MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE, Manipal)

DEPARTMENT OF INFORMATION AND COMMUNICATION TECHNOLOGY
I SEMESTER M.TECH. (COMPUTER NETWORKING AND ENGINEERING)
END SEMESTER EXAMINATIONS, FEBRUARY 2022
SUBJECT: ADVANCED OPERATING SYSTEMS [ICT 5171]
REVISED CREDIT SYSTEM
(14/02/2022)

Time: 75 + 10 Minutes   MAX. MARKS: 20

Instructions to Candidates:
  ❖ Answer **ALL** the questions.
  ❖ Missing data may be suitably assumed.

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1A	With a neat diagram explain how can you organize processors in a hypercube SIMD module? Suppose you are given 40 integers to add, write all the steps required to distribute them among the processors and add them.	**5**
1B	Explain clock driven, weighted round robin and priority scheduling algorithms in Real Time operating System.	**3**
1C	Compare the performance of Lamport's, Ricart-Agarwala and Maekawa's algorithms for distributed mutual exclusion	**2**
2A	Explain two phases of synchronous rollback recovery algorithm. Identify the consistent set of checkpoints for the diagram depicted in Fig.Q.2A that shows the activities of three processes X, Y, and Z, by applying synchronous rollback recovery algorithm. Explain the details of recovery if process 'X' fails and restarts from checkpoint x2.	**5**
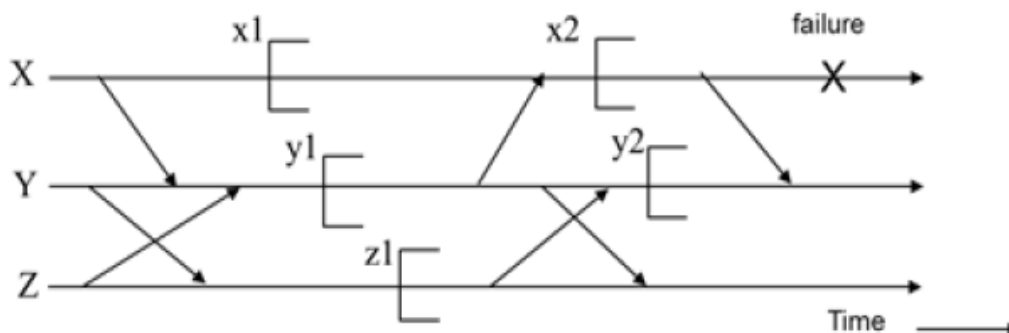
Fig. Q.2A

2B   Explain caching and replication technique in CODA file system.   **3**

2C   What is meant by load index in distributed scheduling? How does it affect load   **2**
distribution in load balancing and load sharing algorithms? Explain.