

Code No: RT42051

R13

Set No. 1

IV B.Tech II Semester Regular/Supplementary Examinations, April/May - 2019

DISTRIBUTED SYSTEMS

(Common to Computer Science and Engineering & 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 THREE questions from Part-B

PART-A (22 Marks)

1. a) List any two resources of hardware and software. Which can be shared in Distributed systems with example? [4]
- b) Compare TCP and UDP. [3]
- c) Write short note on Events and Notifications. [4]
- d) What is meant by Failure Assumption? [3]
- e) List the characteristics of Peer-to Peer systems. [4]
- f) What is meant by Concurrency control? [4]

PART-B (3x16 = 48 Marks)

2. a) Explain the necessity of resource sharing with a real time example. [5]
- b) Discuss the major challenges in implementing distributed systems. [5]
- c) Describe the main Architectural model of Distributed system. [6]
3. What is meant by Inter Process Communication? How inter process communication is used in distributed systems? [16]
4. a) Discuss about various Remote Procedure Calls. [8]
- b) With a neat sketch explain communication between distributed objects. [8]
5. Describe Operating System Architecture. [16]
6. a) Explain the mutual exclusion algorithm in distributed systems. [8]
- b) What are the features required for Election algorithms? [8]
7. a) Explain the importance of concurrency control in distributed transactions. [8]
- b) Write about Active and Passive replications. [8]

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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 THREE questions from Part-B

PART-A (22 Marks)

1. a) State the Objectives of Resource Sharing. [4]
- b) Write the characteristics of Multicast Communication. [3]
- c) List out the Design issues of Remote Procedure Call. [4]
- d) Write short note on Address space. [3]
- e) What are Routing overlays? [4]
- f) Write short note on Passive Replication. [4]

PART-B (3x16 = 48 Marks)

2. a) What are different trends in Distributed systems? [8]
- b) Analyze different Challenges of Distributed system. [8]
3. a) What is meant by Group communication? Explain different types of group. [8]
- b) Describe the approaches for External data representation and Marshalling. [8]
4. a) Explain how RMI can be implemented with an example. [8]
- b) Describe the process of Distributed Garbage collection. [8]
5. a) What is meant by Thread? Differentiate between Process and Threads. [8]
- b) What is meant by Failure Assumption and Failure Detectors? Explain. [8]
6. a) Explain the characteristics of Peer-to Peer systems. And also describe IP and overlay routing for peer-to peer applications [8]
- b) Elaborate the File Service Architecture. [8]
7. Discuss in detail about Deadlock and Locking schemes in distributed Concurrency control. [16]

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Set No. 3

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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 THREE questions from Part-B

PART-A (22 Marks)

1. a) Write a short note on Failure Model. [4]
b) What are the three types of communication paradigm in distributed system? [3]
c) Write short note on java RMI. [4]
d) What is meant by Thread? [3]
e) What are the services provided by Flat file system? [4]
f) Write short note on Active replication. [4]

PART-B (3x16 = 48 Marks)

2. a) What is Distributed systems? Explain its features along with its motivation for constructing. [8]
b) What are the Difficulties and Threats of Distributed system? [8]
3. a) List and explain characteristics of the TCP stream communication. [8]
b) Describe the various issues relating to Datagram Communication. [8]
4. a) What is meant by Object Model? Describe how distributed objects are related to distributed system. [8]
b) Explain the design Issues for RMI. [8]
5. a) Explain Architecture of Server Threads. Give its applications. [8]
b) Write about Invocation and Address space. [8]
6. a) What are Routing Overlays? How they are used in Distributed file system? [8]
b) Write the algorithm of Mutual Exclusion in distributed systems. [8]
7. Write about Distributed Deadlocks. How to prevent deadlocks in distributed systems [16]

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Set No. 4

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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 THREE questions from Part-B

PART-A (22 Marks)

1. a) Name five reasons why build Distributed systems. [4]
- b) Write a short note on Internet Protocols. [3]
- c) What are the design issues for remote Method Invocation? [4]
- d) Write the uses of Threads. [3]
- e) What are the Non functional requirements of Peer to Peer Middleware? [4]
- f) Define Distributed Dead Locks. [4]

PART-B (3x16 = 48 Marks)

2. a) Describe the design requirements for distributed systems. [6]
- b) Explain the following distributed system architectural models (i) Failure model [10]
(ii) Security model.
3. What meant by Marshalling? Differentiate between TCP stream communication and Client Server Communication [16]
4. a) Write a simple RMI program that demonstrates the invocation of remote object services. For example when a client sends a message "Hello", the server responds with "Hi, You There". [8]
- b) Explain in detail the RPC architecture with the functionality of its components. [8]
5. a) Explain how a new process can be created in distributed systems with an example. [8]
- b) Discuss about the operating system address space of threads in a distributed system. [8]
6. a) Distinguish between IP and overlay routing for peer to peer applications. [8]
- b) Write a Program for Multicast peer joins a group and sends and receives datagram's. [8]
7. What is meant by concurrency control? How it is important in distributed systems? [16]