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M. Tech 1st Semester Examination

Operating System and Case Study

CSE1-515/MT-105

Time : 3 Hours **Max. Marks : 100**

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt five questions in ail selecting one question each from the sections A, B, C and D. Section E is compulsory.

SECTION - A

1. Discuss the major features of following types of operating systems:
   (a) Multiprogrammed Systems
   (b) Time Sharing Systems **(20)**

2. What are the major features of scheduling criteria? Discuss the multilevel queue scheduling and multilevel feedback queue schedule algorithms. **(20)**

SECTION - B

3. (a) Explain the role of semaphores in achieving the process synchronization **(10)**
   (b) What is meant by page replacement algorithm? Discuss the optimal and LRU Page replacement algorithm. **(10)**

4. Differentiate the following:
   (a) Paging and Segmentation
   (b) Deadlock prevention and deadlock avoidance **(20)**

SECTION - C

5. Discuss the following types of File Access methods:

   (a) Direct Access

   (b) Indexed Access **(20)**

6. Describe the SSTF and SCAN disk scheduling algorithm along with the illustration. **(20)**

SECTION - D

7. What are the different methods used by an operating system to handle the security threats to the system? Explain. **(20)**

8. How memory management is carried out in UNIX Operating System? Discuss the role of inodes and directories. **(20)**

SECTION - E

9. (a) Discuss the function of an operating system.

   (b) How interprocess communication is carried out?

   (c) Explain the concept of thrashing.

   (d) What is the role of Hash Table?

   (e) Define the role of Kernel and Shell. **(4×5=20)**