

Please check that this question paper contains 9 questions and 2 printed pages within first ten minutes.

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MORNING

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Uni. Roll No.

03 OCT 2023

Program: B.Tech. (Batch 2018 onward)

Semester: 4th

Name of Subject: Operating Systems

Subject Code: PCCS-105

Paper ID: 16215

Time Allowed: 03 Hours

Max. Marks: 60

NOTE:

- 1) Parts A and B are compulsory
- 2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
- 3) Any missing data may be assumed appropriately

Part – A

[Marks: 02 each]

Q1.

- a) Demonstrate hard and soft real time systems with one example of each
- b) Explain various ways to handle a page fault
- c) State objective of Multi Programming and Multi-Tasking
- d) Illustrate the terms UFD and MFD
- e) Write a brief note on Segmentation scheme of memory management
- f) Differentiate between Pre-emptive and Non-Pre-emptive Scheduling

Part – B

[Marks: 04 each]

- Q2.** Outline different file attributes and operations. Explain in detail about various ways of accessing disk storage
- Q3.** Justify, “Reformatting is Possible without Data Loss”? Also discuss Recovery of Data from a Formatted Disk
- Q4.** Demonstrate a term Thread. What resources are used when a thread is created? How do they differ from those used when a process is created?
- Q5.** Compare with neat and clean diagram internal and external fragmentation
- Q6.** Interpret deadlock, also explain the Resource-Allocation-Graph algorithm for deadlock avoidance
- Q7.** Distinguish between Job Scheduling and CPU Scheduling with its different types

- Q8. Illustrate Layered Architecture of operating systems, including its various categories, and additionally, discuss the concept of the Kernel and its diverse classifications

OR

Consider the following table:

Process	Arrival Time	CPU burst Time
P1	0	7
P2	1	3
P3	1	2
P4	2	8
P5	2	4

Find out average turnaround time and average waiting time using

- SJP Pre-emptive scheduling algorithm
 - First come first served
 - Round Robin algorithm with time quantum of 3 units
- Q9. Compare FCFS, SSTF, SCAN, C-SCAN, Look and C-Look disk scheduling algorithms.

Solve the given problem

A disk queue with requests for I/O to blocks on cylinders

23, 89, 132, 42, 187

With disk head initially at 100

Solve it with FCFS, SSTF, SCAN, C-SCAN and LOOK

OR

Write a note on -

- File allocation methods
- Virtual Memory and the benefits of virtual memory technique
