Exam.Code:0916
Sub. Code: 6398

2023

B.E. (Computer Science and Engineering)

Fourth Semester

CS-403: Operating System

Time allowed: 3 Hours Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

a) What do you mean by thrashing?

b) Explain the important responsibilities of OS file management.

c) What are fork and exec system calls?

d) Define race condition?

e) Differentiate parallel and distributed operating system. (5x2)

UNIT - I

II. Consider the following scenario:-

Process burst	Time	Priority
P1	7	3
P2	9	2
P3	2	1
P4	1	4
P5	3	5

The processes are assumed to arrive in order P1, P2, P3, P4, P5. Draw Gantt-chart showing execution of these processes using FCFS, SJF, preemptive priority, and RR (time quantum=1) scheduling. (10)

III. a) What are the methods for deadlock detection? Explain possible solutions of deadlock recovery.

b) Which requirements are to be satisfied for a solution of a critical section problem? (7,3)

IV. a) Explain the structure of OS and various system calls.

b) Explain multiprocessor and time sharing systems. (2x5)

P.T.O.

UNIT - II

V. Explain the different Page Replacement algorithms with an example of each. Use the reference string 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1 for a memory with three frames. (10)

VI. a) What is disk scheduling? Explain SCAN and C-SCAN scheduling by giving an example.

b) How demand paging affects the performance of a computer system? (7,3)

VII. Write note on the following:-

a) Role of kernel in LINUX operating system

b) Wait and signal commands

c) Different interrupts classes

d) Linked file allocation (4x2½)

x-x-x