CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
IV–B.TECH–I–Semester End Examinations (Supply) - December- 2025
DISTRIBUTED SYSTEMS
(CSE)

[Time: 3 Hours]   [Max. Marks: 70]

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 20 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A   (20 Marks)

1. a) Distinguish between buffering and caching.   [2M]
   b) Give an examples of URL.   [2M]
   c) What is process?   [2M]
   d) Define distributed file system.   [2M]
   e) List the strength and weakness of Napster.   [2M]
   f) Write a formula for maximum throughput of a mutual exclusion system in terms of the [2M]
      synchronization delay?
   g) Define distributed deadlock.   [2M]
   h) List the types of entry in recovery file.   [2M]
   i) Write short note active and passive replications.   [2M]
   j) Discuss about distributed shared memory.   [2M]

PART-B   (50 Marks)

2. a) With the help of neat diagram explain the software and hardware service layers in   [5M]
      distributed systems.
   b) Discuss how distributed systems are more scalable than the centralized systems?   [5M]
                                        OR
3. a) What is remote Procedure call (RPC)? Explain   [5M]
   b) Explain the Implementation of RMI and distributed garbage collection.   [5M]

4. a) What resources are used when a thread is created? How do they differ from those used [5M]
      when process is created?
   b) List the characteristics of File system.

                                                                                          [5M]
                                        OR
5. a) Explain difference between user level thread and kernel level thread.   [5M]
   b)Write and explain various issues that must be addressed in design and implementation of
      distributed file system.

                                                                                          [5M]

6. a) Explain how events are ordering in real time with neat sketch.   [5M]
   b) Differentiate failure assumptions and failure detectors.

                                                                                          [5M]
                                        OR
7. How to implement mutual exclusion between processes in a distributed system using Ricart [10M]
   and Agrawala's Algorithms? Explain.

8. Describe how a non-recoverable situation cloud arise if write locks are released after the   [10M] last operations of transactions but before its commitment.

OR

9. a) What is meant by concurrency control? How it is important in distributed systems?   [5M]
    b) Distinguish all the locking protocols in distributed transactions.   [5M]

10. Discuss the whether message passing or DSM is preferable for fault tolerant applications.   [10M]

OR

11. a)Explain release consistency in distributed shared memory.   [5M]
    b) Write short notes on memory consistency model?   [5M]

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