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B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

August 2024 Supplementary Examinations

Programme: B.E. **Semester: V**
Branch: Computer Science and Engineering **Duration: 3 hrs.**
Course Code: 20CS5PCUSP **Max Marks: 100**
Course: Unix Shell and System Programming

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

UNIT - I

1 a) Explain with a neat diagram the kernel and shell relationship in Unix operating system. **05**

b) Explain how to display and set the terminal characteristics of UNIX. What will you do to ensure that [Ctrl-c] interrupts any program? Will it work the next time you log in? **05**

c) Discuss different file types in UNIX Operating System. **05**

d) Describe the significance of the following commands **05**
- mv $HOME/include.
- cp -r bar1 bar2
- rm new*
- cat foo
- cmp foo1 foo2

UNIT - II

2 a) Write a shell script to check whether the entered two strings are equal or different, also check whether the length of both strings are greater than 0. **10**

b) Explain with example set and shift commands in UNIX to manipulate positional parameters. **05**

c) Illustrate with an example the use of Here document (<<) with an example. **05**

OR

3 a) Write a shell script that receives any number of file names as arguments checks if every argument is a file or directory, if it is a file then print no of lines in it. **10**

b) Write an interactive file-handling shell program. The program should give the user the choice (use-case) for listing files copying, removing, and renaming. Once the user makes a choice, the program, should ask the user for the necessary information, such as the file name, new name and so on. **10**

UNIT - III

4 a) Discuss about file permissions and explain the use of chmod to change file permissions using both absolute and relative methods **05**

b) Analyze the effect of the following commands: **05**

- grep -i “hello”
- egrep “UNIX|Unix|unix” file1
- grep “UNIX$” file1
- ls | grep '.*\(txt\|jpg\)'
- $ls –l |grep “^-”

c) Describe different types of links and discuss the command used to create the links. **05**

d) Write a shell program to display the alternate digits in a given 7 digit number starting from the first digit. **05**

UNIT - IV

5 a) Implement in C the following Unix commands using system calls **10**

i) cat
ii) mv

b) Write a C program that takes one or more file/directory names as command line input and reports following information **10**

- File Type
- Number Of Links
- Time of last Access
- Read, write and execute permissions

UNIT - V

6 a) Describe with a neat diagram, how a C program is started and the various ways in which it terminates? **05**

b) Write a C program to create a child process and allow a parent process to display “parent” and the child to display “child” on the screen. **10**

c) Demonstrate Setjump and longjump function with an example program. **05**

OR

7 a) Define FIFO. With a neat diagram, explain client -server communication using a FIFO **10**

b) Write a C program to demonstrate a pipe between a parent and its child and to send data down the pipe. Send data from parent to child over a pipe. **10**

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