

**Section-D**

8. (a) Explain memory management concept in detail.  
(b) Briefly explain the concept of concurrency control protocol. 10,10
9. How is synchronization really used ? Also explain how we go about acquiring locks to protect regions of memory. 20

Roll No. : .....

Total No. of Questions : 9 ] [ Total No. of Pages : 4

**22639**

**M.Tech. (CSE) 1st Semester  
Examination, March-2021  
(CBCS Scheme)**

**ADVANCED OPERATING SYSTEMS  
Paper-MTCSE21C2**

*Time : Three Hours ]*

*[ Maximum Marks : 100*

*Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.*

**Note :-** Attempt five questions in all, selecting one question from each Section. Question No. 1 is compulsory. All questions carry equal marks.

1. (a) What is failure recovery in distributed system ?  
(b) Define role of threads in multiprocessor system.

- (c) Is it possible to have deadlock involving only one process ? State your answer.
- (d) Explain the concept of critical section.
- (e) What are the main functions of Operating System ?
- (f) Define process synchronization.
- (g) Explain the role of voting protocols.
- (h) List some advantages of distributed shared memory.
- (i) Define process and name its different states.
- (j) What is fault tolerance ? State the significance and its use. 2×10=20

#### Section-A

- 2. Explain in detail operating with its functions. Also explain different types of operating system. 20
- 3. (a) What do you mean by deadlock ? Also explain necessary conditions for deadlock prevention.
- (b) What is critical section problem in operating system ? How this problem can be avoided ? 10,10

#### Section-B

- 4. (a) Explain in brief Lamport's logical clock by giving suitable examples.
- (b) Discuss mutual exclusion and hold-wait conditions in context to deadlock prevention. 10,10
- 5. (a) Explain in detail about distributed file system.
- (b) Describe distributed shared memory architecture in detail. 10,10

#### Section-C

- 6. (a) Explain synchronous and asynchronous checkpoint recovery mechanism.
- (b) Write in detail about processor scheduling. 10,10
- 7. (a) Explain different types of distributed commit protocols.
- (b) Discuss voting protocols. Explain in detail about dynamic voting protocols. 10,10