



**B.E./B.Tech (Full Time) EXAMINATIONS,**  
**APRIL/MAY 2013**  
**INFORMATION TECHNOLOGY/COMPUTER SCIENCE AND ENGINEERING**  
**FIFTH SEMESTER**  
**IT9304: Distributed Systems**  
**(REGULATION 2008)**

Time: 3 hours

Max.Marks: 100

Answer All Questions

**Part A (10\*2 = 20 Mark)**

1. What are the characteristics of a distributed system?
2. What do you mean by transient and persistent communication?
3. Explain the workings of synchronous communication protocol.
4. What do you mean by causal ordering? Give example.
5. How does thread work in a distributed environment?
6. What are the various consistencies available in a distributed environment. Give names.
7. State all possible semantics in Distributed File System.
8. What do you mean by fail-safe faults? Give example.
9. What is the full form of CORBA?
10. What are the various services available in COM?

**Part B (5\* 16 = 80 Marks)**

11. i) What are the basic steps of RPC? Describe with required diagrams. 8  
ii) What do you mean by RMI? How are RMI semantics implemented? 8
12. a. i) What is global state in a distributed environment? Describe an algorithm that can obtain the global state of a distributed system. 8  
ii) Describe a ring-based election algorithm with appropriate example. 8

**OR**

- b. i) What is deadlock in a distributed system? What are the various methods of detecting deadlock in a distributed environment. 8  
ii) What do you mean by mutual exclusion? Explain with an example how mutual exclusion can be achieved in a distributed environment. 8

13. a. Compare and contrast distributed shared memory implementation in Ivy and Munin on performance, consistency and fault tolerance. 16

OR

13. b. Consider the following example:

P1:	W(x)a		W(x)c	
P2:	R(x)a	W(x)b		
P3:	R(x)a		R(x)c	R(x)b
P4:	R(x)a		R(x)b	R(x)c

What consistency does the above example violate? Justify. 16

14. a. What is two phase commit protocol? Discuss the algorithm with example. What are the limitations in it? 16

OR

14. b. i) Compare different types of agreement protocols. 8  
 ii) Show that it is not possible to obtain an agreement in a four node system having two Byzantine faults. 8

15. a. i) Describe the architecture of Jini. What is spacial in Jini? Write in detail. 16

OR

15. b. ii) Discuss the basic architecture of CORBA and discuss various services present in it. 16

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