Computer Science & Engineering Department
Distributed System (CS 17101)

B.Tech CS VII Sem.
Mid Semester Examination Sep'2024

2021400 3

Time: 1:30 Hours

M.M.: 20

NOTE—*Attempt all questions / Answers must be supported by diagrams wherever necessary /   Answers should be VERY PRECISE*

Q1. Consider a scenario consisting of two Sites (systems) S1 and S2. S2 consists of P3 & R3. Rest of the processes and resources reside at S1. The request and allocation of the resources by various processes are R1->P1, R2->P2, R3->P3, P2->R1 and P3->R2. Later, P1 releases R1 & R1->P2, P1->R3. If we apply Centralized Approach for Deadlock Detection in this given scenario, is this distributed scenario deadlocked? What happens when the message P1 releases R1 is delayed? **[5]**

Q2. An application has to be developed to handle 10K to 15K requests per second with asynchronous API's. How do you think the caller of a non-blocking / asynchronous API gets notified when data is ready? Which do you think is the most efficient method? Why? **[5]**

Q3. A Distributed Mutual Exclusion Algorithm is required for an application that follows permission-based approach. Which is the most efficient approach for this? How many message exchanges are required per critical section entry for the answer proposed by you? **[5]**

Q4. A distributed application is being developed by an enterprise. Numerous services are developed for the user community by this enterprise. Users from anywhere (not a part of enterprise) can use services offered by this application for no usage charge. What kind of process addressing mechanism can be used in this scenario? **[5]**

**********************No Unfair Means Please****************************