

GBCS SCHEME



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18CS56

Fifth Semester B.E. Degree Examination, July/August 2021

UNIX Programming

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions.

- 1 a. With a neat diagram, describe the architecture of UNIX operating system. (08 Marks)
b. Explain the following commands with example for each i) cat ii) mv iii) cp iv) wc. (08 Marks)
c. Explain the different types of files supported by UNIX operating system. (04 Marks)
- 2 a. With a neat diagram, describe the parent-child representation for file organization of UNIX OS. (08 Marks)
b. Differentiate absolute path names and relative path names with example for each. (08 Marks)
c. Describe the importance of “root” and “su” command. (04 Marks)
- 3 a. With a neat diagram, describe the Shell’s interpretive life cycle. (08 Marks)
b. Define File Permission. Explain the relative and absolute mode of using “chmod” command with example for each. (08 Marks)
c. Describe “chown” and “chgrp” command with example for each. (04 Marks)
- 4 a. Define Extended Regular Expression (ERE). Describe any four ERE used by grep and egrep. (10 Marks)
b. With example for each. Explain standard input and standard output with redirection. (10 Marks)
- 5 a. With a neat diagram, describe the Memory Layout of a ‘C’ program. (08 Marks)
b. List and explain any four regular File API’s. (08 Marks)
c. Define the following :
i) Read lock
ii) Write lock
iii) Mandatory lock
iv) Advisory lock. (04 Marks)
- 6 a. With a neat block diagram, explain the process of launching and termination indicating role of C-startup routine and exit handlers. (08 Marks)
b. Explain the following system calls :
i) fork() ii) vfork() iii) exit() iv) waitpid(). (08 Marks)
c. Define race condition. Write a ‘C’ program to demonstrate the race condition. (04 Marks)
- 7 a. With the help of structure of accounting records defined in <sys/acct.h>. Describe the process accounting supported by UNIX OS. (10 Marks)
b. Define Interprocess Communication (IPC). List the different approaches supported by UNIX OS for InterProcess communication with explanation for any three. (10 Marks)
- 8 a. Define pipes. Explain the Popen and Pclose function with example for each. (10 Marks)
b. Describe the semaphore and shared memory approaches for Inter Process Communication (IPC). (10 Marks)

- 9 a. Define Signal. List and explain the conditions that generate signals. (10 Marks)
b. List and describe the disposition/action taken for the occurrence of a signal. (06 Marks)
c. Describe the purpose of the following signals along with the default action for each : (04 Marks)
i) SIGPOLL ii) SIGPWR iii) SIGXCPU iv) SIGXRES.
- 10 a. Define Daemon process. Describe the characteristics of Daemon process. (08 Marks)
b. With a neat diagram, describe the error handling with respect to daemon process. (08 Marks)
c. List and explain the conventions followed with respect to daemon process. (04 Marks)

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