

B.Tech II Year II Semester (R19) Regular Examinations September/October 2021

OPERATING SYSTEMS

(Common to CSE & IT)

Time: 3 hours

Max. Marks: 70

PART – A

(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- Define open-source operating systems.
 - Define system boot.
 - Write the differences between process and thread.
 - What is meant by race condition?
 - Define dispatcher.
 - What is virtual memory? Why is it required?
 - List out the methods for accessing the file?
 - What are the algorithms available for deadlock avoidance?
 - Write down the principles of protection.
 - Define system threats. What is known as DOS attack?

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

- 2 (a) Explain the different functions of an operating system and discuss the various services provided by an operating system.
 (b) Illustrate user and operating-system interface in detail.

OR

- 3 (a) What is system call? Discuss major system calls of operating systems.
 (b) Enumerate operating system design and implementation.

UNIT – II

- 4 (a) Discuss in detail about the Dining-Philosophers solution using monitors.
 (b) What is multithreading? Explain the thread libraries in detail.

OR

- 5 (a) Illustrate the semaphore functions with examples.
 (b) Describe the actions taken by a thread library for context switch between user level threads.

UNIT – III

- 6 (a) Explain about FIFO, LRU page replacement algorithms with example.
 (b) Discuss the hardware support required to support demand paging.

OR

- 7 Given page reference string with 4 frames:
 1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6
 Compare the number of page faults for LRU, FIFO and optimal page replacement algorithm.

UNIT – IV

- 8 (a) Explain the features and functionality of RAID in detail.
 (b) Describe free space management in file system implementation in detail.

OR

- 9 How does deadlock avoidance differ from deadlock prevention? Write about deadlock avoidance algorithm in detail.

UNIT – V

- 10 (a) Describe in detail the implementation methods of access matrix.
 (b) Explain capability-based protection system.

OR

- 11 (a) Discuss program threats, system and network threats of operating system in detail.
 (b) Write down the installation steps of Linux OS.
