Q.1 Using console.log() print out the following statement: The quote 'There is no exercise better for the heart than reaching down and lifting people up.' by John Holmes teaches us to help one another. Using console.log() print out the following quote by Mother Teresa

```
<script>

    console.log("There is no exercisebetter for the heart than reaching down and lifting people up")

</script>
```

Q.2 Check if typeof '10' is exactly equal to 10. If not make it exactly equal.

```
<script>
    let n = 10
    let n1 = '10'

    if(n === n1)
    {
        document.write('Both are Exactly Equal.')
    }
    else{
        document.write('Both are not Exactly Equal.')
    }
</script>
```

3. Write a JavaScript Program to find the area of a triangle.

```
<script>

    let a = prompt('Enter the Length of Triangle : ')
    let b = prompt('Enter the width of Trianle : ')


    document.write('Area of Triangle : '+ 1/2 * a * b)

</script>
```

4. Write a JavaScript program to calculate the days left until next Christmas.

```
<script>
    const today = new Date()
    console.log(today.toLocaleString())
    let Currentyear = today.getFullYear()

    let Christmas = new Date(Currentyear, 11 , 25)
     if(today > Christmas)
     {
         Christmas = new Date(Currentyear + 1, 11 , 25)
     }
    const diff = Christmas - today
    const Dayleft = Math.ceil(diff/(1000*60*60*24))
    document.write('Days Before Christmas Are = '+Dayleft)
/script>
```

5. What is a Conditional Statement?

Ans. : A Condition Statement is a programming construct that allows you to control the execution flow in a program based on whether a specific condition or set of conditions is true or false. These statements evaluate a logical expression or condition and execute different blocks of code based on the result.

6. Find the circumference of the Rectangle formula: C = 4 * a.

```
let a = 20

let c = 4 * a

console.log('Circumference of the Square = ' + c)
```

7. WAP to convert years into days and days into years?

```
const getdays = ((year) => console.log('Days :', year * 365))

const getyear = ((days) => console.log('Years :', (days / 365).toFixed(2)))

getdays(2);
getyear(360)
```

8. Convert temperature Fahrenheit to Celsius. (Conditional logic Question)

```
let farenheit = 112

let celcius = Math.round((farenheit - 32) * 5 / 9)

console.log(celcius)
```

9. Write a JavaScript exercise to get the extension of a filename.?

```javascript
let fileneme = "index.js"

let extension = fileneme.split(".").pop();

console.log(extension)
```

10. What is the result of the expression (5 > 3 && 2 < 4)?

Ans.: True

11. What is the result of the expression (true && 1 && "hello")?

Ans.: hello

12. What results from the expression true && false || false && true?

Ans.: False

13. Check if the Number Is Positive or Negative in JavaScript.

```javascript
let num = 10

if (num < 0) {
    console.log('Number is Negitive')
}
else {
    console.log('Number is Positive')
}
```

14. Find the Character Is Vowel or Not?

```javascript
let str = "w"

if (str === "a" || str === "e" || str === "i" || str === "o" || str === "u"
|| str === "A" || str === "E" || str === "I" || str === "O" || str === "U") {
    console.log(str, ' is a Vowel')
}
else {
    console.log(str, ' is a Consonants')
}
```

15. Write to check whether a number is negative, positive, or zero.

```javascript
let num = 0

if (num === 0) {
    console.log(num, 'is Zero');
}
else if (num < 0) {
    console.log(num, 'is Negitive');
}
else {
    console.log(num, 'is Positive');
}
```

16. Write to find the number is even or odd using the ternary operator in JS.

```javascript
let num = 5

num % 2 == 0 ? console.log(num, ' is is Even.') : console.log(num, ' is Odd');
```

17. Write find maximum number among 3 numbers using ternary operator in JS.

```
let a = 1000
let b = 200
let c = 30

let max = (a > b) ? (a > c ? a : c) : (b > c ? b : c)

console.log(max, " is Max")
```

18. Write to find the minimum number among 3 numbers using ternary operator in JS.

```
let a = 10
let b = 20
let c = 30

let max = (a < b) ? (a < c ? a : c) : (b < c ? b : c)

console.log(max, " is Minimum")
```

19. Write to find the largest of three numbers in JS.

```
let a = 1000
let b = 200
let c = 30

let max = (a > b) ? (a > c ? a : c) : (b > c ? b : c)

console.log(max, " is Max")
```

20. Write to show

i) Monday to Sunday using switch case in JS?

```javascript
let num1 = 10

switch (num1) {
    case 1:
        console.log('Monday')
        break
    case 2:
        console.log('Tuesday')
        break
    case 3:
        console.log('Wednesday')
        break

    case 4:
        console.log('Thursday')
        break
    case 5:
        console.log('Friday')
        break
    case 6:
        console.log('Saturday')
        break
    case 7:
        console.log('Sunday')
        break
    default:
        console.log('ENter vlaid Input')
        break
}
```

ii)Vowel or Consonant using switch case in JS?

```
switch (char) {
    case 'a':
    case 'e':
    case 'i':
    case 'o':
    case 'u':

        console.log(char, " is Vowel")
        break;
    default:
        if (char >= "a" && char <= "z") {
            console.log(char, " is Consonants")
        }
        else {
            console.log(char, " not a Character")
        }
}
```

21. What are the looping structures in JavaScript? Anyone Example?

Ans.:   JavaScript provides several looping structures that allow you to execute a code block multiple times.

22. Write a print 972 to 897 using a for loop in JS.

```
let i;

for (i = 972; i >= 897; i--) {
    console.log(i)
}
```

23. Write and print the factorial of the given number.

```
let total = 1, i = 5
let j = i
for (i = j; i >= 1; i--) {
    total = total * i;
    console.log(i)
}

console.log(`Factotail of ${j} =`, total)
```

24. Write to print the Fibonacci series up to given numbers.

```
let a = 1, b = 1;
let total;
console.log(a)
console.log(b)
for (let i = 1; i < 5; i++) {
    total = a + b
    console.log(total)
    b = a
    a = total
}
```

25. Write to print number in reverse order

e.g.: number = 64728 ---> reverse =82746 in JS?

```javascript
let num = 123456
let rev = 0
while (num != 0) {
    let rem = num % 10;
    rev = (rev * 10) + rem
    num = Math.floor(num / 10)
}
console.log(rev)
```

23. Write to print the factorial of a given number.

```javascript
let num = 5
let fact = 1
while (num != 1) {
    fact = fact * num
    num--
}
console.log(fact)
```

24. Write to print the Fibonacci series up to given numbers.

```
1
2    let a = 1
3    let b = 1
4    let total = 1
5    console.log(a)
6    console.log(b)
7    while (total <= 25) {
8        total = a + b
9        console.log(total)
0        a = b
1        b = total
2    }
3
```

25. Write to print number in reverse order e.g.: number = 64728 ---> reverse =82746 in JS?

```
let num = 123456
let rev = 0
while (num != 0) {
    let rem = num % 10;
    rev = (rev * 10) + rem
    num = Math.floor(num / 10)
}
console.log(rev)
```

26. Write a program make a summation of given number (E.g., 1523 Ans: - 11) in JS?

```
let num = 1523
let total = 0
while (num != 0) {
    let rem = num % 10
    total += rem
    num = Math.floor(num / 10)
}
console.log(total)
```

27. Write a program you have to make a summation of first and last Digit. (E.g., 1234 Ans: - 5) in JS?

```
let num = 152324
let total = 0
lastdigit = num % 10
let firstdigit = 0
while (num != 0) {
    firstdigit = num % 10
    num = Math.floor(num / 10)
}
total = firstdigit + lastdigit
console.log(total)
```

28. Use console.log() and escape characters to print the following pattern in JS?

 1 1 1 1 1

2 1 2 4 8

3 1 3 9 27

4 1 4 16 64

5 1 5 25 125

```
let str = ''

a = 1
b = 20
let i = 1
while (i <= 5) {
    str = i + ' ' + a + ' ' + a * i + ' ' + i * (i * a)
        + ' ' + ((a * i) * (i * (i * a)))
    console.log(str)
    i++
}
```

29. Use pattern in console.log in JS?

1) 1

   1 0

   1 0 1

   1 0 1 0

   1 0 1 0 1

```
let str = ''

for (let i = 0; i <= 5; i++) {
    for (j = 0; j < i; j++) {
        if (j % 2 == 0) {
            str += '1 '
        }
        else {
            str += '0 '
        }
    }
    console.log(str)
    str = ''
}
```

2) A

  B C

  D E F

  G H I J

 K L M N O

```javascript
let str = ''
let a = 'ABCDEFGHIJKLMNOP'
let index = 0
for (let i = 0; i <= 5; i++) {
    for (j = 0; j < i; j++) {
        str += a[index] + ' '
        index++
    }
    console.log(str)
    str = ''
}
```

3) 1

  2 3

  4 5 6

  7 8 9 10

 11 12 13 14 15

```javascript
let str = ''
let index = 1
for (let i = 0; i <= 5; i++) {
    for (j = 0; j < i; j++) {
        str += [index] + ' '
        index++
    }
    console.log(str)
    str = ''
}
```

Q.30 Accept 3 numbers from the user using the while loop and check each number palindrome

```javascript
let num = 121
let rev = 0
let compare = num
while (num != 0) {
    let rem = num % 10
    rev = (rev * 10) + rem
    num = Math.floor(num / 10)
}
if (compare == rev) {
    console.log(compare + ' is a Palidrone number')
}
else {
    console.log(compare + ' is not a Palidrone number')
}
```

Q.31 Write a JavaScript Program to display the current day and time in the following format. Sample Output: Today is Friday. Current Time is 12 PM: 12: 22: 2

```javascript
let today = new Date()
let days = ["Sunday", "Monday", "Tuesday", "wednesday", "Thursday", "Friday", "Saturday"]
let hours = today.getHours()
let minutes = today.getMinutes()
let seconds = today.getSeconds()
console.log('Today is ' + days[today.getDay()])
if (hours > 12) {
    hours -= 12
    console.log(hours + ' PM : ' + minutes + ' : ' + seconds)
}
else {
    console.log(hours + 'PM : ' + minutes + ' : ' + seconds)
}
```

32. Write a JavaScript program to get the current date

```javascript
let today = new Date()
console.log(today.toLocaleDateString())
```

34. Write a JavaScript program to convert an array of objects into CSV string?

```javascript
let obj = {
    name: 'Harsh',
    age: 25
}
let obj1 = {
    name: 'Harsh',
    age: 25
}

console.log(JSON.stringify(obj) === JSON.stringify(obj1))
```

35. Write a JavaScript program to capitalize the first letter of a string.

```javascript
let name = 'dhruv Purohit'

let first = name.slice(0, 1).toUpperCase()
let ans = name.slice(1)
console.log(first + ans)
```

45. Write a JavaScript program to determine if a variable is an array.

```javascript
let array = [10, 20, 30, 40, 50]
let a = 12
function checkarray(a) {
    return Array.isArray(a)
}
console.log(checkarray(a))
```

46. Write a JavaScript program to clone an array?

```javascript
let a = [10, 20, 30]

let b = a

console.log(a)
```

47. What is the drawback of declaring methods directly in JavaScript objects?

```javascript
const obj1 = {
    greet: function () {
        console.log("Hello from obj1")
    }
};

const obj2 = {
    greet: function () {
        console.log("Hello from obj2")
    }
};
```

48. Print the length of the string on the browser console using console.log()?

```
let str = 'Dhruv'
console.log(str.length);
```

49. Change all the string characters to capital letters using the to Upper Case method

```
let str = 'Dhruv'
console.log(str.toUpperCase());
💡
```

50. What is the drawback of declaring methods directly in JavaScript objects?

Ans.

1. **Repetitive Function Definitions** (Memory Usage)

2. **Performance Overhead**

3. **Difficult to Override/Extend**

4. **Potential for Method Duplication**

51. Write a JavaScript program to get the current date. Expected Output : mm-dd- yyyy, or dd/mm/yyyy?

```
let today = new Date()

console.log(today.toLocaleDateString());
```

52. Use indexOf to determine the position of the first occurrence of a in 30 Days Of JavaScript.

```
const str = "30 Days Of JavaScript";
const position = str.indexOf('a');

console.log(position);  |
```

53. Use lastIndexOf to determine the position of the last occurrence of a in 30 Days Of JavaScript.

```
const str = "30 Days Of JavaScript";
const position = str.lastIndexOf('a');

console.log(position);
```

54. Form Validation in JS?

Ans.   Form validation in Java Script ensures that user inputs meet the required conditions before submission, enhancing security and user experience. JavaScript provides

various techniques for validating the form data, including checking if fields are empty, verifying Email formats, confirming password lengths, etc.

55. Form in Email, number, Password, Validation?

Ans.   Form validation in JavaScript ensures user inputs are correct before submission. It checks fields like email, phone number, and password using regular expressions and length checks. If any input is invalid, the form submission is prevented with a false return.

56. Dynamic Form Validation in JS?

Ans.   Dynamic form validation in JavaScript validates user input in real time using events like input or blur. It provides immediate feedback for fields like email, phone, and password. This improves user experience by checking data as it's entered.

57. how many types of JS Events? How to use it?

Ans.   <button onclick="alert('button clicked')">click me</button>

59. What is Bom vs Dom in JS?

Ans.   BOM vs DOM : Key Differences

Aspect	DOM (Document Object Model)	BOM(Browser Object Model)
Purpose	Represents the Documents And content	Represents the Browser and it's features.
Interaction	Allows manipulation of html and XML documents.	Allows insertion with browser window and properties.
Objects	Documents, Elements, text ,etc.	Window, Navigator, Location, etc.
Standardization	Standardized across all modern browsers.	Less standardized, with some validations between browsers
Focus	Focus on the control of the Web Pages	Focus on the enviroment in which webpages Delayed.

6`.Array vs Object difference in JS?

Ans.:

- Array :   An Array is an Ordered Collection of Elements, Where each elements can be accessed by it's numeric index. Array is Typically used when the order of elements is Important or when you need to store a list of items example arr[1,2,3,4,5]

- Object :   An object is a collection of key-value pairs each key is properties is a string or symbol the maps to value. Objects are typically used for sorting data with properties and mathods.obj={name:Dhruv , age:22}

62. Split the string into an array using split() Method?

```
let Dhruv = "Apple,Peach,Strawbeery,Banana,Mango"
let str = Dhruv.split(",")
console.log(str)
```

63. Check if the string contains a word Script using includes() method?

```
let str = "Java script is Scripting Language"
console.log(str.includes("Java"));
console.log(str.includes("is"));
```

64. Change all the string characters to lowercase letters using toLowerCase() Method

```
let str = "Dhruv PUROhit"
console.log(str.toLowerCase());
```

65. What is Character at index 15 in '30 Days of JavaScript'string? Use charAt() method

```javascript
let str = "30 Days of JavaScript'string"
console.log(str.charAt(15));
```

66. copy to one string to another string in JS?

```javascript
let str = "30 Days of JavaScript'string"
str2 = str;
console.log(str);
```