

Day-2 (JS)

Q-6 Implicit type Coercion - In JS this is the automatic conversion of value from one data type to another.

• String coercion - It takes place while using the + operator.

Eg. $\begin{cases} \text{var } x = 3 \\ \text{var } y = "3" \end{cases} \rightarrow x + y = "33"$

$\begin{cases} \text{var name} = "Aditya" \\ \text{var name2} = "Mali" \end{cases} \rightarrow \text{name1} + \text{name2} = "AdityaMali"$

→ It also takes place when using '-' operator.

• Boolean coercion - It takes place when using logical operators, ternary operators, if statements & loop checks.
→ All values except false, 0, 0n, -0, "", null, undefined and NaN are truthy values.

• Equality Coercion - It takes place when using "==" operator. As "==" operator compares values not types.

Q7- JS is a dynamically (loosely) typed language. In a dynamically typed language, the type of a variable is checked during run time in contrast to a statically typed language where the type of a variable is checked during compile time.

Q-8- NaN property represents the "Not a Number" value. It indicates a value that is not a legal number.
→ type of NaN returns a Number. We use isNaN() to check.

Q9) In JS primitive data types are passed by value and non primitive data types are passed by reference.

passed by value - If we change the value of one variable another value remains unchanged.

passed by reference - If we change the value of one variable value of another variable must be changed.

React Day

Q3) useState() - is a react hook used to store and update data inside a component (functional). & when the data or state changes using the setter function, React re-renders the components to reflect the updated data in the UI.

Counter Ques-1 - Why not normal variables? - because they don't trigger re-rendering but state variables do.

Counter Ques-2 - What does `useState()` return? - It returns

array with two elements, the current state value and a function to update that value.

Eg.

```
import { useState } from "react";  
function Counter() {  
  const [count, setCount] = useState(0);
```

```
  return (  
    <button onClick={() => setCount(count + 1)}>
```

```
      Count: {count}</button>  
  ); }  
  Click-button → state changes  
  state changes - UI updates
```

Q4) Keys - helps React identify which list item has changed, been added or removed.

Keys are unique ids given to list items so React can update them efficiently.

Counter Q1) Can we use array index as key? Yes but only when the list is static & never changes.

Q2) Are keys passed as props to component? No Keys are used internally by react.

Day-2 (OS)

→ A multiprocessor system is a type of system that includes two or more CPUs. It involves the processing of different computer programs at the same time mostly by a computer system with two or more CPUs that are sharing single memory.

Benefits -

- Running multiple programs concurrently.
- Increasing number of processes in unit time.
- Improves the reliability of the computer system.

→ RAID - (Redundant Arrays of Independent Disks) -

is a method used to store data on multiple hard disks therefore it is considered as data storage visualization technology that combines multiple hard disks. It simply balances data protection, system performance & storage space.

Levels of RAID - There are 7 levels of RAID structure in OS starting from RAID 0 — RAID 6

Day-2 (CN)

Q - Network Topology - is a physical layer of the network, connecting the different nodes using the links.

Node - Any communicating device in a network is called a Node.

Link - A link or edge refers to the connectivity between two nodes in the network.

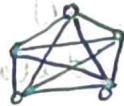
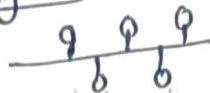
Types of Topology

Bus Topology

Star Topology

Ring Topology

Mesh Topology



} Hybrid - Combination of two or more

Tree Topology -



① VPN - (Virtual Private Network) - is a secure private network created over the Internet. It creates a safe tunnel between your device and another network.

Because of this tunnel -

- Your data is encrypted.
- Outsider cannot see or steal your data.
- You can access office networks remotely.

Types-

□ Access VPN - Used when individual users connect remotely.
eg - Employees working from home.

□ Site to Site VPN - Used to connect one office network to another office network.
eg - Company branches in different cities/countries

a) Intranet - Connect offices of the same company

b) Extranet - Connect company with external people
eg - Client call.

Advantages-

- Connect offices in different locations
- Secure data transfers.
- Protects organization data.
- Encrypts internet traffic

Day-2 (DBMS)

→ Traditional file based systems vs DBMS

- absence of indexing makes it superslow.
- Redundance is the another main issue.
- lack of concurrency control.
- Integrity check, data isolation, atomicity, are the other issues.

→ Advantages of DBMS-

1) Data sharing - Data from a single database can be simultaneously shared by multiple users.

2) Integrity Constraints - The existence of such constraints allows storing of data in an organized and refined manner.

3) Controlling redundancy in a database

4) Data Independence

5) Provides backup & recovery facility

6) Data security