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

Autonomous Institute Affiliated to VTU

September / October 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 the UNIX architecture with a neat diagram and distinguish between external and internal commands. **10**

b) Discuss the use of the following commands: **10**
i) rm
ii) od
iii) cat
iv) file
v) echo

UNIT - II

2 a) Discuss case conditional operation and write a Shell script to perform all arithmetic operations on two integer data. **10**

b) Describe the string handling facilities of expression with syntax and relevant example for the following: **10**
i) Determine length of the string.
ii) Extract a sub string.
iii) Locate the position of a character in a string.

OR

3 a) Demonstrate the usage of the following commands: **10**
i) test
ii) set
iii) shift

b) Write a menu driven program which has the following option: **10**
i) Contents of/etc/password
ii) List of users who have currently logged in
iii) Present working directory
iv) Exit

UNIT - III

4 a) Discuss about hardlink and its limitations and explain how softlink overcomes the limitations of hardlink. **10**

b) Explain the fields displayed by ls-l command and write a Shell scrit to display the name of file according to their sizes. **10**

UNIT - IV

5 a) What does POSIX stands for? Write a C/C++ program that prints the POSIX defined configuration options supported on any given systems using POSIX feature test macros. **10**

b) Explain the file locking process on regular files. Differentiate between the following: **10**

i) Exclusive lock and Shared lock
ii) Lock Promotion and Lock Splitting

UNIT - V

6 a) Explain memory layout of a C program with an example. **10**

b) Define FIFO. Demonstrate client server communication using a FIFO with a neat diagram. **10**

OR

7 a) Differentiate between the following and explain with its syntax and example: **10**

i) fork() and vfork()
ii) wait() and waitpid()

b) Write a C program that illustrates the creation of child process using fork(). The parent process finds sum of even series and is put to sleep for 3 seconds. The child process finds sum of odd series. **10**

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