Roll No. .....

3087

B. Tech. 4th Semester (CSE) Examination – May, 2023

OPERATING SYSTEM

Paper : PCC-CSE-206-G

Time : Three hours] *[Maximum Marks : 75*

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 any *five* questions in all, selecting *one* question from each Unit. Question No. 1 is *compulsory*. All questions carry equal marks.

1. Explain the following briefly:

   (a) Differentiate between paging and segmentation.

   (b) Difference between process and program.

   (c) What is the main purpose of system calls and system program ?

   (d) Explain process state transition diagram.

   (e) Difference between contiguous and noncontiguous memory allocation.

   (f) Difference between long-term scheduler and short-term scheduler. $2.5 \times 6 = 15$

UNIT – I

2. (a) Difference between multiprogramming and multitasking operating system. 5

   (b) What is an operating system and its functions ? Explain the functions and services of operating systems. 10

3. (a) Write short notes on: Short term scheduler and Dispatcher. 5

   (b) What do you understand by CPU Scheduling ? What are scheduling criteria for FCFS, SJF and SRI F ? 10

UNIT – II

4. (a) What is Deadlock ? Explain various methods for detection, prevention, and recovery of deadlocks. 10

   (b) How to avoid deadlocks ? Explain Banker's algorithm briefly. 5

5. (a) What is Interprocess communication (IPC) ? Explain Dinning Philosopher IPC Problem in detail. 8

   (b) What is Semaphore ? Explain counting and binary semaphore in detail. 7

UNIT – III

6. (a) Explain the concept of virtual memory and how it is obtained by demand paging and segmentation ? 10

(b) What is Fragmentation ? Explain difference between Internal and External fragmentation briefly. 5

7. Explain the following : 15

(a) Optimal Page Replacement and Least Recently used (LRU)

(b) Demand Paging

UNIT – IV

8. (a) Explain the concept of booting from disk and bad block recovery in disk management. 10

(b) Briefly describe various access methods of file system. 5

9. (a) Explain architecture of Windows operating system in detail. 7

(b) Describe any *two* disk scheduling algorithms with the help of example. 8