M. Tech. Degree Examination

Computer Science & Technology

I SEMESTER

ADVANCED OPERATING SYSTEMS

(Effective from the admitted batch 2015–16)

Time: 3 Hours
Max. Marks: 60

Instructions: Each Module carries 12 marks.

Answer all modules choosing one question from each module.

All parts of the module must be answered in one place only.

Figures in the right hand margin indicate marks allotted.

MODULE-I

1. a) Explain about different structures of operating system
b) What is Readers-Writers problem? Write the semaphore solution to Readers-Writers problem

OR

2. a) Write the differences between Serializers and Monitors. Explain how to solve the readers-priority problem
b) Define system state. Explain graph reduction method with an example

MODULE-II

3. a) Explain the design issues of Remote Procedure Call
b) Explain about BIRMAN-SCHIPER-STEPHENSON protocol

OR

4. a) Write and explain LAMPORT’s algorithm
b) Show that Byzantine agreement cannot always be reached among four processors if two processors are faulty

Max. Marks: 60
MODULE-III

5. a) Explain different algorithms to implement Distributed Shared Memory System 8
   b) Define Load. Explain about Load Balancing verses Load Sharing 4

   OR

6. a) Explain about Sender-Initiated load distributed algorithm 6
    b) Explain about Coherence Protocols 6

MODULE-IV

7. a) Explain how the asynchronous check pointing overcoming the disadvantages of synchronous check pointing 6
    b) Explain Operation-Based Approach for Backward-Error Recovery 6

   OR

8. a) Explain Two-Phase Commit Protocol 6
    b) Explain how Voting Protocol 6

MODULE-V

9. a) Explain about fault detection and fault recovery in sequoia system 8
    b) Explain with an example how to optimize memory space by using COPY-ON-WRITE operation 4

   OR

10. a) Explain concurrency control model of a distributed database system 6
    b) Explain about Multiversion Timestamp Ordering Algorithm 6

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