Code No: **R1642051** **R16** **Set No. 1**

IV B.Tech II Semester Regular Examinations, September - 2020

DISTRIBUTED SYSTEMS

(Common to Computer Science and Engineering and Information Technology)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B

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PART–A *(14 Marks)*

1. a) Discuss about client server resource sharing. [3]
   b) What is Multicast Transmission in Distributed systems? Discuss. [2]
   c) Discuss about Remote Procedure Calls. [2]
   d) What is meant by Address space? Discuss. [2]
   e) What is election process? Discuss about its goal? [2]
   f) What is replication? Differentiate between Active and passive replication. [3]

PART–B *(4x14 = 56 Marks)*

2. Explain the architectural and fundamental models of distributed systems? [14]

3. a) Explain the client server communication model. Also Discuss about marshaling in detail. [7]
   b) Discuss the issues relating to datagram communication. [7]

4. a) Explain the features of distributed object model [7]
   b) Explain the design issues of RMI. [7]

5. a) Briefly explain architecture for multi threaded servers. [7]
   b) What is the need for protection? Explain various protection mechanisms supported by operating systems. [7]

6. a) Discuss the mounting issues of remote file systems on NFS client. [7]
   b) Explain about overlay routing? Explain how it useful in peer communication. [7]

7. a) Describe various deadlock handling techniques. [7]
   b) Explain about concurrency control in distributed transactions. [7]

Code No: R1642051 **R16** **Set No. 2**

IV B.Tech II Semester Regular Examinations, September - 2020

DISTRIBUTED SYSTEMS

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Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B

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PART–A *(14 Marks)*

1. a) What is meant by distributed system? Give any two examples. [2]
   b) Discuss about any three applications of Multicast Transmission in Distributed systems. [3]
   c) What is an event and notifications? [2]
   d) What is meant by multi threaded model. Discuss. [2]
   e) Define overlay routing? What is its importance? [2]
   f) What is dead lock? How deadlock can be handled. [3]

PART–B *(4x14 = 56 Marks)*

2. a) What do you mean by Scalability of a distributed system? Explain the principles for designing scalable distributed systems. [10]
   b) Explain the security challenges of distributed systems. [4]

3. a) Explain the different methods for inter-process communication. [7]
   b) Discuss the issues relating to datagram communication. [7]

4. Discuss the design and implementation issues in Remote Method Invocation. [14]

5. a) Explain the general architecture of operating systems for Distributed Systems [7]
   b) What is thread? Explain the life cycle of the thread, with neat state diagram. [7]

6. a) Explain how mutual exclusion is handled in distributed system. [7]
   b) Discuss the Napster and its legacy with respect to distributed file systems. [7]

7. a) Explain the basic architectural model for the management of Replicated data. [7]
   b) What is transaction? Briefly explain about flat and nested distributed transactions. [7]

Code No: **R1642051** **R16** **Set No. 3**

IV B.Tech II Semester Regular Examinations, September - 2020

DISTRIBUTED SYSTEMS

(Common to Computer Science and Engineering and Information Technology)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B

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PART–A *(14 Marks)*

1. a) What is meant by resource sharing? Discuss with an example. [2]
   b) Discuss about the characteristics of the IPC. [3]
   c) Differentiate static and dynamic invocation methods. [2]
   d) Differentiate between process and threads. [3]
   e) What is mutual exclusion? List its requirements. [2]
   f) Define replication? What is the importance of it? [2]

PART–B *(4x14 = 56 Marks)*

2. What is distributed systems? Explain its key characteristics of distributed system in detail. [14]

3. a) What is marshaling? Explain marshaling operations in detail. [7]
   b) Explain Multicast transmission in Distributed Systems? Discuss about important applications of Multicast Transmission in Distributed systems. [7]

4. a) What is the importance of distributed garbage collection? Explain the Distributed garbage collector algorithm. [7]
   b) Discuss about various Remote Procedure Calls. [7]

5. a) What is an Execution environment? Explain in detail about the process execution environment [7]
   b) Describe the architecture for multi-threaded servers. [7]

6. a) What is distributed file system? Briefly explain the file service architecture. [7]
   b) What is the goal of an election algorithm? Explain it detail. [7]

7. a) What is concurrency? Write the importance of concurrency control in distributed systems. [7]
   b) What is distributed deadlock? Explain with example. [7]

Set No. 4

R16

Code No: R1642051

IV B.Tech II Semester Regular Examinations, September - 2020

DISTRIBUTED SYSTEMS

(Common to Computer Science and Engineering and Information Technology)

Time: 3 hours Max. Marks: 70

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B

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PART–A *(14 Marks)*

1. a) What is meant by failure handling? [2]
   b) Discuss about marshaling. [3]
   c) What is the importance of distributed garbage collection? [2]
   d) Discuss about protection mechanisms supported by operating systems. [3]
   e) What are the goals of election algorithm? [2]
   f) What is transaction? List the different types of transactions. [2]

PART–B *(4x14 = 56 Marks)*

2. a) Explain the design requirements and challenges for distributed systems. [10]
   b) Explain the client server resource sharing system. [4]

3. a) List and Explain the various socket primitives used in TCP stream communication. [7]
   b) Describe IP Multicast communication. [7]

4. a) With a neat sketch, Explain the implementation of Remote Method Invocation. [7]
   b) Explain communication between distributed objects, With a neat diagram. [7]

5. What is thread? Explain the issues related to thread programming, thread lifecycle, and thread synchronization. [14]

6. a) Explain the techniques to achieve high performance in distributed file systems. [7]
   b) Explain the main tasks of Routing Overlays. [7]

7. a) What is replication? Explain about Active and Passive replications [7]
   b) Compare and contrast the various methods of concurrency control. [7]