

CBCS SCHEME

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18CS56

Fifth Semester B.E. Degree Examination, Jan./Feb. 2021 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. Explain with a neat diagram a architecture of UNIX operating system. (10 Marks)
- b. List and explain the silent features of UNIX operating system. (10 Marks)

OR

- 2 a. What is a parent child relationship? With the help of neat diagram, explain UNIX file system. (06 Marks)
- b. Explain any five file related commands with an example. (10 Marks)
- c. With suitable example, bring out the differences between absolute and relative pathnames. (04 Marks)

Module-2

- 3 a. Which command is used for listing of file attributes? Explain the significance of each field. (08 Marks)
- b. File current permissions are `rw_r_xr__` specify `chmod` expression required to change for the following using both relative and absolute methods:
(i) `rwrxrwxrwx` (ii) `r__r_____` (iii) `_____`
(iv) `___r__r__` (v) `_____x_w__` (10 Marks)
- c. What is a shell? Briefly give the shell interpretive cycle. (02 Marks)

OR

- 4 a. With the help of an example, explain `grep` command with all the options. (10 Marks)
- b. Explain three standard files supported by UNIX. (06 Marks)
- c. What is the output for the following:
(i) `ls [ijk]*doc` (ii) `[A-Z]????*` (iii) `*.[!s][!h]` (iv) `*[!0-9]` (04 Marks)

Module-3

- 5 a. Describe general UNIX file API's with syntax and explain each field in detail. (10 Marks)
- b. Explain with a neat diagram memory layout of a C program and briefly discuss the different functions used for memory allocation. (10 Marks)

OR

- 6 a. Explain the UNIX Kernel support for process considering parent – child process show the related data structures. (10 Marks)
- b. Bring out the differences between `fork` and `vfork` functions. (05 Marks)
- c. Explain `getrlimit` and `setrlimit` function with prototype. (05 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-4

- 7 a. Explain setuid and setgid functions with example and explain various ways to change user ids. (06 Marks)
- b. What are pipes? What are its limitations? Write a program to send data from parent to child over a pipe. (08 Marks)
- c. What are Interpreter Files? Give the difference between interpreter files and interpreter. (06 Marks)

OR

- 8 a. What is a FIFO? With a neat diagram, explain client server communication using FIFO. (08 Marks)
- b. What are stream pipe? What are the different ways to view stream pipes? (04 Marks)
- c. Explain briefly with example: (i) message queue (ii) semaphores (08 Marks)

Module-5

- 9 a. What are signals? Mention different source of signals? Write a program to setup signal handlers for SIGINIT and SIGALRM. (10 Marks)
- b. What are Daemon-process? Enlist their characteristics. Also write a program to transform a normal user process into a Daemon process. (10 Marks)

OR

- 10 a. Explain the kill() API and alarm() API. (10 Marks)
- b. Explain the Sigsetjmp and Siglongjmp functions with an example. (10 Marks)
