



*Republic of Rwanda
City of Kigali*



**GASABO DISTRICT COMPREHENSIVE ASSESSMENT
FOR 2ND TERM, ACADEMIC YEAR 2022-2023.**

TRADES: SOFTWARE DEVELOPMENT

RTQF LEVEL: 3

SUBJECT: JAVASCRIPTS

DURATION: 3hrs 0n / / 2023

INSTRUCTION TO CANDIDATES:

- ✓ This question paper consists of **THREE** sections **A, B and C**
- ✓ Answer all questions in section A (**55marks**).
- ✓ Answer only **Three** questions in section B (**30marks**).
- ✓ Answer only **One** question in section C (**15marks**).
- ✓ Use only blue or black pen for answering.
- ✓ Mathematical instruments are allowed where it is necessary.

Note: Results for any candidate who is caught in examination malpractices are nullified.

SECTION A: Compulsory questions (55 marks)

1. What is JavaScript?

Answer: JavaScript is a very powerful client-side scripting language. JavaScript is used mainly for enhancing the interaction of a user with the webpage. In other words, you can make your webpage more lively and interactive, with the help of JavaScript.

2. Enumerate the differences between Java and JavaScript?

Answer: *Java is a complete programming language. In contrast, JavaScript is a coded program that can be introduced to HTML pages. These two languages are not at all inter-dependent and are designed for different intent.*

3. What are JavaScript Data Types?

Answer: *Following are the JavaScript Data types:*

- *Number*
- *String*
- *Boolean*
- *Object*
- *Undefined*

4. What is the use of isNaN function?

Answer: *isNaN function returns true if the argument is not a number; otherwise, it is false.*

5. Which is faster between JavaScript and an ASP script?

Answer: *JavaScript is faster. JavaScript is a client-side language,, and thus it does not need the assistance of the webserver to execute. On the other hand, ASP is a server-side language and hence is always slower than JavaScript. Javascript now is also a server-side language (nodejs).*

6. What is negative Infinity?

Answer: *Negative Infinity is a number in JavaScript which can be derived by dividing negative number by zero.*

7. Is it possible to break JavaScript Code into several lines?

Answer: *Breaking within a string statement can be done by using a backslash, '\,' at the end of the first line.*

Example:

```
document. Write ("This is \a program,");
```

And if you change to a new line when not within a string statement, then javaScript ignores the break in the line.

Example:

```
var x=1, y=2,  
z=  
x+y;
```

The above code is perfectly fine, though not advisable as it hampers debugging.

8. What are undeclared and undefined variables?

Answer: *Undeclared variables are those that do not exist in a program and are not declared. If the program tries to read the value of an undeclared variable, then a runtime error is encountered.*

9. Write the code for adding new elements dynamically?

```
Answer:<html>  
<head>  
<title>t1</title>  
<script type="text/javascript">  
    function addNode () { var newP = document.  
createElement("p");  
    var textNode = document.createTextNode(" This is a new text  
node");  
    newP.appendChild(textNode);  
document.getElementById("firstP").appendChild(newP); }  
</script> </head>  
<body> <p id="firstP">firstP<p> </body>  
</html>
```

10. What is the working of timers in JavaScript?

Answer: Timers are used to execute a piece of code at a set time or repeat the code in a given interval. This is done by using the functions `setTimeout`, `setInterval`, and `clearInterval`.

11. What is the difference between ViewState and SessionState?

- Answer: 'ViewState' is specific to a page in a session.
- 'SessionState' is specific to user-specific data that can be accessed across all web application pages.

SECTION B: Attempt any Three (3) questions

(30 marks)

12. What is the difference between `.call()` and `.apply()`?

Answer: The function `.call()` and `.apply()` are very similar in their usage except a little difference. `.call()` is used when the number of the function's arguments are known to the programmer, as they have to be mentioned as arguments in the call statement. On the other hand, `.apply()` is used when the number is not known. The function `.apply()` expects the argument to be an array.

13. Write a JavaScript Program to Calculate the Area of a Triangle?

Answer: `const baseValue = prompt('Enter the base of a triangle: ');`
`const heightValue = prompt('Enter the height of a triangle: ');`

```
// calculate the area
const areaValue = (baseValue * heightValue) / 2;
```

```
console.log(
  `The area of the triangle is ${areaValue}`
);
```

14. JavaScript Program to Convert Kilometers to Miles?

Answer: // taking kilometers input from the user
const kilometers = prompt("Enter value in kilometers: ")

// conversion factor
const factor = 0.621371

// calculate miles
const miles = kilometers * factor

console.log(`\${kilometers} kilometers is equal to \${miles} miles.`);

15. Javascript Program to Check if a number is Positive, Negative, or Zero

Answer: // program that checks if the number is positive, negative or zero

// input from the user

const number = parseInt(prompt("Enter a number: "));

// check if number is greater than 0
if (number > 0) {
 console.log("The number is positive");
}

// check if number is 0
else if (number == 0) {
 console.log("The number is zero");
}

// if number is less than 0
else {
 console.log("The number is negative");
}

16. Javascript Program to Check if a Number is Odd or Even

Answer: // program to check if the number is even or odd

// take input from the user

const number = prompt("Enter a number: ");

//check if the number is even
if(number % 2 == 0) {
 console.log("The number is even.");
}

// if the number is odd
else {
 console.log("The number is odd.");
}

```
}
```

17. JavaScript Program to Find the Largest Among Three Numbers

Answer: // program to find the largest among three numbers

```
// take input from the user
const num1 = parseFloat(prompt("Enter first number: "));
const num2 = parseFloat(prompt("Enter second number: "));
const num3 = parseFloat(prompt("Enter third number: "));
let largest;
```

```
// check the condition
if(num1 >= num2 && num1 >= num3) {
    largest = num1;
}
else if (num2 >= num1 && num2 >= num3) {
    largest = num2;
}
else {
    largest = num3;
}
```

```
// display the result
console.log("The largest number is " + largest);
```

SECTION C: Attempt only one(1) questions

(15marks)

18. JavaScript Program to Print the Fibonacci Sequence?

Answer: // program to generate fibonacci series up to n terms

```
// take input from the user
const number = parseInt(prompt('Enter the number of terms: '));
let n1 = 0, n2 = 1, nextTerm;
```

```
console.log('Fibonacci Series:');
```

```
for (let i = 1; i <= number; i++) {
    console.log(n1);
    nextTerm = n1 + n2;
    n1 = n2;
    n2 = nextTerm;
}
```

19. JavaScript Program to Make a Simple Calculator?

Answer: **Simple Calculator with if..else if...else**

```
// program for a simple calculator
```

```
// take the operator input
const operator = prompt('Enter operator ( either +, -, * or / ): ');

// take the operand input
const number1 = parseFloat(prompt('Enter first number: '));
const number2 = parseFloat(prompt('Enter second number: '));

let result;

// using if...else if... else
if (operator === '+') {
    result = number1 + number2;
}
else if (operator === '-') {
    result = number1 - number2;
}
else if (operator === '*') {
    result = number1 * number2;
}
else {
    result = number1 / number2;
}

// display the result
console.log(` ${number1} ${operator} ${number2} = ${result} `);
```

Simple Calculator with switch

```
// program for a simple calculator
let result;

// take the operator input
const operator = prompt('Enter operator ( either +, -, * or / ): ');

// take the operand input
const number1 = parseFloat(prompt('Enter first number: '));
const number2 = parseFloat(prompt('Enter second number: '));

switch(operator) {
    case '+':
        result = number1 + number2;
        console.log(` ${number1} + ${number2} = ${result} `);
        break;

    case '-':
```

```
        result = number1 - number2;
        console.log(`${number1} - ${number2} = ${result}`);
        break;

    case '*':
        result = number1 * number2;
        console.log(`${number1} * ${number2} = ${result}`);
        break;

    case '/':
        result = number1 / number2;
        console.log(`${number1} / ${number2} = ${result}`);
        break;

    default:
        console.log('Invalid operator');
        break;
}
```

END OF ASSESSMENT!