SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN (AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai — 600 044.
B.Sc. END SEMESTER EXAMINATIONS NOVEMBER-2022
SEMESTER - V
20UCSCT5006 - Operating Systems

Total Duration : 2 Hrs 30 Mins. **Total Marks : 60**

Section A

Answer any **SIX** questions $(6 \times 5 = 30$ Marks)

1. Show the various operating system interrelated services.
2. Illustrate the various features of Interprocess communication.
3. Present the Readers-Writer problem in process synchronisation.
4. Give an example of a simple resource deadlock involving three processes and three resources. Sketch the appropriate resource allocation graph
5. Explain the following concept.
   (i) Memory Allocation (ii) Fragmentation
6. Illustrate the paging concept in memory management.
7. How will we implement the virtual memory through demand paging.
8. List out the various File operations.

Section B

Answer any **THREE** questions $(3 \times 10 = 30$ Marks)

9. Classify the various Operating System Structure.
10. Consider the following snapshot of a system

	Allocation	**Max**	**Available**
	ABCD	**ABCD**	**ABCD**
P0	0 0 1 2	0 0 1 2	1 5 2 0
P1	1 0 0 0	1 7 5 0	
P2	1 3 5 4	2 3 5 6	
P3	0 6 3 2	0 6 5 2	
P4	0 0 1 4	0 6 5 6	

Answer the following question using the banker's algorithm:
a) What is the content of the 'NEED' matrix?
b) Is the system in a safe state? If Yes, then what is the safe sequence?

Contd...

11. Determine the concept of segmentation in memory management.
12. Compare the following replacement algorithm.
    (a) Optimal Page Replacement (b) FIFO
13. Discuss the types of disk memory allocation methods.

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