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V Semester B.C.A 3 Degree Examination, Nov./Dec. - 2019

OPERATING SYSTEM

(Repeater)

Text: Galvin

Paper- (BCA3)

Maximum Marks : 80

Time : 3 Hours

Instructions to Candidates : All sections are compulsory.

SECTION-A

(10×2=20)

Answer any TEN of the following:

1. a) Define operating system list its goals.
- b) What is context switch?
- c) Differentiate between user level & kernel level threads.
- d) What is critical section problem?
- e) What is Deadlocks?
- f) What are Methods for Handling Deadlocks?
- g) Differentiate between logical Memory & Physical memory.
- h) Define Demand Paging.
- i) Define files. State any two file operations.
- j) Differentiate between sequential Access and direct Access.
- k) What is Boot Block?
- l) What is One Time Password?

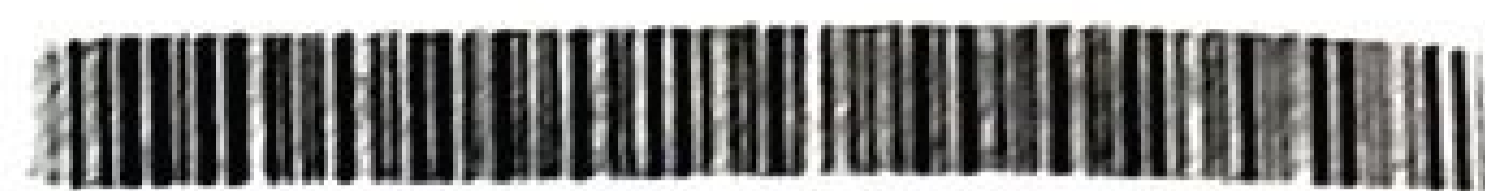
SECTION - B

(4×5=20)

Answer any FOUR:

2. Explain Multiprogramming system.
3. For the processes listed below, Draw a Gantt Chart using pre-emptive and Non-pre-emptive Shortest Job First and also calculate Average waiting Time & Average Turn Around time.

Processes	Arrival time	Burst time
P <sub>1</sub>	0	8
P <sub>2</sub>	1	4
P <sub>3</sub>	2	9
P <sub>4</sub>	3	5



4. Define semaphores. Explain Producer Consumer problem of synchronisation.
5. Explain necessary conditions of Deadlock.
6. Explain linked Allocation of file Management.
7. The requested tracks, in the order received are:  
55, 58, 39, 18, 90, 160, 150, 38, 184. Apply FCFS & SSTF Disk scheduling Algorithms starting track at 100.

### SECTION-C

Answer any **FOUR**:

(4×10=40)

8. a) Explain operating system services. (5)  
b) Explain PCB. (5)
9. a) Define CPU Utilization, Throughput, Waiting time, Turn around time, Response time. (5)  
b) Explain Monitors. (5)
10. Consider the following snapshot of a system:
 

Process	Allocation	Max	Available
P <sub>0</sub>	0 0 1 2	0 0 1 2	1 5 2 0
P <sub>1</sub>	1 0 0 0	1 7 5 0	
P <sub>2</sub>	1 3 5 4	2 3 5 6	
P <sub>3</sub>	0 6 3 2	0 6 5 2	
P <sub>4</sub>	0 0 1 4	0 6 5 6	
11. a) Explain First fit, Best fit and Worst fit of contiguous memory allocation. (5)  
b) Explain Page Fault Mechanism. (5)
12. a) Consider the following page reference string 1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6. How many Page Faults would occur in the case of FIFO and Optimal Page Replacement Algorithm. (5)  
b) Write a short note on System Threats. (5)