



**Department of Computer Applications**

**Programme: MCA**

**Course: CA719-OPERATING SYSTEMS LAB (A & B-Batch)**

**Even semester (II-SEM) [July 2023-24]**

**CYCLE SHEET - I**

1. Study of basic commands in Linux.
2. Write a shell script to read three numbers from standard input and print the minimum value and maximum.
3. Write a shell script to swap two numbers without using 3rd variable.
4. Write a shell script to read the marks of a Student and print the grade.
5. Write a shell script to read two integer numbers and perform basic arithmetic operations based on user's choice (use 'case' structure).
6. Write a shell script to find the sum of first 'N' Natural Numbers (use 'while' structure)
7. Write a shell script to find the sum of first 'N' numbers in Fibonacci series (use 'for' structure)
8. Write a shell script to print a given number in reverse order and sum of the individual digits.
9. Write a shell script to read two strings and display whether it is equal, not equal, null strings or string with special characters.
10. Write a shell script to accept one integer argument and print its multiplication table.
11. Write a shell script, which accepts any number of arguments and prints them in the Reverse order. (For example, if the script is passed A B C as arguments, then execution should produce C B A on the standard output).
12. Write a Shell Script that makes use of grep to isolate the line in /etc/passwd that contains your login details.
13. Write a shell script to display all files in the /home/YourLoginName subdirectory as well as display the type of all files.

14. Using shell script, display the contents of the present working directory. If it is an ordinary file print its permission and change the permissions to r--r--r--.
15. Use find, grep and sort to display a sorted list of all files in the /home/YourLoginName subdirectory that contains the word "hello" somewhere inside them.
16. Write a shell script to produce a list of users and their login shells.

### CYCLE SHEET - II

17. Write a C program to kill a process by specifying its name rather than its PID.
18. Create a file with few lines, write a C program to read the file and delete the spaces more than one in the file (use UNIX file API's).
19. Implement a C program to list the users who have logged in more than once.
20. Write a C program which renames all .txt files as .text files.
21. Implement a C program that reports the number of file names in the current working directory that consist of exactly five characters.
22. Write Programs to
  - a) Report the behaviour of the OS to get the CPU type and model, kernel version.
  - b) Get the amount of memory configured into the computer, amount of memory currently available.
23. Write a program to create child process and display the process ID of parent and child processes.
24. Write a program to demonstrate the implementation of Inter Process Communication (IPC) "who | grep YourLoginName" using pipes.
25. Write a program to demonstrate the implementation of Inter Process Communication (IPC) using Message Queues.
26. Write a program to demonstrate the implementation of Inter Process Communication (IPC) using shared memory.
27. Write a program to create a thread and let the thread check whether the given number is prime or not.
28. Implement FCFS, SJF, Priority and Round– Robin process scheduling algorithms.
29. Write a program to perform a tidy exit on receipt of an interrupt signal.
30. Implement a) Binary Semaphore b) Counting Semaphore.

31. Write a program to demonstrate the implementation of Producer and Consumer problem.
32. Write a program to implement Reader – Writer's problem.
33. Write a program to implement Dining Philosopher's problem. Implement Banker's algorithm.
34. Implement the First Fit, Best Fit and Worst Fit file allocation strategy.
35. Implement FIFO, Optimal, LRU and LFU page replacement algorithms.

**!!! ALL THE VERY BEST!!!**

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