

CUET 2024 Computer Science Solution

Ques 1. Full form of ARPANET

Ans. Advanced Research Projects Agency Network

Ques 2. No. of tuples in a relation

Solution:

The number of tuples in a relation is called its cardinality. A tuple is a row in a database table, and cardinality refers to the total number of rows in the table.

Ques 3. Complexity of Bubble sort

Solution:

The complexity of Bubble Sort depends on the initial order of the data:

- Worst-case complexity: $O(n^2)$. This occurs when the data is in descending order, and each pass through the list requires many swaps.
- Average-case complexity: $O(n^2)$. On average, Bubble Sort takes n^2 comparisons to sort n elements.
- Best-case complexity: $O(n)$. This happens when the data is already sorted, and no swaps are needed.

Ques 4. Prefix of A+B+C/D

Solution:

In regular expressions, the "+" symbol denotes "or." Therefore, the expression $A+B+C/D$ can be broken down as follows:

- A or B or C
- Followed by "/" and then D

So, any string that starts with either A, B, or C followed by "/" and then D would be a valid prefix. Here are some examples of valid prefixes:

- A/D

- B/D
- C/D

Ques 5. In this topology, each node is connected to every other node.

Solution. Mesh

Ques 6. Which topology works clockwise and anticlockwise?

Solution:

The topology that works both clockwise and anticlockwise is a Ring topology. In a ring network, each device is connected to two other devices, forming a closed loop. Data travels in one direction around the ring, so messages can circulate clockwise or anticlockwise depending on the configuration.

Ques 7. Device that works for both client and server

Solution:

There are a few devices that can function as both clients and servers depending on the situation:

- Peer-to-Peer (P2P) Network: In a P2P network, all devices can act as both clients (requesting resources) and servers (providing resources) depending on their needs.
- Web Server: A web server can serve web pages to clients (browsers) but can also act as a client by requesting resources from other servers.
- Router: Routers can forward data packets between networks, acting as a server to the sending network and a client to the receiving network.