Code: 15A05501 / 15A12401

R15

B.Tech III Year I Semester (R15) Supplementary Examinations June 2018

OPERATING SYSTEMS

(Common to CSE & EIE)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)

(a) What is meant by system calls?
(b) What is meant by race condition?
(c) A counting semaphore was initialized to 10. Then 6 P (wait) operations and 4V (signal) operations were completed on this semaphore. Find the resulting value of the semaphore.
(d) What is meant by dispatcher?
(e) What is meant by swapping?
(f) What are the algorithms available for deadlock avoidance?
(g) What is meant by boot control block?
(h) What is meant by global replacement and local replacement?
(i) What is meant by device drivers?
(j) What is meant by SSTF scheduling?

PART – B

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

UNIT – I

2 Discuss in detail the various system calls.

OR

3 Explain in detail inter process communication.

UNIT – II

4 (a) What is multithreading? Explain the thread libraries in detail.
(b) Describe semaphores in detail.

OR

5 Determine the average waiting time and average turnaround time for FCFS, SJF, non-preemptive priority and round robin scheduling algorithms for the given process, burst and priority given below.

Process	Burst	Priority
P1	8	4
P2	6	1
P3	1	2
P4	9	2
P5	3	3

UNIT – III

6 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.

OR

7 Explain the Banker's algorithm for deadlock avoidance with an example.

UNIT – IV

8 Explain the features and functionality of RAID in detail.

OR

9 Describe free space management in file system implementation in detail.

UNIT – V

10 Describe the services provided by the kernel I/O subsystem in detail.

OR

11 Discuss program threats, system and network threats of operating system in detail.

*****