Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY, MANIPAL 576104

(Constituent College of Manipal University)

SEVENTH SEMESTER B.TECH. (IT) DEGREE MAKEUP EXAMINATIONS, JAN – 2016
SUBJECT-ELECTIVE-II: ADVANCED OPERATING SYSTEMS – ICT 415
(REVISED CREDIT SYSTEM)

TIME: 3 HOURS **07/01/2016** **MAX. MARKS: 50**

Instructions to candidates
- Answer any **FIVE FULL** questions.
- Missing data, if any, may be suitably assumed.

1A. Write Maekawa's algorithm for distributed mutual exclusion and compare it with Lamport's algorithm and Ricart Agrawala algorithm.
1B. Write the implementation rules of Lamport's logical clock and Vector clock.
1C. What is meant by a phantom deadlock? Explain with an example.

(5+3+2)

2A.Write and compare path pushing and edge chasing distributed deadlock detection algorithms.
2B. What is the role of middleware in distributed systems? Explain Interface Definition Language with an example.
2C. Distinguish between blocking and nonblocking primitives of message passing model.

(5+3+2)

3A. What are the advantages of distributed shared memory? Explain migration algorithm and full replication algorithm for distributed shared memory
3B. What are the different classes of load distribution algorithms? Explain.
3C. Differentiate between Queuing-Theoretic perspective and Algorithmic perspective of stability

(5+3+2)

4A. Explain different approaches of backward error recovery.
4B. What is the difference between load balancing and load sharing? List and explain different components of a load distribution algorithm.
4C. What are checkpoints in failure recovery? Explain the various types of checkpoints.

(5+3+2)

5A. Explain the static voting algorithm for fault tolerance. Compare it with dynamic voting protocol.
5B.Discuss the various process synchronization mechanisms in multiprocessor operating systems.
5C. List and explain the issues in processor scheduling of multiprocessor operating systems.

(5+3+2)

6A. Write and differentiate the basic time stamp ordering algorithm and multiversion timestamp ordering algorithm for concurrency control.
6B. Explain clock driven, weighted round robin and priority scheduling algorithms in Real Time Operating System.
6C. Explain any two file access methods in distributed systems. (5+3+2)