

Rebecca Dias 18 BE CMPN

Q3] B]

Lamports Mutual Exclusion Algorithm

- ① It is a contention-based algorithm for mutual exclusion on a distributed system.
- ② As an illustration of his clock synchronization scheme, it is intended to improve the safety in the usage of shared resources.
- ③ Let R_i be the request set of site S_i i.e. the set of sites from which S_i needs permission when it wants to enter critical section (CS).
- ④ In Lamports algorithm $\forall i : 1 \leq i \leq N \Rightarrow R_i \subseteq S_1, S_2 \dots S_n$
- ⑤ Request sent to all other sites to get their permission to enter critical section.
- ⑥ Reply: message is sent to requesting site to give its permission to enter critical section.
- ⑦ Release message upon exiting critical section.
- ⑧ Request message: Request (ts_i, i) is sent to all other sites and places the request on queue i .
- ⑨ After receiving the request message, a timestamped REPLY message is sent and places the request on queue i .
- ⑩ To execute the critical section:
 - if it has received the message from all other sites
 - its own request is at the top of queue i
- ⑪ To release the critical section:
 - When a P_i exists the critical section, it removes its own request from the top of its queue and sends a timestamp RELEASE message.

Rebecca Dias 18 BE CMPN

