

CBCS SCHEME

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18CS56

Fifth Semester B.E. Degree Examination, Jan./Feb. 2023

UNIX Programming

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Compare internal commands and external commands, files and processes. (06 Marks)
- b. Explain all the features of UNIX operating system. (09 Marks)
- c. Write the output for the following commands :
 - i) cal 10 2021
 - ii) date +"%D%T"
 - iii) type echo
 - iv) passwd
 - v) who. (05 Marks)

OR

- 2 a. Explain the different categories of files with examples. (06 Marks)
- b. Describe the parent child relationship in UNIX file system and differentiate absolute pathnames with relative path names. (06 Marks)
- c. Write the description for the following commands:
 - i) mkdir college college/ISE college/CSE
 - ii) mV f₁.C f₂.C f₃.C cprogs
 - iii) if my pwd is /home/ravi/progs then Cd ../..
 - iv) ls -l | wc -l
 - v) cp f₁ f₂ f₃ files
 - vi) rm -r chap1
 - vii) cat >> test.txt
 - viii) mkdir college/ISE (08 Marks)

Module-2

- 3 a. Explain all the options of ls commands with examples. (06 Marks)
- b. Consider a file test.txt with default permissions as -rw - r - - r - -, grant execute permission to owner, write and execute permission to group members and execute permission to others using both relative and absolute approaches. (04 Marks)
- c. Write the output for the following commands.
 - i) cp ???? progs
 - ii) rm 'chap*'
 - iii) mV *.[!C][!P][!P] progs
 - iv) cat *.txt | wc -C
 - v) cp chap\[0 - 1\]. (05 Marks)
- d. Explain the grep command with all its options. (05 Marks)

OR

- 4 a. Write a program to read pattern and filename from the user and search the pattern in the given file. (05 Marks)
- b. Write the output for the following commands.
- grep "Anil" std.lst || echo "pattern not found"
 - test \$x -gt \$y
 - [-Z \$stg]
 - [-r \$file]
 - [!- n \$stg]
- (05 Marks)
- c. Explain all the looping statements with syntax. (06 Marks)
- d. Write a shell script to read multiple patterns from the command line and search these patterns in the given file which is also read from command line by using shift command. [Ex. Command line arguments as below #>script.sh pat₁ pat₂ pat₃ pat₄ pat₅]. (04 Marks)

Module-3

- 5 a. Explain the General File API's open(), read(), write(), lseek() with their prototype. (10 Marks)
- b. Describe the memory layout of a C program with a diagram and explain memory allocation API's with their prototypes. (10 Marks)

OR

- 6 a. Explain setjmp and longjmp, getrlimit and setrlimit function with examples. (10 Marks)
- b. Describe how the process is created by using fork() and vfork(). List out the properties inherited from the parent when the child process is created? (10 Marks)

Module-4

- 7 a. Explain the implementation of system function using fork(), exec(), wait() API's. (10 Marks)
- b. Define pipes, write a program to send data from parent to child using pipe API and also list its limitations. (10 Marks)

OR

- 8 a. Define semaphores and explain how the IPC is implemented using various semaphore API's. (10 Marks)
- b. Explain the implementation of shared memory IPC mechanism with all its API's and their prototypes. (10 Marks)

Module-5

- 9 a. Define signal and list the actions taken by a process when the signal is raised. Explain the signal API's signal(), sigset(), sigaction(). (10 Marks)
- b. Explain how kill API is used for sending a signal to a process and explain the implementation of sleep API using alarm API. (10 Marks)

OR

- 10 a. Define the Daemon process. Explain all the coding rules to be followed while coding a daemon process. (10 Marks)
- b. Write a note on interval timer. (05 Marks)
- c. Explain the BSD syslog facility for handling Daemons error messages. (05 Marks)
