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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) rwxrwxrwx   (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 Kernal 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)

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 alaram( ) API. (10 Marks)

b. Explain the Sigsetjmp and Siglongjmp functions with an example. (10 Marks)

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