

MCA 2nd Semester Examination, 2025

MCA

(Advanced Operating System Lab.)

(Practical)

PAPER – MCA-207

Full Marks : 100

Time : 4 hours

Answer all questions

The figures in the right hand margin indicate marks

Candidates are required to give their answers in

their own words as far as practicable

Answer any two questions selecting it by lucky draw

35 × 2

- 1. Write a shell program to find the reverse of a number.**

(Turn Over)

2. Demonstrate using a program how can you duplicate a Program's Process using fork().
3. Write a program to print process id of a process and its parent process id also. Execute the program three times and write its output.
4. Write C program to simulate the FCFS CPU scheduling algorithm and compute average waiting and turnaround times using the given processes with arrival times and burst times :

Process	Arrival Time	Burst Time
P1	0	5
P2	1	3
P3	2	8
P4	3	6

5. Write a C program to simulate the page replacement using FIFO algorithm and count the number of page faults for the given a sequence of page requests : 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2 and 3 available frames.

6. Write a C program to simulate the Best Fit contiguous memory allocation technique and show the final allocation for the given memory blocks and process sizes :

Memory blocks : 100 KB, 500 KB, 200 KB,
300 KB, 600 KB

Process sizes : 212 KB, 417 KB, 112 KB,
426 KB.

7. Write C program to simulate the non-pre-emptive SJF scheduling and find the average waiting time and turnaround times using the given the following processes and their burst times :

Process	Burst Time
P1	6
P2	8
P3	7
P4	3

8. Write a program to create a new process using system () that displays the processes running on your system.
9. Write C program to simulate the Round Robin CPU Scheduling algorithm using a time quantum of 2 units and compute average waiting and turnaround time.

Process	Burst Time
P1	10
P2	5
P3	8

10. Write a C program to simulate the page replacement using LRU algorithm and count the number of page faults for the given a sequence of page requests : 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2 and 3 available frames.

11. Write a C program to simulate the First Fit contiguous memory allocation technique and show the final allocation for the given memory blocks and process sizes :

Memory blocks : 100 KB, 500 KB, 200 KB,
300 KB, 600 KB

Process sizes : 212 KB, 417 KB, 112 KB,
426 KB.

12. Write a shell program to check a file is exist or not and if it exists then display its type.

13. Write a shell program to check a string is palindrome or not

14. Write a program to create a new child process using fork() and display list of files and parent process should wait for the completion of child.

15. Write a program to create a Zombie Process.

Marks Distribution

Program code	:	$20 \times 2 = 40$ Marks
Execution of program:		$10 \times 2 = 20$ Marks
Results	:	$5 \times 2 = 10$ Marks
Viva-voce	:	20 Marks
Laboratory Note Book :		10 Marks
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Total	:	100 Marks
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