

JAVASCRIPT

JS

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1. Reading the following statements, please indicate which information will be printed on the screen.

```
<html>
<script type="text/javascript">
  var numberOfCalls = 0;
  function calculateBinomial(a, b) {
    var squareOfA = a * a;
    var squareOfB = b * b;
    numberOfCalls++;
    return squareOfA + squareOfB + 2 * a * b;
  }

  alert(calculateBinomial(2, 3));
  alert(calculateBinomial(4, 5));
  alert(numberOfCalls);
  alert(typeof squareOfA);
</script>
</html>
```

* **Explain in detail the 4th output:** alert(typeof squareOfA);

2. Given the following data array:

```
["Apple", "Orange", "Banana", "Strawberry", "Grape", "Mango", "Melon",
"Pineapple", "Peach", "Peach"];
```

- Get all strings containing the letter 'p'.
- Obtain the 'Grape' string.

3. Using the following function, print by console the message: "Etendo!!!"

```
const mostrar = (param)=> {
  param();
};
```

4. Write a JavaScript program to check whether a matrix is a diagonal matrix or not. In linear algebra, a diagonal matrix is a matrix in which the entries outside the main diagonal are all zero (the diagonal from the upper left to the lower right).

Example:

[1, 0, 0], [0, 2, 0], [0, 0, 3]] = true

[1, 0, 0], [0, 2, 3], [0, 0, 3]] = false



REACT

Note: Here you have an icon to select the correct options. 

1. What are props in a component? Select all the options that apply.

- ☒ They are the parameters of a component.
- ☐ It Is the state of the component.
- ☒ It is a mechanism to put data inside the component.

2. What is a component? Mark only one option.

- ☐ An element.
 - ☒ A function or class that returns an element.
 - ☐ An element that returns a function or class.
- Other: _____

3. Which of these component types are valid? Select all the options that apply.

- ☒ Complete Component.
- ☒ Class Component.
- ☒ Component Function.
- ☒ Parent Component.
- ☒ Child Component.

4. What does the term JSX refer to?

☒ It is the mix between pure HTML and javascript , for this reason JSX is used to identify React syntax.

- ☐ Similar in appearance to XML and HTML, JSX is used to create elements using a familiar syntax.
- ☐ Term used by React that refers to the mixture of pure XML, HTML and pure JavaScript.
- ☐ Allows to represent the mixture of XML, which is similar to HTML, and JavaScript.

5. How do I pass a value from a parent component to a child component? Select all the options that apply.

- ☒ Using props.
- ☐ Through the use of states.
- ☐ By only destructuring one or more objects.
- ☐ Referring the child component to the values of the parent component.
- ☐ Using values from the global application context usage.

6. Created the following state of a variable:

```
import { useState } from "react";
const [value, setValue] = useState("Value")
```

Which of these implementations change the state of a component? Check only one option.

- ☐ state.value = "my value"
- ☐ setValue("my value")
- ☒ setState({ value: "my value" })
- ☐ value = { value: "my value" }
- ☐ setValue({"value": "my value"})

7. How many and which arguments does useEffect Hook receive?

- ☐ An argument to provoke the effect.
- ☐ Three arguments, which are the dependencies, the states of the variables and the effect.
- ☐ Two arguments, which are the states of the variables and the dependencies.
- ☐ An argument that receives the state of the variables.
- ☒ Two arguments, which are the effect and the dependencies.

8. How do you import Javascript modules installed with NPM or YARN? Check only one option.

- ☒ import name from 'node_modules/name';
- ☐ import name from '../.. /node_modules/name/name.js';
- ☐ import name from '../.. /node_modules/name/index.js';
- ☐ import name from 'name';

Others: _____

9. What functionality does the use of Context API provide?

- ☒ It is a mechanism that provides a way to pass data through the component tree without manually passing props at all levels.
- ☐ It is a functionality that facilitates the handling of data from parent components to child components.
- ☐ It is a React modality that replaces the use of props in its entirety to be able to consume variable values no matter where they are located, facilitating data management throughout the application.

10. How do I import the following component, considering that it is inside a file in the same directory, called MyComponent.js?

```
export const MyComponent = () => {
  return (
    <h1>Hello World</h1>
  )
}
```

Mark only one option.

- ☐ import MyComponent from './MyComponent';
- ☒ import { MyComponent } from 'MyComponent';
- ☐ import MyComponent from 'MyComponent.js';
- ☐ import { MyComponent } from './MyComponent.js';

Others: _____

11. What is the difference between class components and functional components?

These two components of React differ in how they are defined and how states are handled.

A class component extends from the React "Component" class and can have an internal state.

On the other hand, a functional component is a JavaScript function that receives props and returns React elements

12. How would you set the state of a component?

```
import React, { useState } from 'react';
const Person = () => {
  const [name, setName] = useState("");
const nameOfThePerson = () => {
  setName: "Mateo"
return (
  <div>
    <p>Name: {name}</p>
    <button onClick={nameOfThePerson}>Put a name</button>
  </div>
);
```

13. What happens when we change the state of a component?

When you change the state of a component in React, the component is rendered again to reflect the changes made to the state. React detects state changes and updates the component tree efficiently, returning only the affected components.

14. Write a component that renders a list of elements, given a prop that contains an array of objects in the following form:

```
{ firstname: "demo", lastname: "demo", dni: 1234 }
```

```
const ListComponent = (props) => {
  const { data } = props;

  return (
    <div>
      <h2>List of Elements:</h2>
      <ul>
        {data.map((item, index) => (
          <li key={index}>
            <span>First Name: {item.firstname}</span>
            <span> Last Name: {item.lastname}</span>
            <span> DNI: {item.dni}</span>
          </li>
        ))}
      </ul>
    </div>
  );
};
```

15. Write a component that receives a prop called "data", and renders an H1 with the content of data.

```
function MyComponent({ data }) {
  return (
    <h1>{data}</h1>
  );
}
```

16. What is the error in the following component?

```
export const Button = ({ text }) => {
  <div className="button">
    <h1 className="text-button">{text}</h1>
  </div>;
};
```

First of all, I think we'd miss a "return".

Then the error would come as "className" is used for CSS styles references.

17. Explain, in your own words, what this component does.

```
import { useState } from "react";

export const Component = () => {
  const [state, setState] = useState(1);

  const click = (propertyValue: number) => {
    setState(propertyValue + 1);
  };

  return (
    <div>
      <h1>{state}</h1>
      <button onClick={() => click(state)}>Click here</button>
    </div>
  );
};
```

The first thing that was done was to set the states and the function to change that state. After in the "return" is rendered "state" in the H1 and in the button what it does is that every time you press the button, changes the state of "state", in this case it is added a number more

18. How would you make a Rest API call from JavaScript?

```
fetch('https://etendo.software/data')
  .then(response => response.json())
  .then(data => {
    console.log(data);
  })
  .catch(error => {
    console.error('Error:', error);
  });
```

19. What is the use of the useEffect hook?
20. How would you develop a custom hook that exposes methods to save and modify a counter? The hook must have a parameter that allows the developer to specify how much the counter should add for each call to the setter.