LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – COMPUTER SCIENCE

SIXTH SEMESTER – APRIL 2022

16/17/18UCS6MC04 – OPERATING SYSTEM

Date: 22-06-2022   Dept. No.   Max. :100 Marks
Time: 01:00-04:00

PART A   (10x2=20 marks)

Answer all the questions:

1. Define Operating System. List the functions of Operating System.

2. What is a virtual machine?

3. What is Cooperating Processes?

4. Define deadlock. What are the three methods for handling deadlock?

5. Define preemptive and non preemptive scheduling.

6. Define Semaphore.What are two primitive semaphore operations.

7. What is the role of Resource Allocation Graph?

8. Define page table.

9. What are the attributes of a file?

10. Write note on file structures

PART B   (5x8=40 marks)

Answer all the questions:

11 a) Explain the services provided by an operating system.

OR

b) Illustrate the states of processes with neat diagram.

12. a). Define a process control block. What are its contents? Explain.

OR

b) Write short note on Deadlock Characterization. Explain deadlock prevention in detail.

13. a) With a diagram discuss the steps involved in handling a page fault.

OR

b). Explain paging and segmentation with diagram.

14. a) Explain the function of demand paging with neat diagram.

OR

b) Discuss the following page replacement algorithm with an example
   i) Optimal ii) LRU

15 a) Describe various I/O hardware feature with example.

OR

b) Briefly explain different file access methods.

PART C   (2x20=40 marks)

Answer any two questions:

16. a) What is System call? Write and explain the sequence of system calls for copying a file to another

(new) file.

b)Analyse the functions of inter process communication scheme.

17. Consider the following set of processes with the length of the CPU-burst time given in milliseconds:

Process   burst Time

P1	10
P2	1
P3	2
P4	1
P5	5

Find the average waiting time and draw Gantt chart using FCFS, Shortest-Job-First (SJF, non preemptive) and RR (quantum = 1)

18. a) Name the different file allocation methods. Explain the linked allocation of file implementation with merits and demerits.

b) Explain FCFS and SCAN disk scheduling algorithms.

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