

Answer to the following questions (2 Marks):

1. Write a syntax of <script> tag

The syntax of JavaScript segment in Hyper Text Markup Language (HTML) or Dynamic Hyper Text Markup Language (DHTML) is as follows:

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

JavaScript code

```
</script>
```

2. What is scope of variables and types of scope variable?

The scope of a variable is the life time of a variable of source code in which it is defined.

Global: A global variable has global scope; it can be defined everywhere in the JavaScript code.

Local: Variables declared within a function are defined only within the body of the function. They are local variables and have local scope. {}

3. Write a notes to type casting in JavaScript

Type conversion is the act of converting one data type into a different data type which is also called as casting. In JavaScript there are two type of **casting**,

Implicit casting and **Explicit** casting

Implicit casting occurs automatically in JavaScript when you change the data stored in a variable

4. How many Literals in JavaScript and mention its types.

Literals

- A literal is a fixed value given to a variable in source code.
- Literals are often used to initialize variables.
- Values may be Integer, Floating point, Character, String and Boolean. For Example,
 - `var int_const=250; //Integer constant//`
 - `var float_const=250.85; //Floating point constant//`
 - `var char_const='A'; //Character constant//`
 - `var string_const="Raman"; //String constant//`
 - `var boolean_const=true; //Boolean constant//`

write statement: Display Statement

General Syntax: `Document.write ("string " + var);`

5. What is conditional operator give suitable example.

The `?:` is the conditional operator in JavaScript, which requires three operands, hence it is called the ternary operator.

The syntax is **var variablename=(condition) ? value1 : value2;**

For example, `var result=(10>15) ?100 :150;`

6. What are the comments in Java Script?

There are two types of comments, **Single line** and **Multiple lines** comments.

Single-line comments begin with a double slash (`//`), causing the interpreter to ignore everything from that point to the end of the line.

Multiple line comments begins with `/*` and ends with `*/`.

7. Write note on typeof Operator. returns the data type

- The **typeof** operator is used to get the data type (returns a string) of its operand.
- The operand can be either a literal or a data structure such as a variable, a function, or an object.
- The operator returns the data type.

Syntax: **typeof operand or typeof(operand)**

- `typeof` returns: boolean, function, number, string, and undefined

8. Write the role of variable in JavaScript.

- The first character must be a letter or an underscore (`_`). Number cannot be as the first character.
- The rest of the variable name can include any letter, any number, or the underscore. JavaScript variable names are case sensitive. That is,

a variable named **RegNum** is different variable than named **regnum**.

- There is no limit to the length of the variable name.
- JavaScript's reserved words cannot be used as a variable name.

9. What is the uses of prompt dialog box?

The prompt dialog box is very useful when the user want to pop-up a text box to get user input. It enables you to interact with the user.

The user needs to fill in the text box field and then click OK.

Part-III

Answer to the following question (3 Marks):

1. What are the advantages of programming language?

- To develop such **interactive** pages (Dynamic Web page) JavaScript programming language is used.
- User entered data in the Dynamic Web page can be **validated** before sending it to the server.
- This **saves** server traffic, which means **less load** on your server.
- JavaScript includes such items as Textboxes, Buttons, drag-and-drop etc, to give a Rich Interface to site visitors.

2. Brief the basic data types in Java Scripts.

The basic data types in JavaScript are Strings, Numbers, and Booleans.

String:

- string is a list of characters
- a string literal is indicated by enclosing the characters in single(single character) or double quotes (multiple characters).
- including whitespace and special characters such as **\n** (the newline).

Numbers:

- **Number** can be integer or floating-point numerical value and numeric literals are specified in the natural way.

Boolean

- **Boolean** can be any one of two values: **true** or **false**.
- Boolean literals are indicated by using true or false directly in the source code.

3. Write note on string Operator.

- One of the built-in features of JavaScript is the ability to concatenate strings.
- The + operator performs addition on numbers but also serves as the concatenation operator for strings.
- + operator which is also called as the string concatenation operator

4. Write about <script> tag

- JavaScript can be implemented using <script>... </script> tags.
- The <script> tag containing JavaScript can be placed anywhere within in the web page, but it is normally recommended that should be kept it within the <head> tags.
- The <script> tag alerts the browser program to start interpreting all the text between these tags as a script commands

The syntax of JavaScript segment in Hyper Text Markup Language (**HTML**) or Dynamic Hyper Text Markup Language (**DHTML**) is as follows:

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

JavaScript code

```
</script>
```

The <SCRIPT> tag takes **two** important attributes –

Language – This attribute specifies that the scripting language. Typically, its value will be **javascript**. Although recent versions of HTML (EXtensible HyperText Markup Language - XHTML, its successor) have phased out the use of this attribute is optional.

Type – This attribute is used to indicate the scripting language and its value should be set to "text/javascript".

5. What are the uses of Logical Operators?

- Logical operators combine or invert boolean values.
- Once comparisons are made, the logical operators && (AND), || (OR) and ! (NOT) can be used to create more complex conditions.

- Use logical operators on boolean operands for good practice.

6. Difference between the increment and Decrement operator.

Increment operator	Decrement operator
The ++ operator increments its single operand.	The -- operator decrements its single operand
Its converts its operand to a number, adds 1 to that number, and assigns the incremented value back into the Operand	Its converts its operand to a number, subtracts 1 to that number, and assigns the decremented value back into the operand
Post increment: var m=3, n=m++; Pre increment: var m=3, n=++;	Post decrement: var m=3, n=m--; Pre decrement: var m=3, n=m--;

Part –IV

Answer to the following questions (5 Marks):

1. Explain about the popup dialog boxes in JavaScript.

JavaScript supports three kind of popup boxes: 1. Alert box 2. Confirm box 3. Prompt box. These dialog boxes can be used to raise an alert, or to get confirmation on any input or to have a kind of input from the users.

1. Alert Dialog Box:

An **alert dialog box** is mostly used to give a warning message to the users.

For example, Some fields are incomplete in form, then as a part of validation, you can use an alert box to give a warning message.

Alert box gives only one button "**OK**" to select and proceed.

The syntax of alert box is

Alert("Message"); (or) Window.alert("Message");

Example:

alert("Name is compulsory entry"); (or) window.alert("Name is compulsory entry");

2. Confirm Dialog Box:

A confirmation dialog box is mostly used to take user's consent on any option.

It displays a dialog box with two buttons: **OK** and **Cancel**.

If the user clicks on the **OK** button, the confirm() will return **true**.

If the user clicks on the **Cancel** button, then confirm() returns **false**.

The syntax of confirm dialog box is

confirm("message"); (or) window.confirm("message");

Example:

confirm("Do you want to continue:"); (or) window.confirm("Do you want to continue:");

3. Prompt Dialog Box:

The prompt dialog box is very useful when the user want to pop-up a text box to get user input. Thus, it enables you to **interact** with the user.

The user needs to fill in the text box field and then click OK.

The prompt dialog box is displayed using a method called prompt() which takes two parameters:

(i) a **label** which you want to display in the text box and

(ii) a **default** string to display in the text box.

This dialog box has **two** buttons:

OK and Cancel.

If the user clicks the **OK** button, it will return the entered value from the text box.

If the user clicks the **Cancel** button, it returns null.

The Syntax of prompt dialog box is,

Prompt("Message","defaultValue"); (or) window.prompt("sometext","defaultText");

Example:

prompt("Enter Your Name:","Name"); (or) window.prompt("Enter Your Name:","Name");

2. Explain about the Arithmetic operator with suitable example.

JavaScript supports all the basic arithmetic operators like addition (+), subtraction (-), multiplication (*), division (/), and modulus (%), also known as the remainder operator).

Arithmetic Operator	Meaning	Example	Result
+	Addition	var sum = 20 + 120	Variable sum = 140

-	Subtraction	var diff = 20 – 120	Variable diff = 100
*	Multiplication	var prod = 10 * 100	Variable prod = 1000
/	Division	var res = 100/522	Variable res = 5.22
%	Modulus operator	var rem = 100 % 522	Variable rem = 22 (remainder)

Example:

```
<Html>
<Head>
<Title>Demo Program – To test Arithmetic Operators in JavaScript </Title>
</Head>
<Body>
<script language="javascript" type="text/javascript">
var value1 = 522, value2=10;
document.write("<br>Data1 : "+value1);
document.write("<br>Data2 : "+value2);
document.write("<br><br>The Sum of Data1 and Data2 : " var sum = value1+value2);
document.write("<br>The Difference of Data1 and Data2 : " var diff = value1-value2);
document.write("<br>The Product of Data1 and Data2 : " var prod = value1*value2);
document.write("<br>The Result after Division of Data1 and Data2 : "var res =
value1/value2);
document.write("<br>The Remainder after Division of Data1 and Data2 : "var rem =
value1%value2);
</script>
</Body>
</Html>
```

Book Question

Define JavaScript?

- It provides a common scripting language for Web developers to design, test and deploy Internet Applications.
- On December 4, 1995, Netscape and Sun Inc.
- jointly introduced JavaScript **1.0**. JavaScript had truly bridged the gap between the simple world of HTML and the more complex Common Gateway Interface (**CGI**) programs on the Server.
- The JavaScript **client-side** technology provides many advantages over traditional CGI **Server-side** scripts.

List out the types of Operator.

Arithmetic Operators	Assignment Operator
Relational or Comparison Operators	Logical Operators
String Operators (string concatenation)	Increment and Decrement Operators
Unary + and – Operator	typeof Operator
Conditional Operator(?:)	

Define Interpreter in JavaScript?

- In JavaScript the source code are understand by a program name interpreter
- Its used to convert the code into understandable form

Write down the Steps to create JavaScript Language

Enter HTML and JavaScript code using any text editor.

- Save the latest version of this code.
- Use any browser to see the result. For example : Internet Explorer, Google Chrome, etc.,
- Open the file via browser's Open Menu.
- If the document is already loaded in the Memory, to reload the file into the browser use "Refresh" or press F5 button.

Define Variable.

- Variable is a memory location where value can be stored.
- Variable is a symbolic name for a value.
- Variables are declared with the var keyword in JavaScript.

- Every variable has a name, called identifier.
- multiple variables can be declared with one var statement, if the variables are separated by commas
- JavaScript allows the implicit declaration of variables by using them on the left-hand side of an assignment

Define Operators And Expression

Operator: An operator combines the values of its operands in some way and evaluates to a new value. Operators are used for JavaScript's arithmetic expressions, comparison expressions, logical expressions, assignment expressions.

Expression: An expression is a code fragment that can be evaluated to some data type the language supports. An expression is simply one or more variables and/or constants joined by operators.

There are three types of expressions

1. Arithmetic expressions
2. Relational expressions
3. Logical expressions

Explain assignment operator(=)

An assignment operator is the operator used to assign a new value to a variable. Assignment operator can also be used for logical operations such as bitwise logical operations or operations on integral operands and Boolean operands.

In JavaScript = is an assignment operator, Assign value from "right to left"

Example: var number1=10;

The assignment operator is used to assign a value to a single variable, but it is possible to perform multiple assignments at once by stringing them together with the = operator

Example: var b=c=8; value 8 is assign to c and value of c is assign to b

JavaScript supports some shorthand arithmetic operators like +=, -=, *=, /= and %= to evaluate arithmetic calculations. (**Compound Assignment Operator**)

Shorthand Arithmetic Operator	Meaning	Example	Result
+=	Add and assign	var sum = 120; sum += 20;	Variable sum = 140
-=	Subtract and assign	var diff = 120; diff -= 20;	Variable diff = 100
*=	Multiply and assign	var prod = 100; prod *=10;	Variable prod = 1000
/=	Division	Var res = 522; Res/=100	Variable res = 5.22
%=	Modulus operator	Var rem = 522; rem %= 100	Variable rem = 22 (remainder)

Explain Relational or Comparison Operators?

Relational operators are also called as Comparison operators, they compares two values and the result is true or false.

JavaScript provides a rich set of relational operators.

Using a relational operator in an expression causes the expression to evaluate as true if the condition holds or false if otherwise.

Relational Operator	Meaning	Example	Result
Assume x=10 and y=20			
==	Equality	x==y	False
!=	In-equality	x!=y	True
<	Less-than	x<y	True
>	Greater-than	x>y	False
<=	Less-than or equal to	x<=y	True
>=	Greater-than or equal to	x>=y	False

Explain Logical Operators?

Logical operators perform logical (boolean) operations. Logical operators combine or invert boolean values.

used to create more complex conditions.

Logical Operator	Example & Syntax	Meaning	Result
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&&	((4>5(&&)10<5)) ((expr1) && (expr2))	(Logical AND) Returns true if expr1 and expr2 both true.	True
	((4>5()10<5)) ((expr1) (expr2))	(Logical OR) Returns true if either expr1 or expr2 is true, or both are true.	True
!	!(10<5) !(expr1)	(Logical NOT) Returns true if expr1 is false; otherwise, returns false.	False

Usage :

Best practice is to use logical operators on **boolean** operands. However, operands of any type can be combined. The strict rules are as follows:

- For && (AND) the result is false if the first operand is false; otherwise, the result is the Boolean value of the second operand.
- For || (OR) the result is true if the first operand is true; otherwise, the result is the Boolean value of the second operand.
- For ! (NOT) the result is true if the operand is false; otherwise, the result is false.

Define Unary + and – Operator?

+ has no effect on numbers but causes non-numbers to be converted into numbers

Note: if the value is in string convert it into number

– **Negation** (changes the **sign** of the number or **converts** the expression to a number and then changes its sign)

Note: if the value is opposite change to negative and if value is in string convert it into integer and change the sign

Define Lexical Structure?

- The lexical structure of a programming language is the **set of elementary** rules that specifies how to write programs in that language.
- It is the lowest-level syntax of a language.
- Lexical structure specifies variable names, the **delimiter** characters for comments, and how one program statement is separated from the next.

There are

- Though JavaScript is a **case-sensitive** language. It is **good** programming practice to type the command in lowercase.
- JavaScript ignores **spaces** that appear between tokens (identifiers, operators, punctuator, constants and keywords) in programs.
- JavaScript supports **two** styles of comments. Any text follow a “//” and the end of a line is treated as a single line comment and is ignored by JavaScript. Any text between the characters “ /* */ ” is also treated as a multiline comment.
- JavaScript uses the **semicolon** (;) to separate statements. Many JavaScript programmers use semicolons to **explicitly** mark the ends of statements.
- A **literal** is a data value for variable that appears directly in a program.
- An identifier is simply a **name**. In JavaScript, identifiers are used to name variables, functions and to provide labels for certain loops in JavaScript code.
- In JavaScript certain **keywords** are used as reserved words, These words cannot used as identifiers in the programs

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