JavaScript Chapter-03

Q-1. JAVASCRIPT IS A WEAKLY TYPE OR UNTYPE LANGUAGE. EXPLAIN. Ans. JavaScript is more shophisticated than we might expect of a weakly type language. In addition to strings, number and boolean values, JavaScript data can

include objects, including arrays and functions. Each of these data types is important to understand before proceeding so that when we are working om our

design, we can decide which data types are required to create a certain effect. Q-2: WHAT ARE JAVASCRIPT DATA TYPES? EXPLAIN EACH. Ans. JavaScript data types are strings, numbers, Boolean values, objects, arrays and functions.

String literals are text, like any programming languages. Any set of characters placed in a quotation marks (single or double) make up a string literal.

The fundamental data in most computer languages are numbers.

The Boolean values in JavaScript are two literals, true and false (1 or 0, yes or no).

Objects are collection of properties arranged in a hierarchy.

An array is a collection of homogenous data elements which are stored in consecutive memory locations.

Function is a definition of a set of deferred actions. Functions carry out actions and return values. Q-3: WHAT IS OBJECT IN JAVASCRIPT? ANS. Objects are collection of properties arranged in a hierarchy. JavaScript supports working with objects. The highest level of objects in the context of

JavaScript and an HTML page is the window. Everything in an HTML page is the property of the window object. The built-in objects in JavaScript are Date,

Math, String, Array, and Object. For example:

var shopCart = new Object();

var shopCart.item = 5.95;

var shopCart.tax = .06;

var shopCart.shipping = 14.95;

var shopCart = {item: 5.95, tax: .06, shipping: 14.95}; Q-4: WHAT IS ARRAY IN JAVASCRIPT? ANS. An array is a collection of homogenous data elements which are stored in consecutive memory locations. Always address location of array starts from 0. In

JavaScript arrays are treated as objects. Each property in an array is called an Element and each element can be assigned a value. An array can be declared

in JavaScript in the following ways…

Var myArray=new Array( );

Var myArray=new Array(“Value 1”, “Value 2”, “Value 3”, “Value 4”, “Value 5”);

Var myArray=new Array(dimension argument); Q-5: WHAT IS LITERALS IN JAVASCRIPT? ANS. The raw data that make up the root of data types are called “literals”. Numbers, strings and Boolean values make up the core set of literals in JavaScript. Q-6: WHAT IS NUMBERS IN JAVASCRIPT? EXPLAIN. ANS. The fundamental data in most computer languages are numbers. Because JavaScript is weakly typed, all numbers are treated as floating-point, so we need not

distinguish between integers and floating-point literals. Q-7: WHAT IS DIFFERENCE BETWEEN INTEGER AND FLOATING POINT NUMBER? ANS. Integer has no decimal value but floating-point literal has decimal value. For example:

# 223.48 is floating-point literal and

20 is integer. Q-8: WHAT IS SCIENTIFIC NOTATIONS IN JAVASCRIPT? ANS. In most JavaScript applications, numbers with scientific notations do not appear, but if they do, they are treated for purpose of calculations just like any

other number. Q-9: WHAT IS HEXADECIMAL LITERALS IN JAVASCRIPT? GIVE AN EXAMPLE. ANS. Hexadecimal literals are interpreted as binary string, where each pair of digits represents a character. When used in a numeric context, they are interpreted

as integers. Base 16 or Hexadecimal Literals have a special preface that the combination of numbers and letters. All Hexadecimal Literals are prefaced by 0x

(zero-x), followed by 0-9, A-F characters indicating a Hexadecimal value. For example color red in Hexadecimal is FF0000; in JavaScript, it is written as

0xFF0000. Q-10: HEXADECIMAL VALUES IS SIXCHARACTER COLOR VALUES IN JAVASCRIPT, TRUE OR FALSE? ANS. TRUE. Q-11: WHAT IS ESCAPE SEQUENCE FOR STRINGS IN JAVASCRIPT? GIVE SOME EXAMPLES. ANS. Escape sequences includes by prefacing a code with a backslash(\) for additional control over string literals. For example the literal \’ prints an

apostrophe without affecting the literal itself. Other escape codes include the following-

\n new line

\’ single quote or apostrophe

\” double quote

\Backslash

Escape sequences works well with the alert( ) function, it does not work the same with write( ) function. The character substitutions for apostrophes and

quotes return the same result but the \n sequence does not rather we’ve to use the <br> to achieve a new line. Q-12: WHAT IS WRITE() IN JAVASCRIPT? ANS. document.write() places text into the HTML page itself rather than a special box. We can use HTML tages such as <br/> to achieve a new line with.

document.write(). Q-13: WHAT IS BOOLEAN VALUES IN JAVASCRIPT? ANS. The Boolean values in JavaScript are two literals, true and false (1 or 0, yes or no). The Boolean literals are derived from logical comparisons, testing a

truth value and then using that value (true or false) for another operation. For example:

<script>

var qpt=((45%2)==0)? “hello” : “bye”;

document.write(qpt);

</script> Q-2: WHO DEVELOPED BOOLEAN MATHMATICS? ANS. A Cork University Professor named George Boole daveloped a mathematical system of logic that became known as Boolean Mathematics. Q-14: BOOLEAN VALUES HAVE TWO LITERALS IN JAVASCRIPT. WHAT ARE THOSE? EXPLAIN. ANS. The Boolean values in JavaScript are two literals, true and false (1 or 0, yes or no). The Boolean literals are derived from logical comparisons, testing a

truth value and then using that value (true or false) for another operation. Q-15: WHERE DOES BOOLEAN LITERALS DERIVE FROM? ANS. The Boolean literals are derived from logical comparisons, testing a truth value and then using that value (true or false) for another operation. Q-16: MOST BOOLEAN VALUES AND TEST ARE FOUND IN CONDITIONAL STATEMENTS? EXPLAIN. ANS. Most common Boolean tests and values are found in conditional statements that have this form;

If a condition is true

Flag = true

Else

Flag = flase,

Using the flag value, different paths are followed, usually in the form of a statement. Q-17: WHAT IS CONCATENATION IN JAVASCRIPT? ANS. String concatenation refers to binding one or more strings into a single string. For example:

<script>

var a = “Hello”;

var b = “There!”;

var c = a + “ ” + b;

document.write(c);

</script>

The output will be: Hello There! Q-18: WHAT ARE BEHAVIORS OF +(PLUS) SIGN IN JAVASCRIPT? ANS. The plus sign (+) is used both for adding numbers and concatenating strings. Q-19: EXPLAIN OBJECTS AS LITERALS. ANS. Objects are collection of properties arranged in a hierarchy. JavaScript supports working with objects. The highest level of objects in the context of

JavaScript and an HTML page is the window. Everything in an HTML page is the property of the window object. The built-in objects in JavaScript are Date,

Math, String, Array, and Object. For example:

var shopCart = new Object();

var shopCart.item = 5.95;

var shopCart.tax = .06;

var shopCart.shipping = 14.95;

var shopCart = {item: 5.95, tax: .06, shipping: 14.95}; Q-20:EXPLAIN FUNCTIONS AS LITERALS. ANS. Function is a definition of a set of deferred actions. Functions are invoked by event handlers or by statements elsewhere in the script. Functions carry out

actions and return values. A function is a named set of JavaScript statements interpreted all at once by calling the function name. JavaScript has several

built-in functions, but programmer can extend the list by writing his own.

Code:

function average(a, b, c)

{

return (a + b + c)/3;

} Q-21: WHAT IS UNDEFINE IN JAVASCRIPT? GIVE AN EXAMPLE. ANS. An undefined value is returned when we attempt to use a variable that has not been defined or one that is declared but that we forgot to provide with a

value. A nonexistent property of an object also returns undefined if it is addressed. Q-22: WHAT IS NULL IN JAVASCRIPT? GIVE AN EXAMPLE. ANS. Null amounts to a “nothing literal”. We can declare and define a variable as null if we want absolutely nothing in it but we don’t want it to be undefined.

Null is not the same as zero in JavaScript. Q-23: WHAT IS REGULAR EXPRESSION IN JAVASCRIPT? HOW DOES IT WORK? GIVE AN EXAMPLE. ANS. Regular expressions are patterns used to match character combinations in strings. In JavaScript, regular expressions are also objects. Regular expressions

are used to perform pattern-matching and “search-and-replace” functions on text. For example:

<script>

function x()

{

var s= “Good 100%”;

var pattern = \Dg;

var output= s.match(pattern);

document.write(output);

}

x();

</script>

The output will be: G,o,o,d,% Q-24: WHAT IS VARIABLE IN JAVASCRIPT? GIVE AN EXAMPLE. ANS. JavaScript variables are containers for storing data values. You can place data into these containers and then refer to the data simply by naming the

container. For example;

var x = 5;

var y = 6;

var z = x + y;

In here x stores the value 5, y stores the value 6 and z stores the value 11. Q-25: EXPLAIN VARIABLE DECLARING AND NAMING IN JAVASCRIPT. ANS. JavaScript has two basic ways of declaring a variable. Variables are declaring using the var word. Declaring a variable alerts the computer to the fact that

a new variable is available to use. After a variable is declared, it need not to be declared again. For example:

var item;

var price = 33.44;

var wholeThing = 86.45 + (20 \* 7);

var name = “Willie B. Goode”;

var address = “123 Elm Street”;

var subTotal = sumItems;

var mixString = 11.86 + “Toy Cats”;

var test = (alpha > beta); Q-26: WHAT ARE RULES OR CONVENTIONS OF VARIABLE NAMING? ANS. The rules are given below:

1. We can declare a variable but not give it a value.

2. We can set primitive data.

3. We can set compound data.

4. We can set simple string literal.

5. We can set simple string literal, but we can use mix of digits and letters.

6. Variable can be defined with another variable.

7. We can set Boolean value derived from compound data. Q-27:WHAT IS VARIABLE SCOPE IN JAVASCRIPT? ANS. Variables in JavaScript have scope. The scope refers to the region of the script where the variables can be used. Q-28:WHAT IS LOCAL VARIABLE IN JAVASCRIPT? GIVE AN EXAMPLE. ANS. These variables only exist inside the specific function that creates them. They are unknown to other functions and to the main program. As such, they are

normally implemented using a stack. Local variables cease to exist once the function that created them is completed. They are recreated each time a function

is executed or called. Q-29:WHAT IS GLOBAL VARIABLE IN JAVASCRIPT? GIVE AN EXAMPLE. ANS. These variables can be accessed (ie known) by any function comprising the program. They are implemented by associating memory locations with variable names.

They do not get recreated if the function is recalled. Q-30: WHAT IS PRIMITIVE DATA? EXPLAIN. ANS. Boolean values, numbers, strings and the null and undefined values all constitute Primitive data types. Q-31: WHAT IS COMPOUND DATA IN JAVASCRIPT? EXPLAIN. ANS. Compound data types are made up of more than one component. Two Primitive data types can make up other compound data. In addition to a multiple of

Primitives, Compound data are made up of arrays and objects. Q-32: HOW MANY WAYS CAN YOU CREATE AN ARRAY AND WHAT ARE THOSE WAYS? ANS. We can create an array in three ways. They are:

Var myArray=new Array( );

Var myArray=new Array(“Value 1”, “Value 2”, “Value 3”, “Value 4”, “Value 5”);

Var myArray=new Array(dimension argument); Q-33: WHAT IS ARRAY PROPERTIES? ANS. As an object, arrays have a single property, length. Q-34: WHAT IS ARRAY LENGTH IN JAVASCRIPT? EXPLAIN. ANS. The single array property Length returns the number of elements in an array. The property is easily passed to a variable. For example:

<script>

var fruits = [“Banana”, “Orange”, “Apple”, “Mango”];

var a = fruits.length;

document.write(a);

</script>

The output will be: 4 Q-35: WHAT IS ARRAYS.JOIN() IN JAVASCRIPT? GIVE AN EXAMPLE. ANS. The Array.join() method takes all the values in all of the elements in the array and creates one big string. For example:

var trees=new Array(“Elm”,“Pine”,“Oak”);

var bigBush=trees.join();

document.write(bigBush);

The output will be: Elm,Pine,Oak Q-36. HOW MANY ARGUMENTS IN ARRAYS.JOIN()? EXPLAIN EACH ARGUMENT. ANS. The Array.join() method accepts arguments that acts as separator. Whatever we place in the join() parentheses within quotation marks replaces the commas.

For example:

var bigBush = trees.join();

to

var bigBush = trees.join(” and “); Q-37: HOW TO CONCAT TWO ARRAYS IN JAVASCRIPT? GIVE AN EXAMPLE. ANS. We can concate two arrays in JavaScript with concat() method. The concat() method not only join all existing elements, but it also adds the elements in a

concat() argument. For example:

var trees=new Array(“Elm”,“Pine”,“Oak”);

var biggerBush=trees.concat(“Maple”,“Sycamore”);

var bigBush=trees.join(” “);

document.write(biggerBush);

alert(bigBush);

The output will be: An alert box showing “Elm Pine Oak” and then “Elm,Pine,Oak,Maple,Sycamore” Q-38.WHAT IS ARRAYS.SORT() IN JAVASCRIPT? GIVE AN EXAMPLE. ANS. The sort() method change the order of array elements alphabetically. For example:

<script>

var zoo = new Array(“zebras”,“lions”,“apes”,“tigers”);

zoo.sort();

var newZoo = ””;

for(var counter = 0; counter < zoo.length; counter++){

newZoo += (zoo[counter] + “<br/>”);

}

document.write(“<p>Alphabetical Animals</p>” + newZoo);

</script>

The output will be:

Alphabetical Animals

apes

lions

tigers

zebras Q-39. HOW MANY ARGUMENTS IN ARRAYS.SORT()? EXPLAIN EACH ARGUMENT. ANS. Q-40.WHAT IS ARRAYS.REVERSE() IN JAVASCRIPT? GIVE AN EXAMPLE. ANS. The reverse() method reverses the change of the order of array elements alphabetically. For example:

<script>

var zoo = new Array(“zebras”,“lions”,“apes”,“tigers”);

zoo.reverse();

var newZoo = ””;

for(var counter = 0; counter < zoo.length; counter++){

newZoo += (zoo[counter] + “<br/>”);

}

document.write(“<p>Alphabetical Animals</p>” + newZoo);

</script>

The output will be:

Alphabetical Animals

zebras

tigers

lions

apes Q-41. HOW MANY ARGUMENTS IN ARRAYS.REVERSE()? EXPLAIN EACH ARGUMENT. ANS. Q-42.WHAT IS ARRAYS.SLICE() IN JAVASCRIPT? GIVE AN EXAMPLE. ANS. The slice() method in array breaks the array into a small piece. Syntex: ArrayName.slice(begin, before end). For example:

computer = [“Dell”,“Gateway”,“Apple”,“IBM”,“HP”];

computer.slice(2, 4);

The output will be:

Apple,IBM Q-43. HOW MANY ARGUMENTS IN ARRAYS.SLICE()? EXPLAIN EACH ARGUMENT. ANS. There are only two arguments in slice() method. They are: begin and before end. Syntex: ArrayName.slice(begin, before end). Q-44.WHAT IS ARRAYS.SPLICE() IN JAVASCRIPT? GIVE AN EXAMPLE. ANS. Ayyay.splice() is a method used to insert, delete and substitute values in array elements. This method has three arguments, start, delete and data.The

starting position specifies where the new value (data) is to be inserted and where deletions begin. If no deletions are specified, the splice() method has

the effect of inserting an element and value into an array. For example:

var stackWork = new Array(“Lenny”,“Harold”,“Mary”,“Jean”,“Sal”);

stackWork.splice(1, 0, “Fred”);

The output will be:

Lenny,Fred,Mary,Jean,Sal Q-45. HOW MANY ARGUMENTS IN ARRAYS.JOINSPLICE EXPLAIN EACH ARGUMENT. ANS. Q-46.WHAT IS ARRAYS.SHIFT() IN JAVASCRIPT? GIVE AN EXAMPLE. ANS.Array.shift() removes the first element in an array and returns it. For example:

var stackWork = new Array(“Lenny”,“Harold”,“Mary”,“Jean”,“Sal”);

stackWork.shift();

The output will be:

Harold,Mary,Jean,Sal Q-47. HOW MANY ARGUMENTS IN ARRAYS.SHIIFT()? EXPLAIN EACH ARGUMENT. ANS. There is no argument in Array.shift(). Q-48.WHAT IS ARRAYS.UNSHIFT() IN JAVASCRIPT? GIVE AN EXAMPLE. ANS. Array.unshift()put the new element at the front of the array. For example:

var stackWork = new Array(“Lenny”,“Harold”,“Mary”,“Jean”,“Sal”);

stackWork.unshift(“Willie”);

The output will be:

Willie,Lenny,Harold,Mary,Jean,Sal Q-49. HOW MANY ARGUMENTS IN ARRAYS.UNSHIFT()? EXPLAIN EACH ARGUMENT. ANS. There is only one argument in Array.unshift(), that is new value which we want to enter in front of the array. Q-50.WHAT IS ARRAYS.PUSH() IN JAVASCRIPT? GIVE AN EXAMPLE. ANS. Array.push() adds a value to the end of the array and leaves it there. For example:

var stackWork = new Array(“Lenny”,“Harold”,“Mary”,“Jean”,“Sal”);

stackWork.push(“Delia”);

The output will be:

Lenny,Harold,Mary,Jean,Sal,Delia Q-51. HOW MANY ARGUMENTS IN ARRAYS.PUSH()? EXPLAIN EACH ARGUMENT. ANS. There is only one argument in Array.push(), that is new value which we want to enter to the end of the array. Q-52.WHAT IS ARRAYS.POP() IN JAVASCRIPT? GIVE AN EXAMPLE. ANS. Array.pop() removes the last element of an array and returns it. For example:

var stackWork = new Array(“Lenny”,“Harold”,“Mary”,“Jean”,“Sal”);

stackWork.pop();

The output will be:

Lenny,Harold,Mary,Jean Q-53. HOW MANY ARGUMENTS IN ARRAYS.POP()? EXPLAIN EACH ARGUMENT. ANS. There is no argument in Array.pop().