ST. JOSEPH'S COLLEGE (AUTONOMOUS), BENGALURU -27
BCA(DATA ANALYTICS) – V SEMESTER
SEMESTER EXAMINATION: OCTOBER 2022
(Examination conducted in December 2022)
BCADA5322 - OPERATING SYSTEMS

Time: 2 ½ Hours   **Max Marks: 70**

This paper contains TWO printed pages and THREE parts

PART - A

Answer ALL the questions   **1 x 10 = 10**

1. What is Real Time Operating System?
2. What is multiprocessor system?
3. Define a Loosely coupled multiprocessor system.
4. What do you mean by Throughput?
5. When do we use Job Queue?
6. When do we face Aging problem in process management of OS?
7. Which part of the OS manages the run-time mapping from virtual to physical addresses?
8. How FIFO Page Replace works?
9. Expand SSTF
10. What is Seek time?

PART - B

Answer any SIX questions   **6 x 5 = 30**

21. Write different functionalities of OS.

22. Explain the state transition diagram of process with a diagram.

23. What do you mean by process synchronization? Explain any two process synchronization algorithms.

24. List and explain the necessary condition for deadlock.

25. Write any five difference between paging and segmentation.

26. With a neat diagram explain the concept of Demand paging.

27. Explain different services provided by interrupt handlers.

28. Discuss SSTF disk scheduling algorithm.

PART - C

Answer any THREE questions   **3 x 10 = 30**

29. Explain any five different types of OS.

30. Calculate the average waiting time using the following algorithms.

Process	Burst time	Priority	Arrival time
P1	7	5	1
P2	5	2	3
P3	3	1	2
P4	2	3	4
P5	1	4	5

For Round Robin Scheduling time quantum will be 3ms.And mention which algorithm provides least average waiting time.
  (a) FCFS
  (b) SJF
  (c) PRIORITY SCHEDULING
  (d) ROUND ROBIN

31. Consider a reference string: 4, 2, 6, 1, 7, 6, 1, 2, 7, 2, 6,2,4,1. The number of frames in the memory is 4. Find out the number of page faults respective to:

   a) FIFO PAGE REPLACEMENT ALGORITHM
   b) OPTIMAL PAGE REPLACEMENT ALGORITHM

32. Consider the following disk request sequence for a disk with 100 tracks 40, 25, 63, 92, 6, 54, 85, 50, 65, 82, 30. Head pointer starting at 30 and moving in left direction. Find the number of head movements in cylinders using FCFS scheduling. Draw a neat diagram.