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

IV B.Tech II Semester Regular/Supplementary Examinations, June - 2022

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) Define Ubiquitous Computing. [3]
   b) Define the Remote Object Reference. [3]
   c) How are unused remote objects handled by java garbage handling? [2]
   d) Define Page fault. [2]
   e) Define Server Caching. [2]
   f) What do you mean by Flat Transaction? [2]

PART–B *(4x14 = 56 Marks)*

2. a) Explain about Heterogeneity challenge in Distributed systems. [7]
   b) Describe Interaction model and Security model in Distributed systems. [7]

3. a) List and explain the characteristics of Inter Process Communication. [7]
   b) Discuss in detail about Java API for UDP datagram. [7]

4. a) How Remote Procedure Calls are handled in Java? Illustrate with a sample code. [7]
   b) Explain in detail Distributed Object Model. [7]

5. a) Discuss in detail the architecture and principles of Monolithic kernel and Micro kernel. [7]
   b) How Process and Thread are implemented in UNIX operating system. [7]

6. a) Discuss various Storage systems and their properties. [7]
   b) How mutual exclusion is handled in distributed environment? Explain with a neat diagram. [7]

7. a) Explain in detail various operations for Two-phase commit protocol. [7]
   b) Write in detailed note on optimistic Concurrency control. [7]

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

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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

*****

PART–A *(14 Marks)*

1. a) Define Intranet. [3]
   b) List the uses of TCP. [2]
   c) Define Distributed Objects. [2]
   d) Compare Process and Thread. [2]
   e) Give the significance of lseek. [2]
   f) What do you mean by nested transaction? [3]

PART–B *(4x14 = 56 Marks)*

2. a) What are the factors which lead to define an "unreliable" network? Explain. [7]
   b) List and explain design requirements for distributed systems. [7]

3. a) List and explain the characteristics of the network hidden by the TCP Abstraction. [7]
   b) Discuss in detail about Java API for TCP datagram. [7]

4. a) Explain the various design issues of RMI [7]
   b) Discuss the role of proxy and skeleton in remote method Invocation [7]

5. a) With neat sketch explain the Operating System Layer. [7]
   b) List the advantages and disadvantages of kernel level process and user level process. [7]

6. a) Explain the requirements of Distributed File System. [7]
   b) Draw and explain File Service Architecture. [7]

7. a) Describe in detail Distributed Deadlocks. [7]
   b) Compare and contrast active replication with passive replication. [7]

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

IV B.Tech II Semester Regular/Supplementary Examinations, June - 2022

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) Does a system fail if any one QoS factor is not available? Substantiate our answer. [3]
   b) What is marshalling? [2]
   c) Give the significance of Interface Definition Language. [3]
   d) What do you mean by Thread Synchronization? [2]
   e) Define Mutual Exclusion. [2]
   f) What do you mean by Time stamp ordering? [2]

PART–B *(4x14 = 56 Marks)*

2. a) Write in detail about Intranet and Internet. [4]
   b) Discuss about Failure Model in Distributed Systems. How is it different from other fundamental models? [10]

3. a) What is Inter process communication? How does TCP communication differ from UDP communication? [7]
   b) How does IPMulticast used in implementation of group communication? [7]

4. a) Describe in detail Distributed Garbage Collection. [7]
   b) Explain in detail participants in distributed event notification. [7]

5. a) Explain in detail light weight Remote Procedure call. [7]
   b) Describe the role of Micro Kernel. [7]

6. a) Write in detailed note on Distributed Mutual Exclusion. [7]
   b) Explain ring based Election algorithm with neat sketch. [7]

7. a) Describe the recovery of the Two Phase Commit protocols. [7]
   b) Explain in detail about Fault tolerant services in Distributed Systems. [7]

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Code No: **R1642051** **R16** **Set No. 4**

IV B.Tech II Semester Regular/Supplementary Examinations, June – 2022

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

*****

PART–A *(14 Marks)*

1. a) Define Proxy Servers. [3]
   b) List the advantages of UDP. [3]
   c) What do you mean by RMI registry? [2]
   d) Compare a process with a thread. [2]
   e) Define Throughput. [2]
   f) What do you mean by Passive replication? [2]

PART–B *(4x14 = 56 Marks)*

2. a) Discuss in detail about Resource Sharing and World Wide Web [7]
   b) Explain the problems occur while designing distributed systems. [7]

3. a) Compare group communication with client/server communication. [7]
   b) Implement the Request – Reply protocol using TCP streams. [7]

4. a) How are unused remote objects handled by Java Garbage Handling? How the algorithm helps to avoid failure? Explain. [7]
   b) Explain about design and implementation of Java RMI [7]

5. a) How the process and threads are implemented in UNIX operating system? [7]
   b) Explain how a shared region could be used for a process to read data written by kernel. [7]

6. a) Discuss the server managing a Mutual exclusion token for a set of process. [7]
   b) Write in detailed note on Multicast Communication. [7]

7. a) How a server manages mutual exclusion token for a set of processes? Explain with an example. [7]
   b) Write about Passive replication and Active replication. [7]