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D Y PATIL UNIVERSITY

End Term Examinations (April / May 2019)

School: School of Engineering

Program: BCA (MACT / CTIS / DS)

Course: Operating System

Course Code: CSC 107

Semester: II

Max Marks: 50

Duration (mins): 90

Section A

Q1. Answer the following. (Any Five)

10 Marks

- What is Operating System? Explain any 2 components of Operating system.
- Explain any 4 system calls for file management.
- Explain 3 requirements of critical section problem.
- What is domain protection? Explain any 2 characteristics of domain protection.
- Explain any 4 operations on file.
- What is mean by Threads?
- Explain any 4 deadlock characteristics

Section B

Q2. Answer the following (Any Four)

20 Marks

- Explain file system implementation and its structure of implementation.
- Explain process state diagram in detail.
- Solve using First Come First Served (FCFS) algorithm & Priority. Calculate Waiting time and average waiting time.

Process	Arrival Time	Execution Time	Priority	Service Time
P0	1	8	2	4
P1	2	5	3	8
P2	3	15	1	9
P3	4	13	2	20

- d) Solve example using SJN algorithm with Burst time. Calculate Waiting time of all processes, average waiting time, turnaround time and average turnaround time.

Process	Arrival Time	Burst Time
P1	1	9
P2	2	17
P3	3	12
P4	4	5

- e) Solve using Round Robin Algorithm with Quantum = 3. Calculate waiting time of P0, P1, P2, P3 and average waiting time.

Process	Arrival Time	Execution Time
P0	0	10
P1	1	7
P2	2	12
P3	3	5

- f) Consider 6 memory partitions of size 200 KB, 400 KB, 600 KB, 500KB, 300KB, 250KB. These partitions need to be allocated to four processes of sizes 357 KB, 210 KB, 468 KB and 491 KB in that order. Perform the allocation of processes using -
- 1) First Fit Algorithm
 - 2) Best Fit Algorithm
 - 3) Worst Fit Algorithm

Section C

Q3. Answer the following (Any Two)

20 Marks

- a) Solve using Round Robin Algorithm with Quantum = 5. Calculate waiting time of all processes and average waiting time.

Process	Arrival Time	Execution Time	Service Time
P0	1	14	10
P1	2	9	5
P2	3	22	9
P3	4	12	12

- b) Solve using FCFS, SJN. Calculate waiting time of all process, average waiting time, turnaround time and average turnaround time.

Process	Arrival Time	Burst Time
P1	1	12
P2	2	9
P3	3	19
P4	4	15

- c) Solve example using Round Robin and Priority. Quantum = 3. Calculate waiting time of P0, P1, P2, P3 and average waiting time.

Process	Arrival Time	Execution Time	Priority
P0	1	7	3
P1	2	5	1
P2	3	2	2
P3	4	12	2

- d) Consider the following reference string as an example for better understanding of LRU algorithm.

7 0 1 2 0 3 0 4 2 3 0 3 2
 1 2 0 1 7 0 1

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