

Paper Code : 21316

F-416

B.C.A. (Fourth Semester) Examination, 2022

(New Course)

Paper No. BCA-N-401

Operating System

Time : Three Hours | Maximum Marks : 70

Note : Attempt any five questions. All questions carry equal marks.

1. (a) Explain the evaluation of operating system? Differentiate between Multiprogramming, and Time sharing system? 7
- (b) Discuss the following (i) Types of services provided by OS (ii) User's view and System's view of OS. 7

(1)

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2. (a) Perform CPU Scheduling and calculate average waiting time using (i) Non Preemptive SJF (ii) ROUND ROBIN with time quantum 20. 7

Process	Burst Time
P_1	53
P_2	17
P_3	68
P_4	24

- (b) Discuss the following (i) Process Control Block (ii) Types of Schedulers (iii) Context Switch (iv) Process Creation and Termination (v) Hardware and Software Interrupt. 7
3. (a) What do you mean by Semaphore? Discuss implementation of semaphore using Binary Semaphore? 7
- (b) Discuss "Bounded Buffer" Problem and present its solution using Semaphore? 7

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(2)

4. (a) What is virtual memory? Explain demand paging. 7
- (b) Explain multiprogramming with fixed partition. 7
5. (a) Explain the concept of paging? Discuss the use of TLB for paging scheme? 7
- (b) Explain the concept of Segmentation? Discuss the concept of Segments Sharing? <https://www.mjpruonline.com> 7
6. (a) Discuss Critical-Section Problem? Define various algorithms that provide the solution for the requirements of critical section problem? 7
- (b) What do you mean by Page Fault? How many Page Faults would occur for following reference string, for four page frames using FIFO, Optimal algorithm?
7 0 1 2 0 3 0 4 2 3 0 3 2 1 7

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(3)

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7. (a) Define Disk Scheduling algorithms with an example of each? 7
- (b) What do you mean Deadlock Characterization? Discuss various methods for handling Deadlocks? 7
8. Write short note on any **four** of the following:
(3.5 each)
- (a) Time sharing OS
- (b) OS Component
- (c) System devices
- (d) Goals of protection
- (e) File operation .
- (f) Thrashing

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