Nagarjuna Degree College
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Reg. No.

III Semester B.C.A. Degree Examination, March/April - 2023
COMPUTER APPLICATIONS
Operating System
(CBCS Scheme)
Paper : BCA 305 T

Time : 3 Hours

Maximum Marks : 100

Instructions to Candidates:

Answer all the sections.

SECTION - A

I. Answer any **Ten** of the following. Each question carries 2 marks. (10×2=20)

1. Define operating system. Give two examples.
2. Define process.
3. What is a thread?
4. Define aging.
5. What is pre - emptive scheduling?
6. What is thrashing?
7. Mention any two functions of operating system.
8. Explain multi - programming system.
9. What is a system call?
10. Define Deadlock.
11. Mention the responsibilities of memory management?
12. Explain the terms swap in and swap out.

SECTION - B

II. Answer any **Five** of the following. Each question carries 5 marks. (5×5=25)

13. Explain services provided by the operating systems.
14. Explain process state with a neat diagram.
15. Discuss the functions of file management.
16. Explain the difference between local and global allocations.
17. Explain steps involved in page replacement.
18. Explain the methods of handling deadlock.

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19. What is paging? Explain page fault.

20. Write a short note on virtual machine.

SECTION - C

III. Answer any **Three** of the following. Each question carries **15** marks.   (3×15=45)

21. Explain types of operating system. Mention its advantages and services.

22. Explain the inter process communication in detail.

23. What is process synchronization? Explain producer consumer problem using semaphores.

24. a) Explain Banker's algorithm.   **(10)**

    b) Briefly explain deadlock recovery.   **(5)**

25. Explain the disk scheduling algorithms SCAN, Look and C-look with suitable graphs.

SECTION - D

IV. Answer any **One** of the following. Each question carries **10** marks.   (1×10=10)

26. Consider the following set of processes with the length of the CPU burst time given in MS.

Process	Burst time	Priority
P_1	5	2
P_2	1	4
P_3	2	3
P_4	6	1
P_5	8	3

The process are assumed to have arrived in the order P_1, P_2, P_3, P_4 and P_5 all at time 0 (zero).

i. Draw four Gantt chart illustrating the execution of these processes using FCFS, SJF, and non - pre - emptive priority.

ii. What is the turnaround time and waiting time of each process in the entire scheduling algorithm mentioned above.

27. Consider the reference string.

7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7.

Find the page fault rate using FIFO page replacement algorithm.