TWO MARKS

1. What are the issues in distributed system?

There is no global time in a distributed system, so the clocks on different computers do not necessarily give the same time as one another.

All communication between processes is achieved by means of messages. Message communication over a computer network can be affected by delays, can suffer from a variety of failures and is vulnerable to security attacks.

2.What is meant by group communication in distributed system?

Group Communication occurs when a single source process simultaneously attempts to communicate with numerous functions. A group is an abstract collection of interrelated operations. This abstraction hides the message passing such that the communication seems to be a standard procedure call.

3.What is meant by asynchronous programming?

Asynchronous programming provides opportunities for a program to continue running other code while waiting for a long -running task to complete.

4.Write application of casual order?

The causal ordering of messages describes the causal relationship between a message send event and a message receive event. For example, if send(M1) -> send(M2) then every recipient of both the messages M1 and M2 must receive the message M1 before receiving the message M2.

5.What is synchronous order?

Synchronous execution means the first task in a program must finish processing before moving on to executing the next task.

6.Define Scalar Time?

scalar time are independent (i.e., they are notcausally related), they can be ordered using any. arbitrary criterion without violating the causality. relation . Therefore, a total order is consistent with the. causality relation .

7.What is clock shew?

Clock skew (sometimes called timing skew) is a phenomenon in synchronous digital circuit systems (such as computer systems) in which the same sourced clock signal arrives at different components at different times due to gate or, in more advanced semiconductor technology, wire signal propagation delay.

8.What is clock drift rate?

Clock Drift: As mentioned, no two clocks would have the same clock rate of oscillations i.e; clock rate would be different. The difference of clock rate is called clock drift.

9.What is clock tick?

Clock Tick: after a predefined number of oscillations, the timer will generate a clock tick. This clock tick generates a hardware interrupt that causes the computer's operating system to enter a special routine in which it can update the software clock and run the process scheduler.

10.What is logical Clock?

Logical Clocks refer to implementing a protocol on all machines within your distributed system, so that the machines are able to maintain consistent ordering of events within some virtual timespan. A logical clock is a mechanism for capturing chronological and causal relationships in a distributed system.

11.What is global state of the distributed system?

The global state of a distributed system is the set of local states of each individual processes involved in the system plus the state of the communication channels. Determinism. Deterministic Computation.

12.Write the happen before relation?

- Happened before relation is an irreflexive partial ordering on the set of all events happening in the system i.e.; (a⇢ a) is not true for any event a.
- This relates back to Einstein's general theory of relativity where events are ordered in terms of messages that could possibly be sent.

13.What is vector clock?

Vector Clock is an algorithm that generates partial ordering of events and detects causality violations in a distributed system.

14.What is chandy lamport algorithm?

Chandy and **Lamport** were the first to propose a algorithm to capture consistent global state of a distributed system. The main idea behind proposed algorithm is that if we know that all message that have been sent by one process have been received by another then we can record the global state of the system.

Part -B

1.Explain about Message ordering paradigms (May 2022, Dec 2022 , Mark-13)

2.Explain the types of Group communication used in distributed system (Dec 2022 , Mark-13)

3.Elucidate on the total and casual order in distributed system with a neat diagram (Dec 2022, Mark- 13)

4.Explain about Chandy Lamport Snapshot algorithms for FIFO channels (May 2022, Mark-13)