React, Node.js, MongoDB, JavaScript, and DSA Question Set - 1 (Answer Key)

Question-1

What are Promises in JavaScript?

Answer:

A Promise is an object representing the eventual completion or failure of an asynchronous operation.

Example:

```
const promise = new Promise((resolve, reject) => {
  setTimeout(() => resolve('Success'), 1000);
});
promise.then(result => console.log(result));
```

Question-2

What is map() function in JavaScript and output of given code?

Answer:

map() creates a new array by applying a function to each element.

Code Output: [undefined, undefined, undefined]

Because the callback doesn't return a value explicitly.

Question-3

What are Higher-Order Components (HOCs) in React?

Answer:

HOC is a function that takes a component and returns a new component.

Example:

```
const withLogger = (Component) => (props) => {
  console.log('Props:', props);
  return <Component {...props} />;
};
```

Question-4

Ways to center elements horizontally and vertically in CSS:

1. Flexbox:

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display: flex; justify-content: center; align-items: center;

2. CSS Grid:

display: grid; place-items: center;

Question-5

MongoDB queries for teams collection:

(a) Add member:

db.teams.updateOne({ _id: teamId }, { $push: { members: 'new_member' } });

(b) Remove member:

db.teams.updateOne({ _id: teamId }, { $pull: { members: 'member_to_remove' } });

Question-6

Update status to 'passed' where name is John:

db.students.updateOne({ name: 'John' }, { $set: { status: 'passed' } });

Question-7

What is useEffect in React?

Answer:

useEffect lets you perform side effects in function components.

Example:

```
useEffect(() => {
  console.log('Component mounted');
}, []);
```

Question-8

Function to reverse digits of a number:

```
function reverseNumber(num) {
  const reversed = parseInt(Math.abs(num).toString().split('').reverse().join(''));
  return num < 0 ? -reversed : reversed;
}
reverseNumber(12345); // 54321
```

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reverseNumber(-678); // -876

Question-9

Function to find majority element:

```
function majorityElement(nums) {
  const count = {};
  for (let num of nums) count[num] = (count[num] || 0) + 1;
  for (let key in count) if (count[key] > nums.length / 2) return Number(key);
}
```

Question-10

JavaScript time functions:

- Print after 3 sec: setTimeout

- Print every 3 sec: setInterval

Example:

setTimeout(() => console.log('Hello World'), 3000);

setInterval(() => console.log('Good Morning'), 3000);