Code No: **R42051** **R10** **Set No. 1**

IV B.Tech II Semester Supplementary Examinations, July - 2014

DISTRIBUTED SYSTEMS

(Computer Science Engineering)

Time : 3 hours **Max. Marks: 75**

Answer any Five Questions

All Questions carry equal marks

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1 a) What are the challenges in designing a scalable distributed system? [8]

b) What are the techniques used for dealing with failures? [7]

2 a) What are the design requirements for distributed architectures? [8]

b) What are the difficulties and threats that must be resolved in order to develop a reliable & secure distributed system? [7]

3 a) What is IP Multicast? Give the Java API for implementing IP Multicast. [8]

b) Describe about the marshalling and unmarshalling methods of XML. [7]

4 a) Discuss in detail, the different events to be handled when a remote object reference interface is not available during execution or compilation time. List out the events generated. [8]

b) What is meant by persistent object store? [7]

5 a) Describe the server threading architectures, i) thread per request ii) thread per connection iii) thread per object [8]

b) List out the Java thread constructor and management methods. [7]

6 a) Give the file service architecture. Explain about Flat file service interface & Directory service interface. [8]

b) How are access rights checked in distributed implementations? [7]

7 a) Describe Maekawa's voting algorithm for handling deadlock situations where two processes makes request to enter into critical sections. [8]

b) How does synchronization delay affect the throughput of a system? How can it be avoided? [7]

8 a) How is edge chasing used to detect the deadlock detection? [8]

b) Describe the hierarchic two phase commit protocol. What will the top level transaction do if one of the sub transaction aborts? [7]

Code No: **R42051** **R10** **Set No. 2**

IV B.Tech II Semester Supplementary Examinations, July - 2014

DISTRIBUTED SYSTEMS

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Time : 3 hours **Max. Marks: 75**

Answer any Five Questions

All Questions carry equal marks

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1 Discuss about the technological components of Web:
   a) HTML
   b) URL
   c) HTTP [15]

2 a) Give the layered structure of a distributed system and discuss about the locations and interactions of the components. [8]

   b) What factors affect the responsiveness of an application that accesses shared data managed by a server? Describe remedies that are available and discuss their usefulness. [7]

3 a) Explain about Java Object serialization with an example. [8]

   b) What are the methods of HTTP to implement the request reply protocol? [7]

4 a) Illustrate the invocation semantics of Remote Method Invocation. [8]

   b) What is the role of proxy and skeleton in Remote Method Invocation? [7]

5 a) Discuss in brief the architecture and principles of monolithic kernel and micro kernel as well as the major differences between both. [8]

   b) Compare the worker pool multi threading architecture with the thread per request architecture. [7]

6 a) What are the advantages and disadvantages of peer to peer systems? [8]

   b) Discuss the fault tolerant issues for routing overlay. [7]

7 Give the Ricart & Agrawala's algorithm for mutual exclusion. What are the short comings of this scheme? Does this algorithm satisfies happens before relationship? [15]

8 a) What messages are exchanged in a two phase commit protocol? How are the timeout actions used? [10]

   b) Comment on the performance of two phase commit protocol. [5]

Code No: **R42051** **R10** **Set No. 3**

IV B.Tech II Semester Supplementary Examinations, July - 2014

DISTRIBUTED SYSTEMS

(Computer Science Engineering)

Time : 3 hours **Max. Marks: 75**

Answer any Five Questions

All Questions carry equal marks

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1 Discuss the different distributed process that take place in the following order:
   a) A client sends a request for requires HTML page to web server.
   b) The server analyzes the request and sends back an acknowledgement to client along HTML process required to handle the page. [15]

2 a) How do the following factors affect the interacting process in a distributed system? i) communication performance & ii) No single global notion of time [8]
   b) Describe the two variants of interaction model in synchronous and asynchronous distributed system? [7]

3 a) Describe CORBA's common data representation and marshalling. [8]
   b) Mention the RPC Exchange Protocols & Explain. [7]

4 a) Give the architecture of a distributed event based system. [8]
   b) Write a short note on Sun Remote Procedure Call. [7]

5 a) How is new process created in a distributed system? How is it different from UNIX operating system? [8]
   b) How does Copy on write of an inherited region done from parent to child process? [7]

6 a) What are the non functional requirements of peer to peer middleware? [8]
   b) Explain the Napster architecture for file sharing. [7]

7 a) Describe the implementation details of FIFO ordering and Total ordering for non overlapping groups. [10]
   b) Comment on the above orderings when you have overlapped groups. [5]

8 Describe the i) Time stamp ordering of concurrency control and ii) Optimistic concurrency control. [15]

Code No: **R42051** **R10** **Set No. 4**

IV B.Tech II Semester Supplementary Examinations, July - 2014

DISTRIBUTED SYSTEMS

(Computer Science Engineering)

Time : 3 hours **Max. Marks: 75**

Answer any Five Questions

All Questions carry equal marks

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1	a)	Mention the types of transparency. How is their presence found?	[8]
	b)	Write short notes on Intranets	[7]
2	a)	Write note on failure model of a distributed system.	[8]
	b)	Classify the omission and arbitrary failures.	[7]
3		Present the Java interfaces to datagram and stream communication to show the different degrees of reliability.	[15]
4		Write about the design and implementation of Java RMI.	[15]
5	a)	What is an address space? What are the elements of an address space?	[6]
	b)	What are the low level mechanisms for resource protection?	[5]
	c)	What is the role of a kernel?	[4]
6	a)	What are the characteristics of file systems?	[8]
	b)	What are the requirements of a distributed file systems?	[7]
7	a)	What is B-multicast?	[6]
	b)	Explain how to implement reliable multicast over B-multicast.	[9]
8	a)	Give the model for Primary backup replication. What are its advantages & disadvantages?	[8]
	b)	Comment on linearizability & Sequential consistency.	[7]