BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: BE **SEMESTER : VII**
BRANCH: IT **SESSION : MO/19**

SUBJECT: IT8043 DISTRIBUTED SYSTEM

TIME: 3.00Hrs. **FULL MARKS: 60**

INSTRUCTIONS:
1. The question paper contains 7 questions each of 12 marks and total 84 marks.
2. Candidates may attempt any 5 questions maximum of 60 marks.
3. The missing data, if any, may be assumed suitably.
***4*. Before attempting the question paper, be sure that you have got the correct question paper.**
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

Q.1(a)	What is a distributed system?	[2]
Q.1(b)	Give three types data or software resource that can usefully be shared. Give examples of their sharing as it occurs in distributed systems.	[4]
Q.1(c)	What are the design challenges of distributed systems? Explain any three of them briefly.	[6]
Q.2(a)	What is interaction model?	[2]
Q.2(b)	In context to fault model what are the different kind of fault may occur and what are their effects?	[4]
Q.2(c)	Compare LAN, MAN & WLAN in terms of their range, bandwidth and latency.	[6]
Q.3(a)	Define inter process communication (IPC).	[2]
Q.3(b)	Discuss the characteristics and constraints of *send* operation in synchronous communication.	[4]
Q.3(c)	What is IP multicast? What are the characteristics of multicast messages? How multicast messages are useful in distributed system?	[6]
Q.4(a)	Define UTC (coordinated universal time).	[2]
Q.4(b)	Differentiate external synchronization and internal synchronization of physical clocks.	[4]
Q.4(c)	Explain Central Server algorithm for mutual exclusion? Does this algorithm satisfy all essential requirements of Mutual exclusion? Explain.	[6]
Q.5(a)	What is Marshalling?	[2]
Q.5(b)	Write notes on ordered multicast. Define FIFO ordering, Causal Ordering and Total ordering.	[4]
Q.5(c)	Explain any one voting algorithm for mutual exclusion? What is the purpose of voting algorithm?	[6]
Q.6(a)	What are the application level protocols for executing a critical section?	[2]
Q.6(b)	What are the properties satisfied by reliable multicast? Explain each of them.	[4]
Q.6(c)	Explain Common data representation (CDR) of CORBA with its constructed types and messages.	[6]
Q.7(a)	What is critical section problem?	[2]
Q.7(b)	What do you mean by atomic transaction? Explain the ACID properties.	[4]
Q.7(c)	What is deadlock? How deadlock can be detected and prevented?	[6]

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