Video.html

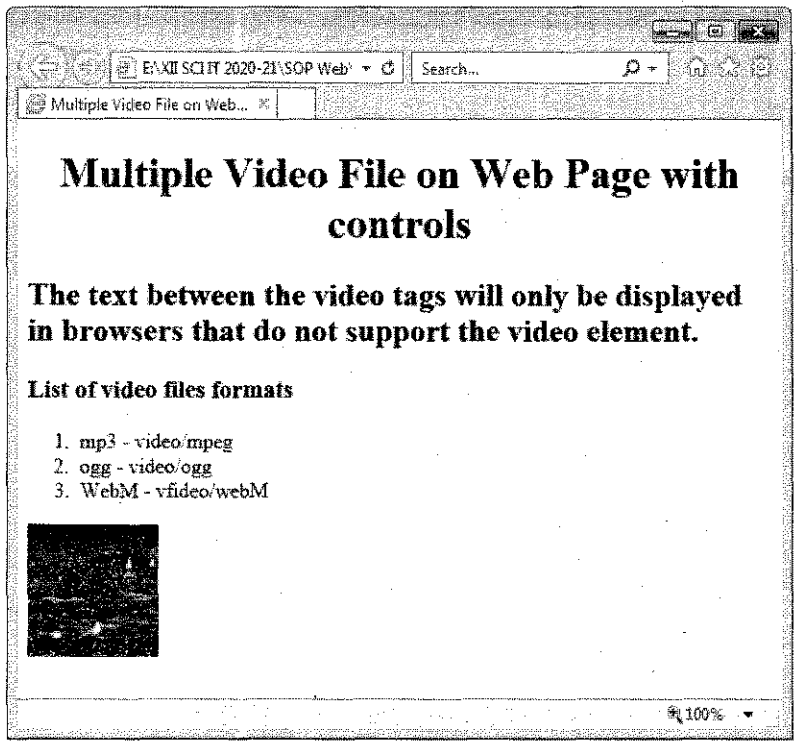
```
<!DOCTYPE html>
<html>
<head>
<title>
Single Video File on Web Page with controls
</title>
</head>
<body>
<h1 align="center">Single Video File on Web Page with controls</h1>
<video src="C:\Users\Public\Videos\Sample Videos\shuttle.mp4" controls
width="150" height="150" loop="-1" autoplay>
</video>
</body>
</html>
```

Output :

video1.html

```
<!DOCTYPE html>
<html>
<head>
<title>
Multiple Video File on Web Page with controls
</title>
</head>
<body>
<h1 align="center">
Multiple Video File on Web Page with controls
</h1>
<h2>
The text between the video tags will only be displayed in browsers that do not support the video element.</h2>
<h3>List of video files formats</h3>
<ol>
<li>mp3 - video/mpeg</li>
<li>ogg - video/ogg</li>
<li>WebM - vfideo/webM</li>
</ol>
<video controls width="100" height="100" autoplay>
<source src="E:\XII SCI IT 2020-21\video\movie.mp4" type="video/mp4">
<source src="E:\XII SCI IT 2020-21\video\movie.webm" type="video/webm">
<source src="E:\XII SCI IT 2020-21\video\movie.ogg" type="video/ogg">
</video>
</body>
</html>
```

Output :



➢ **SOP 7 : Navigation on an image using Client side image Mapping in web page using html 5.**

Create a webpage named imagemap. html with an inserted image having jpeg, png or gif extension. Create 3 different shapes (like rectangle, circle and polygon) which do not overlap. Note the co-ordinates making use of Ms-Paint/GIMP/IrfanView/Pinta. Each shape should be mapped or navigate with a different URL that should navigate to a local webpage.

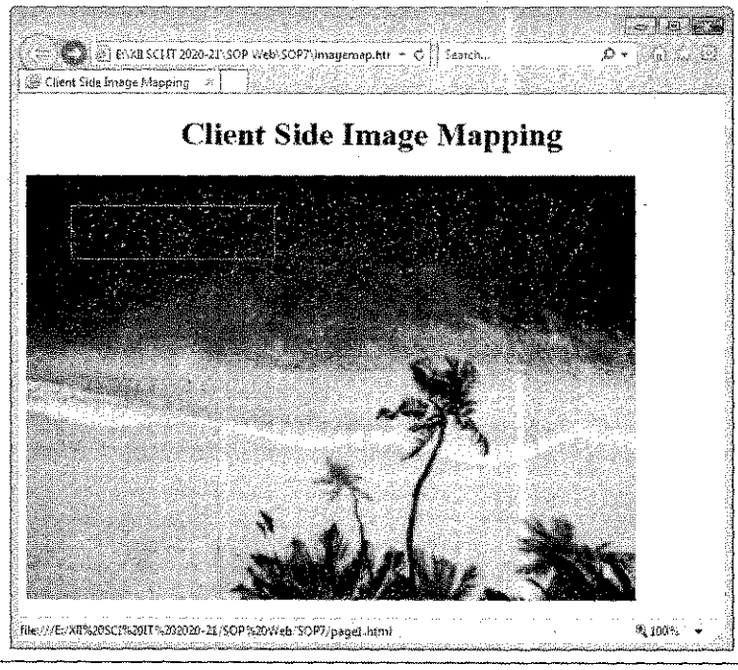
Coding :

imagemap.html

```
<!DOCTYPE html>
<html>
<head>
<title>
Client Side Image Mapping
</title>
</head>
<body>
<h1 align="center">Client Side Image Mapping</h1>
```

```
<img src="E:\XII SCI IT 2020-21\images\beach1.jpg" width="600"
usemap="#imagemap">
<map name="imagemap">
<area shape="rect" coords="44,29,244,81" href="E:\XII SCI IT 2020-21\SOP
Web\SOP7\page1.html" alt="Page1.html">
<area shape="circ" coords="380,271,60" href="E:\XII SCI IT 2020-21\SOP
Web\SOP7\page2.html" alt="Page2.html">
<area shape="poly" coords="162,279,81,373,191,431,168,368,245,388" href="E:\XII
SCI IT 2020-21\SOP Web\SOP7\page3.html" alt="Page3.html">
</map>
</body>
</html>
```

Output :



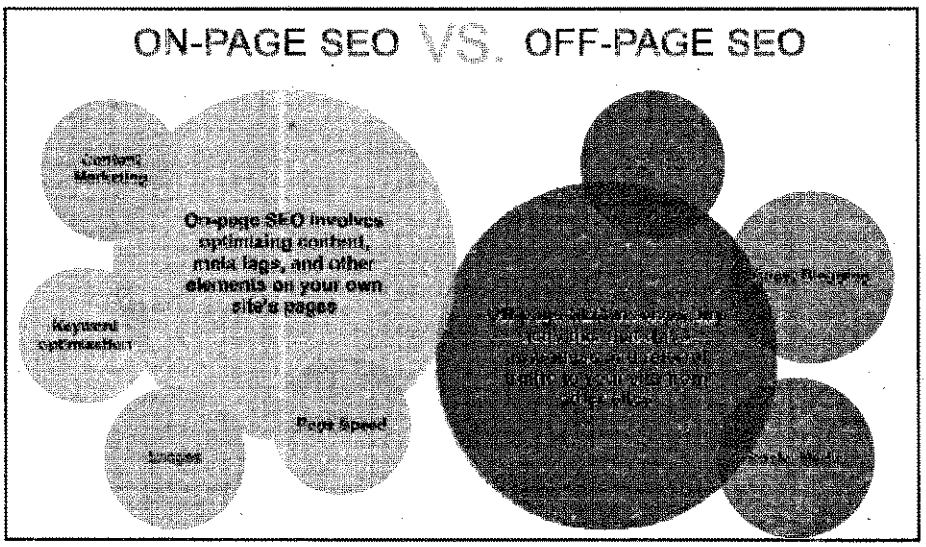
➢ **SOP 8 : Use of SEO methodology to improvise the website.**

Select a website.

Use an appropriate SEO software and list out the page optimization requirements.

Write down at least 4 suggestions to optimise the web pages.

Write importance of SEO.



Steps :

1. The website is https://snehasadan.org/
2. The software used is SEOoptimer
3. The four suggestions to improve website

For ONPAGE SEO

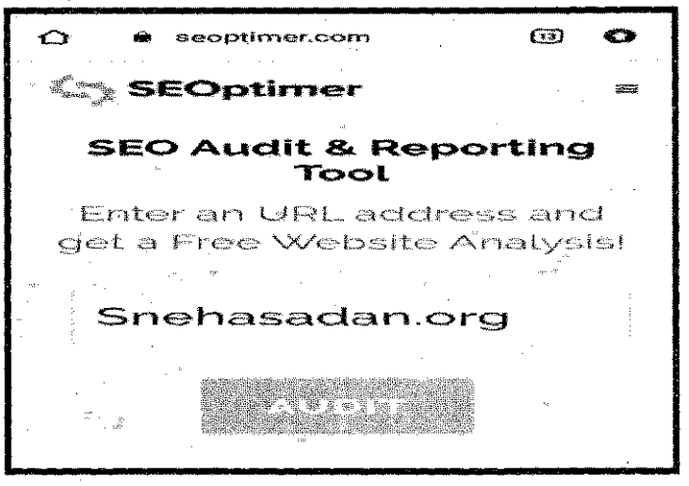
- Use meta data descriptions wherever needed
- Use alt tag in images
- Keywords are not distributed well across the important HTML tags.ie improve keyword consistency
- Page speed is good

For OFFPAGESEO

- Make friendly urls
- Not connected to any social media
- Guest blogging is not done
- 2 broken links found

Importance of SEO

- It is the technique for designing and developing a website to be rank high in search engine results.
- It is a subset of SEM(Search Engine Marketing).
- SEO is useful in increasing number of visitors in a website.



Now Click on audit button it will display result.

2. Javascript

➢ **SOP 1 : Create a web page in HTML having a white background and two Button Objects. Write code using JavaScript such that when the mouse is placed over the first button object without clicking, the color of the background of the page should change after every seconds. There should at least be 7 different and visibly distinct background colors excluding the default color. When the second button object is clicked, appropriate message should be displayed in Browsers status bar.**

Create another web page using JavaScript where the background color changes automatically after every seconds. This event must be triggered automatically after the page gets loaded in the browser. There should at least be 7 different and visibly distinct background colors. When the page is unloaded, the appropriate alert message should be displayed.

Coding :

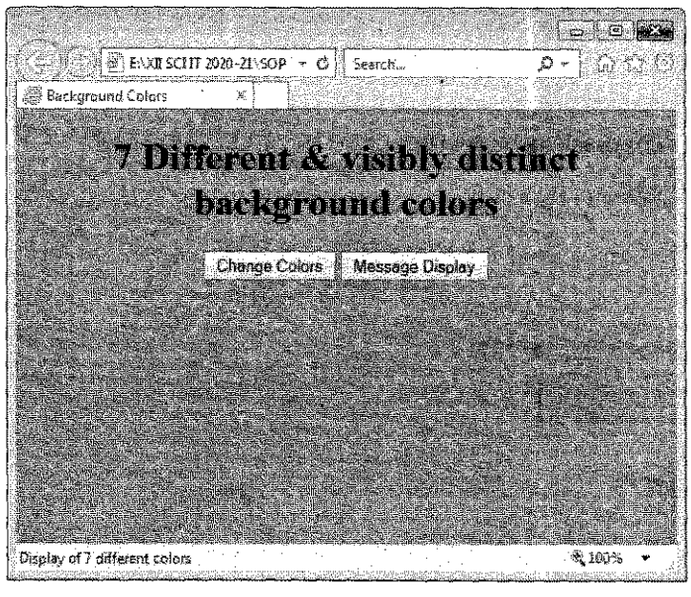
color.html

```
<!DOCTYPE html>
<html>
<head>
<title>
Background Colors
</title>
</head>
<body>
```

```
<h1 align="center">7 Different & visibly distinct background colors</h1>
<form name="frm1">
<center>
<input type="button" name="btncolor" value="Change Colors"
onMouseOver="f1()">
<input type="button" name="btnmsg" value="Message Display" onClick="msg()">
</form>
</body>
<script type="text/javascript">
function f1()
{
document.bgColor="red";
window.setTimeout("f2()",1500);
}
function f2()
{
document.bgColor="green";
window.setTimeout("f3()",1500);
}
function f3()
{
document.bgColor="pink";
window.setTimeout("f4()",1500);
}
function f4()
{
document.bgColor="orange";
window.setTimeout("f5()",1500);
}
function f5()
{
```

```
document.bgColor="skyblue";
window.setTimeout("f6()",1500);
}
function f6()
{
document.bgColor="voilet";
window.setTimeout("f7()",1500);
}
function f7()
{
document.bgColor="aqua";
window.setTimeout("f1()",1500);
}
function msg()
{
window.status="Display of 7 different colors";
}
</script>
</html>
```

Output :

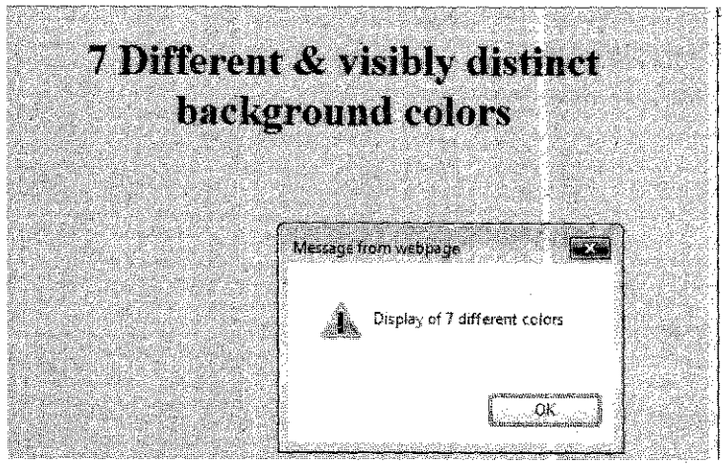


color1.html

```
<!DOCTYPE html>
<html>
<head>
<title>
Background Colors
</title>
</head>
<body onLoad="f1()" onUnload="msg()">
<h1 align="center">7 Different & visibly distinct background colors</h1>
</body>
<script type="text/javascript">
function f1()
{
document.bgColor="red";
window.setTimeout("f2()",1500);
}
function f2()
{
document.bgColor="green";
window.setTimeout("f3()",1500);
}
function f3()
{
document.bgColor="pink";
window.setTimeout("f4()",1500);
}
function f4()
{
document.bgColor="orange";
window.setTimeout("f5()",1500);
}
function f5()
{
```

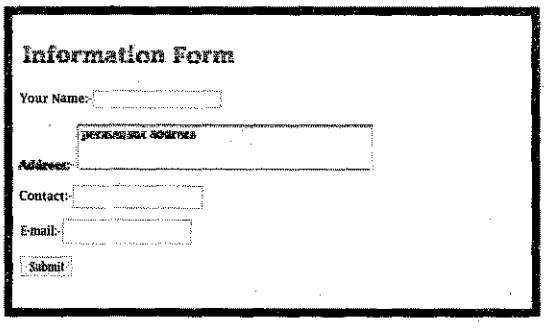
```
document.bgColor="skyblue";
window.setTimeout("f6()",1500);
}
function f6()
{
document.bgColor="voilet";
window.setTimeout("f7()",1500);
}
function f7()
{
document.bgColor="aqua";
window.setTimeout("f1()",1500);
}
function msg()
{
alert("Display of 7 different colors");
}
</script>
</html>
```

Output :



➢ **SOP 2 : Create JavaScript program for the following form validations. Make use of HTML5 properties to do the following validations :**

1) **Name, address, contact number and email are required fields of the form.**
2) **Address field should show the hint value which will disappear when field gets focus or key press event.**
3) **Telephone number should be maximum 10 digit number only.**
4) **Email field should contain valid email address, @ should appear only once and not at the beginning or at end. It must contain at least one dot(.).**
5) **Make use of pattern attribute for email to accept lowercase, uppercase alphabets, digits and specified symbols.**



Coding :

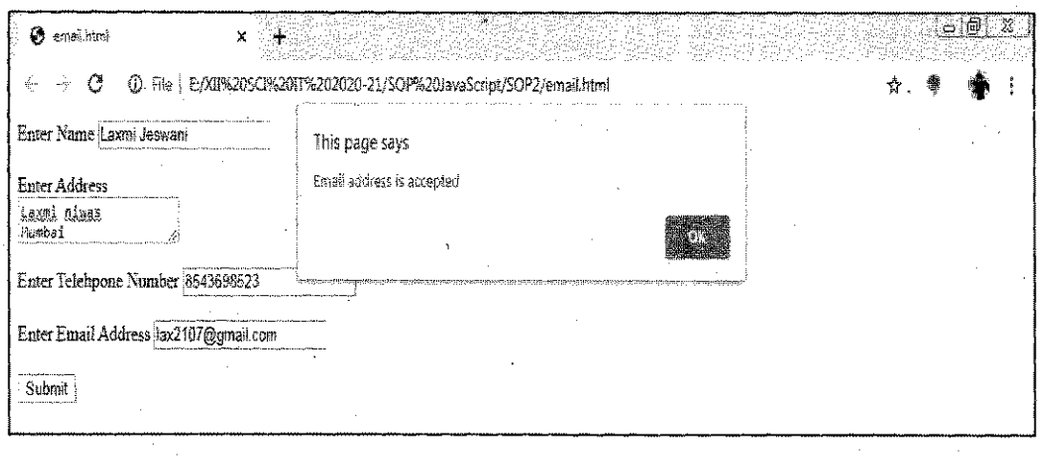
email.html

```
<html>
<body>
<form name="frm1">
Enter Name
<input type="text" name="t1"><br><br>
Enter Address<br>
<textarea name="t2" placeholder="PERMENANT
ADDRESS"></textarea><br><br>
Enter Telehpone Number
<input type="tel" maxlength="10"><br><br>
Enter Email Address
<input type="email" name="t3" pattern="[A-Z a-z]{5}-[@]{1}-[.]{1}"
placeholder="lax2107@gmail.com"><br><br>
<input type="button" name="b1" value="Submit" onClick="chk()">
</form>
```

```
</body>
<script type="text/javascript">
function chk()
{
var x=frm1.t3.value;
var atpos=x.indexOf("@");
var lastat=x.lastIndexOf("@");
var firstdot=x.indexOf(".");
var dotpos =x.lastIndexOf(".");

if(atpos<1||dotpos<atpos+2||dotpos+2>=x.length||firstdot<atpos||atpos<lastat)
{
alert("Not a valid email address");
frm1.t3.focus();
}
else
{
alert("Email address is accepted");
return true;
}
}
</script>
</html>
```

Output :



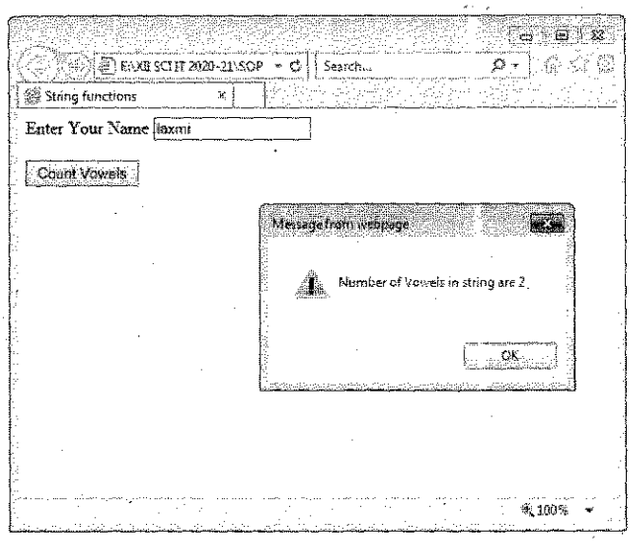
➢ **SOP 3 : Create event driven JavaScript program for the following. Make use of appropriate variables, JavaScript inbuilt string functions and control structures.**

To accept string from user and count number of vowels in the given string.

Coding :

```
<!DOCTYPE html>
<html>
<head>
<title>
String functions
</title>
</head>
<body>
<form name="frm1">
Enter Your Name
<input type="text" name="t1"><br><br>
<input type="button" name="btncheck" value="Count Vowels" onClick="cnt()">
</form>
</body>
<script type="text/javascript">
function cnt()
{
var s,i,ch,c;
c=0;
s=frm1.t1.value;
for(i=0;i<=s.length;i++)
{
ch=s.charAt(i);
if(ch=="A" || ch=="a" || ch=="E" || ch=="e" || ch=="I" || ch=="i" || ch=="O"
|| ch=="o" || ch=="U" || ch=="u")
c++;
}
alert("Number of Vowels in string are "+c);
}
</script>
</html>
```

Output :



➢ **SOP 4 : Create event driven JavaScript program for the following. Make use of appropriate variables, JavaScript inbuilt string functions and control structures.**

To accept string from user and reverse the given string and check whether it is palindrome or not.

Coding :

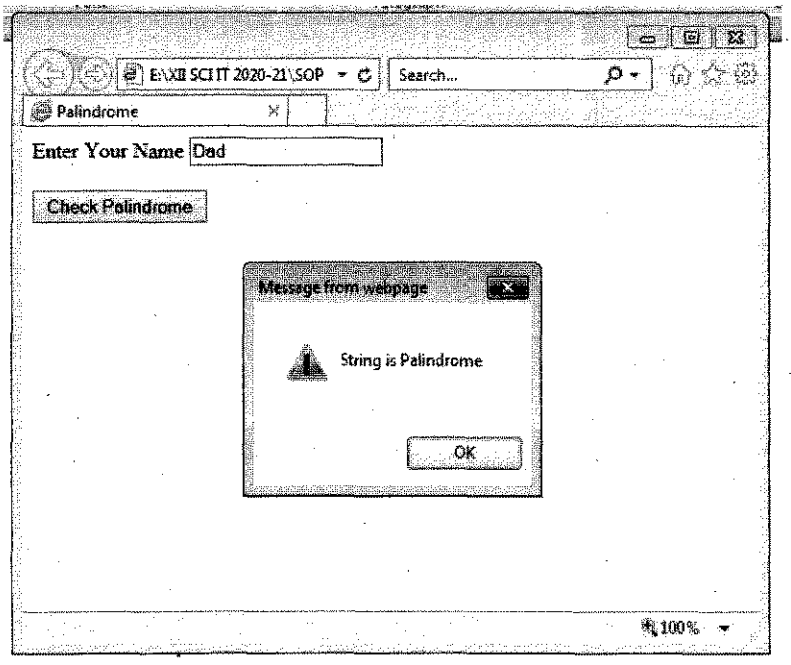
palindrome.html

```
<!DOCTYPE html>
<html>
<head>
<title>
Palindrome
</title>
</head>
<body>
<form name="frm1">
Enter Your Name
<input type="text" name="t1"><br><br>
<input type="button" name="btncheck" value="Check Palindrome"
onClick="chk()">
</form>
</body>
<script type="text/javascript">
function chk()
{
```

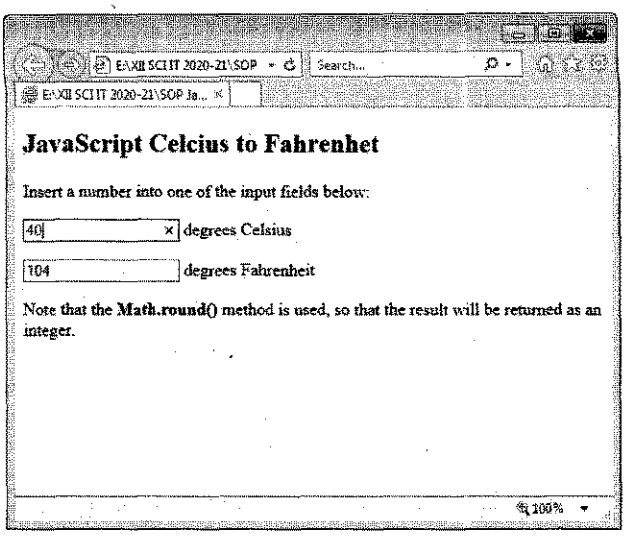
```
var a,s,i,ch,n;
a=frm1.t1.value;
s=a.toLowerCase();
n=s.length;
var p=1;
for(i=0; i<n/2;i++)

if(s.charAt(i)!= s.charAt(n-1-i))
{
p=0;
break;
}
}
if(p==1)
alert("String is Palindrome");
else
alert("String is not a Palindrome");
}
</script>
</html>
```

Output :



Output :



➢ **SOP 6 : Create JavaScript program which compute the average marks of students. Accept six subject marks of student from user. Calculate average marks of student which is used to determine the corresponding grades.**

Range	Grade
35 to 60	F
61 to 70	D
71 to 80	C
81 to 90	B
91 to 100	A

Coding :

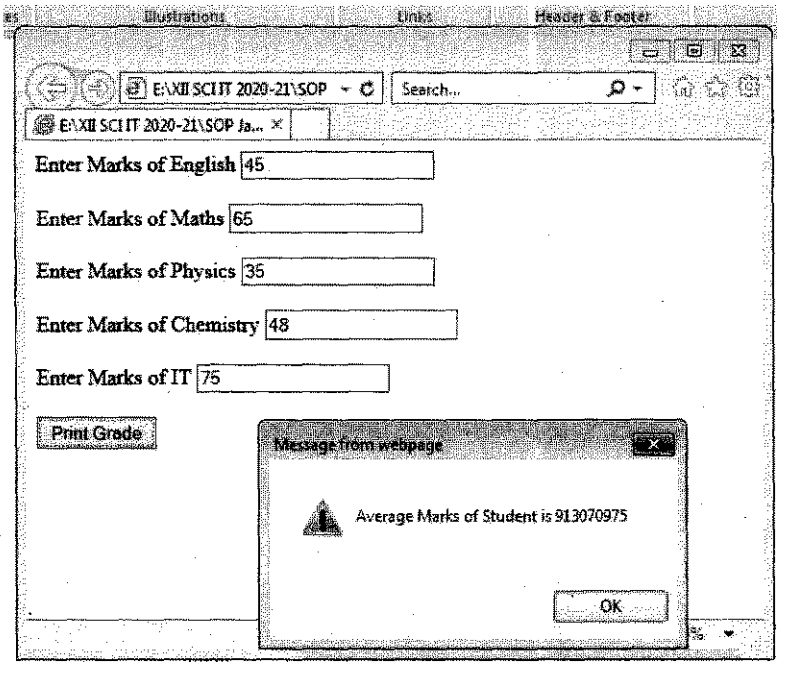
grade.html

```
<html>
<body>
<form name="frm1">
Enter Marks of English
<input type="number" name="t1"><br><br>
Enter Marks of Maths
<input type="number" name="t2"><br><br>
Enter Marks of Physics
<input type="number" name="t3"><br><br>
Enter Marks of Chemistry
```

```
<input type="number" name="t4"><br><br>
Enter Marks of IT
<input type="number" name="t5"><br><br>
<input type="button" name="btnclick" value="Print Grade" onClick="grade()">
</form>
</body>
<script type="text/javascript">
function grade()
{
var m1,m2,m3,m4,m5,a;
m1=frm1.t1.value;
m2=frm1.t2.value;
m3=frm1.t3.value;
m4=frm1.t4.value;
m5=frm1.t5.value;
a=(m1+m2+m3+m4+m5)/5;
alert("Average Marks of Student is "+a);
if(a>=91)
alert("Grade A");
else
{
if(a>=81)
alert("Grade B");
else
{
if(a>=71)
alert("Grade C");
else
{
if(a>=61)
```

```
        alert("Grade D");
        else
        alert("Grade F");
        }
        }
        }
        }
        </script>
        <html>
```

Output :



➢ **SOP 7 : Write a JavaScript function to get difference between two dates in days. Create a page in HTML that contains input box to accept date from user. The input boxes should be used by users to enter their date of birth in the format dd-mm-yyyy. Do not make use of any dropdown boxes.**

Example :

date_diff_indays('04/02/2019', '11/04/2019'); date_diff_indays('01/01/2020', '31/01/2019');

Output :

66

– 30

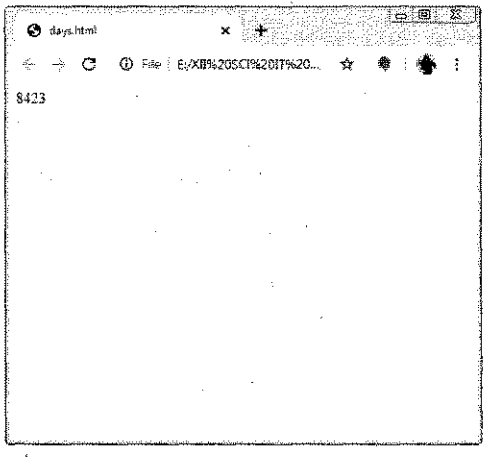
Coding :

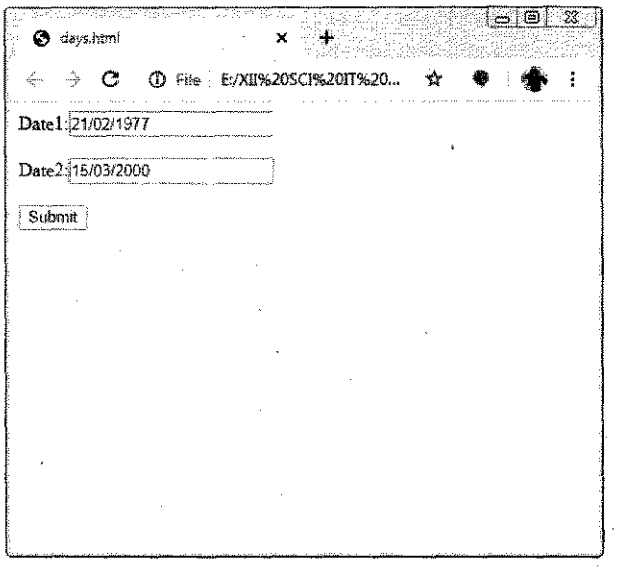
date.html

```
<html>
 <head>
 <script type="text/javascript">
 function GetDays(i_Date1, i_Date2)
 {
 var str=i_Date1;
 var day = str.slice(0, 2);
 var month = str.slice(3, 5);
 var year = str.slice(6, 10);
 //this is first date
 dt1 =new Date(month + "/" + day + "/" + year);
          var str1=i_Date2;
 var day1 = str1.slice(0, 2);
 var month1 = str1.slice(3, 5);
 var year1 = str1.slice(6, 10);
 //this is second date
 dt2 =new Date(month1 + "/" + day1 + "/" + year1);
 var one_day=1000*60*60*24;
 var date1_ms = dt1.getTime();
 var date2_ms = dt2.getTime();
 var difference_ms = date2_ms - date1_ms;
 document.writeln(Math.round(difference_ms/one_day));
  }
  </script>
  </head>
  <body>
<form name="form_task">
Date1:<input type="text" name="d1" placeholder="dd/mm/yyyy">
<br>
<br>
Date2:<input type="text" name="d2" placeholder="dd/mm/yyyy">
<br>
```

```
<br>
<input type="button" value="Submit" onclick="GetDays(d1.value,d2.value)">
 </form>
 </body>
 </html>
```

Output :





3. Server-Side Scripting (PHP)

- **SOP 1 : Write a PHP program to check if a person is eligible to vote or not. The program should include the following-**

  Minimum age required for vote is 18.

  Use PHP functions.

  Use Decision making statement.

Coding :

age.html

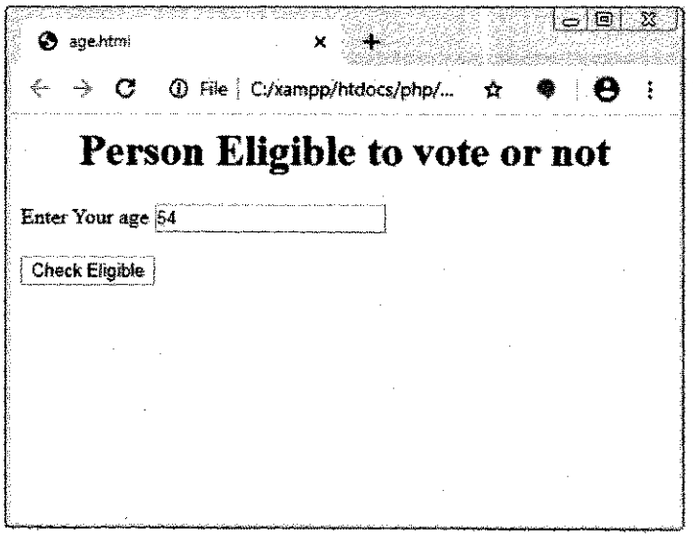
```
<html>
<body>
<h1 align="center">Person Eligible to vote or not</h1>
<form method="post" action="age.php">
Enter Your age
<input type="text" name="age"><br><br>
```

```
<input type="submit" name="submit" value="Check Eligible">
</form> </body>
</html>
```

age.php

```
<?php
 if(isset($_POST['submit']))
{
$age = $_POST['age'];
if($age>=18)
echo "<br><br>You are Eligible to vote";
else
echo "<br><br>You are not Eligible to vote";
}
?>
```

Output :



➢ **SOP 2 : Write a PHP function to count the total number of vowels (a,e,i,o,u) from the string. Accept a string by using HTML form.**

Coding :

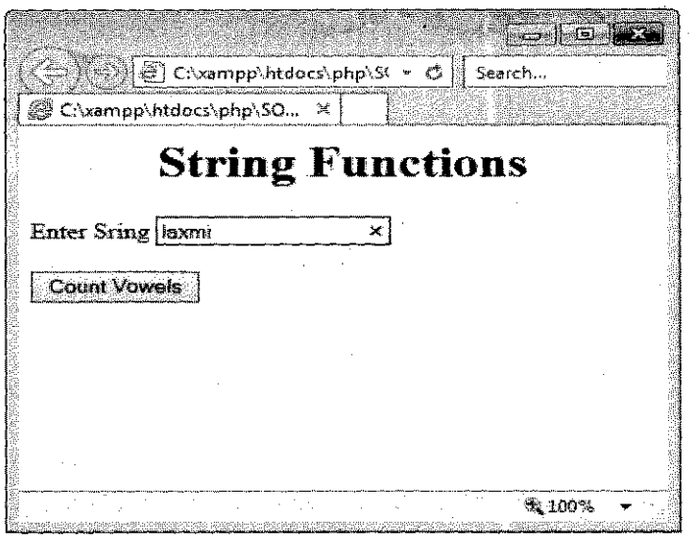
vowel.html

```
<html>
<body>
<h1 align="center">String Functions</h1>
<form method="post" action="vowel.php">
Enter Sring
<input type="text" name="str"><br><br>
<input type="submit" name="submit" value="Count Vowels">
</form>
</body>
</html>
```

vowel.php

```
<?php
 if(isset($_POST['submit']))
{
$str = strtolower($_POST['str']);
$vowels = array('a','e','i','o','u');
$len = strlen($str);
$num = 0;
for($i=0; $i<$len; $i++){
if(in_array($str[$i], $vowels))
{
 $num++;
}
}
echo "Number of vowels :.$num";
}
?>
```

Output :



➢ **SOP 3 : Write a PHP program to perform the following operations on an associative array.**

Display elements of an array along with their keys.

Display the size of an array.

Delete an element from an array from the given index.

Coding :

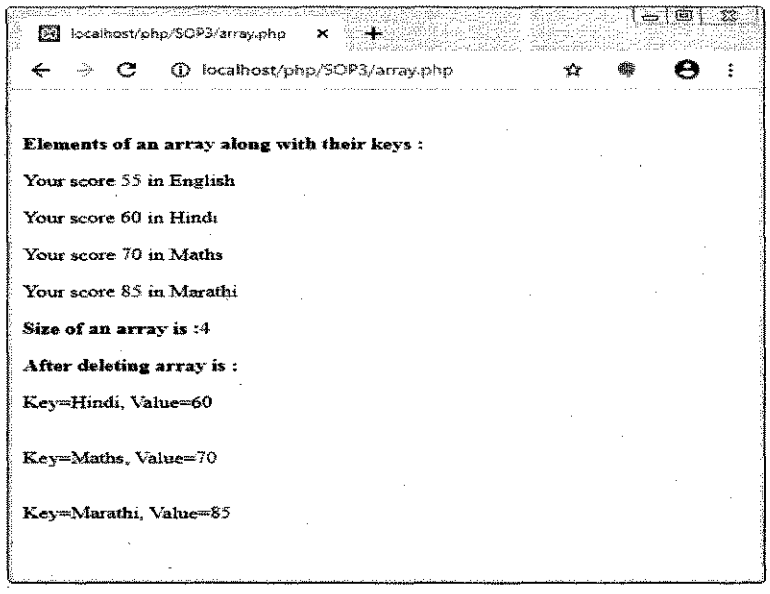
array.php

```
<?php
$m1=
array("English"=>"55",
"Hindi"=>"60",
"Maths"=>"70",
"Marathi"=>"85");
echo "<br><br><b>Elements of an array along with their keys :</b>";
echo "<br> <br> Your score ".$m1['English']. " in English";
echo "<br> <br> Your score ".$m1['Hindi']. " in Hindi";
echo "<br> <br> Your score ".$m1['Maths']. " in Maths";
echo "<br> <br> Your score ".$m1['Marathi']. " in Marathi";
echo "<br><br><b>Size of an array is :</b>".count($m1);


array_splice($m1,0,1);
```

```
echo "<br><br><b>After deleting array is :</b>";
foreach($m1 as $x => $x_value)
{
 echo "<br><br>Key=" . $x . ", Value=" . $x_value;
 echo "<br>";
}
?>
```

Output :



- **SOP 4 : Write a PHP program to save marks of English, Hindi, Marathi, Maths and Information Technology in an array. Display marks of individual subject along with total marks and percentage.**

Coding :

marks.php:-

```
<?php
$a=array(60,78,74,85,96);
$t=0;
$x=0;
$c=count($a);
for($x=0;$x<$c;$x++)
{
```