USN [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]   **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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