**TKM College of Engineering, Kollam**

**Department of Computer Science and Engineering**

B.Tech S4 CSE (KTU)

Operating System Lab- Cycle Questions

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| Cycle 1 | |
| 1.1 | Familiarization of Linux basic commands and directory structure, execute file, directory operations |
| 1.2 | Linux commands for redirection, pipes, filters, job control, file ownership, file permissions, links and file system hierarchy |
| 1.3 | Basics of Shell Programming:   1. Write a shell script program to perform arithmetic operations on two numbers. 2. Write a shell script program demonstrate use of command line parameters in shell script(script name, total parameters, each parameter) 3. Write a shell script program to check whether two strings sent as command line arguments are same or not using test command. 4. Write a shell script program to read a particular name and check whether it is a file or directory. 5. Write a shell script menu driven program to implement a simple calculator. 6. Write a shell script program to count the number of files in the current directory beginning with the specified character. 7. Write a shell script program to read the lines from one file and store them into another file after converting all the vowels from first file into uppercase. 8. Write a shell script program that accepts the name of the user and prints the entered name in reverse and also print the length of the entered name. 9. Write a shell script program consider a file school.dat with the following fields. Rollno, name and marks. Write a shell script program to sort the file in descending order of marks. 10. Write a shell script program to copy content of file1 to file2. If file2 exists then append the content of file1 to its original file. 11. To write a shell script using for loop to print the following patterns on screen.   1  22  333  4444  55555   1. Write shell script to show various system configuration like    1. Currently logged user and his logname    2. Your current shell    3. Your home directory    4. Your operating system types    5. Your current path setting    6. Your current working directory    7. Show Currently logged number of users 2. Write shell script to show various system configuration like    1. [About your OS and version, release number, kernel version](http://www.ktustudents.in/)    2. Show all available shells    3. Show mouse settings    4. [Show computer CPU information like processor type, speed etc](http://www.ktustudents.in/)    5. Show memory information    6. Show hard disk information like size of hard-disk, cache memory, model etc    7. File system (Mounted) 3. Write a script called addnames that is to be called as follows, where *classlist* is the name of the classlist file, and *username* is a particular student's username.   The script should   * + check that the correct number of arguments was received and print an usage message if not,   + check whether the classlist file exists and print an error message if not,   + check whether the username is already in the file, and then either   + print a message stating that the name already existed, or   + add the name to the end of the list. |
|  | **CYCLE 2** |
| 2.1 | Familiarization of various system calls in LINUX operating system  fork, exec, getpid, exit, wait, close, stat, opendir, readdir   1. Program to accept the limiting value ‘n’as input and generate the Fibonacci sequence of n numbers using the child process while the parent process generate the first n prime numbers 2. Generate an N level hierarchy of processes and also display the parent id of process.      1. Write a program to create four processes (1 parent and 3 children) where they terminate in a sequence as follows:   (a)Parent process terminates at last (b) First child terminates before parent and after second child. (c) Second child terminates after last and before first child. (d) Third child terminates first. |
| 2.2 | Write programs using the I/O system calls of Linux operating system (open, read, write) |
| 2.3 | Implement programs for Inter Process Communication using Shared Memory   1. Write a program to read details of n students in one process and display rank details of students in another process using shared memory |
| 2.4 | Implement Producer consumer problem using semaphores. |
| **2.5** | Implementation of CPU scheduling algorithms. a) Round Robin b) SJF c) FCFS d) Priority (Both Pre-emptive and Non-pre-emptive)   * 1. Given the list of processes, their CPU burst times and arrival times, display/print the Gantt chart for FCFS and SJF. Round robin, priority. For each of the scheduling policies, compute and print the average waiting time and average turnaround time |
| **CYCLE 3** | |
| 3.1 | Implementation of the Memory Allocation Methods for fixed partition  a) First Fit b) Worst Fit c) Best Fit |
| 3.2 | Implementation of the Memory Allocation Methods for fixed partition a) First Fit b) Worst Fit c) Best Fit |
| 3.3 | Implement page replacement algorithms a) FIFO b) LRU c) LFU |
| 3.4 | Implement the banker’s algorithm for deadlock avoidance |
| 3.5 | Simulate disk scheduling algorithms.   1. FCFS b)SCAN c) C-SCAN |
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