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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Seventh Semester, B.E. – Computer Science and Engineering

Semester End Examination; Dec - 2017/Jan - 2018

Distributed Computing Systems

Time: 3 hrs *Max. Marks: 100*

***Note**: Answer **FIVE** full questions, selecting **ONE** full question from each unit.*

UNIT - I

1	a.	List the challenges in distributed systems and explain any two in detail.	10
	b.	Describe Event ordering with respect to Interaction model, with the help of an example.	6
	c.	List the characteristics of inter-process communication and explain message destination in detail.	4
2	a.	Explain the characteristics of multicast communication.	5
	b.	Write a brief note on HTTP.	5
	c.	Define Marshalling and Un-Marshalling. Explain Marshalling in CORBA.	10

UNIT - II

3	a.	Explain the design issues involved in implementation of RMI.	10
	b.	Explain Object model in detail.	10
4	a.	Explain the alternative server threading architectures with the help of a neat diagram.	10
	b.	Explain the potential benefits of interleaving invocations, with the help of a neat diagram.	10

UNIT - III

5	a.	Describe the requirements of distributed file system.	10
	b.	Explain briefly DNS.	10
6	a.	Describe the NFS server operations in tabular form.	10
	b.	Discuss the characteristics of file system.	10

UNIT - IV

7	a.	Explain Cristian's method for synchronizing clocks.	10
	b.	Describe logical clock synchronization in distributed system using Lamport time stamp for events.	10
8	a.	Illustrate with a neat diagram, Bully algorithm to elect coordinator.	10
	b.	Explain Ricart and Agrawala algorithm to implement mutual exclusion between N peer processes based on multicast and logical clocks.	10

Contd…2

UNIT - V

9 a.	Explain ACID properties of transactions.	5
b.	Explaink Two-Version locking and explain two main differences between them, and read-write locking scheme.	5
c.	Explain the Edge chasing distributed approach to detect deadlock.	10
10 a.	Illustrate with neat diagram, flat and nested transactions in distributed systems with suitable example.	10
b.	Discuss the following with respect to two-phase commit protocol for nested transactions : i) Hierarchic two-phase commit protocol ii) Flat two-phase commit protocol.	10

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