Question Paper Code	11699

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV/DEC 2022
Fourth Semester
Computer Science and Engineering
20CSPC401 - OPERATING SYSTEMS
(Common to Information Technology & Third Semester - Artificial Intelligence and Data Science)
(Regulations 2020)

Duration: 3 Hours   Max. Marks: 100

PART - A (10 × 2 = 20 Marks)
Answer ALL Questions

		Marks, K-Level, CO
1.	How would you define kernel?	2,K2,CO1
2.	List the advantages of DMA Controller.	2,K1,CO1
3.	Distinguish between pre emptive and non-preemptive scheduling.	2,K2,CO2
4.	List the CPU scheduling algorithms.	2,K1,CO2
5.	Quote why the page sizes are always power of 2.	2,K1,CO4
6.	List out the two differences between logical address and physical address.	2,K1,CO4
7.	State why rotational latency is not considered in disk scheduling?	2,K1,CO5
8.	Compare blocking and non-blocking I/O system.	2,K2,CO5
9.	State the various components of Linux system.	2,K1,CO6
10.	Outline the features of COCOA Touch.	2,K1,CO6

PART - B (5 × 13 = 65 Marks)
Answer ALL Questions

11. a) Illustrate with an example about the operating systems services.   13,K2,CO1

OR

b) Explain in detail about operating system call and system program with example.   13,K2,CO1

12. a) Consider the following set of processes with the length of the CPU burst time given in milliseconds: 13,K2,CO2

Process	Burst Time	Priority
P1	10	3
P2	29	1
P3	3	4
P4	7	5
P5	12	2

Processes are assumed to have arrived in the order P1,P2,P3,P4 and P5 at time 0

     1. Draw 4 Gantt Charts for FCFS, SJF, Non preemptive priority (smaller priority number implies higher priority and RR (quantum=10 milliseconds) scheduling.

     2. What is the turnaround time of each process for each of the above algorithms?

     3. What is the waiting time of each of the scheduling algorithms?

     4. Which algorithm results in minimum average waiting time?

OR

b) Describe the differences among short- term, medium-term and long-term scheduling with suitable example.   *13,K2,CO2*

13. a) What is paging? Explain the segmentation of paging with neat diagram.   *13,K1,CO4*

OR

b) Identify and describe in detail page replacement algorithms with examples.   *13,K1,CO4*

14. a) Discuss briefly about directory structures with its types.   *13,K2,CO5*

OR

b) Describe indexed file, indexed sequential file organization.   *13,K2,CO5*

15. a) Explain briefly about management of physical memory in Linux systems.   *13,K2,CO6*

OR

b) Explain the architecture of an android operating system with neat diagram.   *13,K2,CO6*

PART - C (1 × 15 = 15 Marks)

16. a) Explain in detail about different methods of deadlock prevention with an example.   *15,K2,CO3*

OR

b) Discuss in detail about various classical problems of synchronization.   *15,K2,CO3*