PVP 19

Code: 19CS3402, 19IT3402

II B.Tech - II Semester – Regular Examinations – AUGUST 2021

OPERATING SYSTEMS

(Common to CSE, IT)

Duration: 3 hours Max. Marks: 70

Note: 1. This question paper contains two Parts A and B.
2. Part-A contains 5 short answer questions. Each Question carries 2 Marks.
3. Part-B contains 5 essay questions with an internal choice from each unit. Each question carries 12 marks.
4. All parts of Question paper must be answered in one place

PART – A

1. a) Define operating system as resource manager.
   b) What is the difference between preemptive and non-preemptive CPU scheduling?
   c) Explain Starvation in deadlock.
   d) Explain basic page replacement strategy.
   e) Explain the importance of disk scheduling.

PART – B

UNIT – I

2. a) Explain major functionalities of operating system. 6 M
   b) Illustrate the need of dual mode operation of operating system. 6 M

OR

3. a) Explain the types of System Calls. 6 M
   b) List various computer systems Architectures and compare them. 6 M

UNIT – II

4. a) Discuss the usage of context switching in multiprogramming. 6 M
   b) Compare the First-Come - First-Serve CPU Scheduling, Shortest-Job-First CPU Scheduling algorithms with an example. 6 M

OR

5. a) Explain in detail the Priority CPU Scheduling algorithm. 6 M
   b) Explain various multithreading models. 6 M

UNIT-III

6. a) Write detailed notes on process synchronization. 6 M
   b) What are the necessary conditions for deadlock? How can you detect a deadlock when each resource is having single instance? 6 M

OR

7. a) What are the requirements for critical section problem? Explain the Peterson's solution to critical section problem. 6 M
   b) Explain the syntax and semantics of monitor. 6 M

UNIT – IV

8. a) Define page fault. Explain the steps involved in handling page fault with a neat diagram. 6 M
   b) Explain about thrashing with an example. 6 M

OR

9. a) Compare First In First Out Page Replacement, Optimal Page Replacement algorithms with an example. 6 M
   b) Explain the structure of page table with respect to hierarchical paging. 6 M

UNIT – V

10. a) Explain briefly the various operations performed on files. 6 M
    b) Discuss First-Come - First-Serve disk scheduling algorithm with an example. 6 M

OR

11. a) Explain sequential and direct file organization. 6 M
    b) Analyze SCAN disk scheduling, C-SCAN disk scheduling algorithms with an example. 6 M