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18CS56

Fifth Semester B.E. Degree Examination, Dec.2023/Jan.2024
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 block diagram, architecture of UNIX operating system. **(08 Marks)**
   b. What is a parent child relationship? With the help of neat diagram, explain UNIX file system. **(06 Marks)**
   c. Explain the commands to add, modify and delete a user. **(06 Marks)**

OR

2 a. List and explain the silent features of UNIX operating system. **(08 Marks)**
   b. What are internal and external commands in UNIX? Explain with any two examples in each type command used to identify whether command is internal or external command. **(06 Marks)**
   c. In brief explain the following commands with example :
      i) car ii) mv   iii) wc   iv) od. **(06 Marks)**

Module-2

3 a. Using both relative and absolute methods of assigning permissions. Files current permissions are rw - - w - r - - . Write chmod expressions required to change them for the following :
      i)   r - - r - - - - x
      ii) rwxrwx - - x
      iii) r - xr - xr - x
      iv) rwxrwxr - - . **(08 Marks)**
   b. Explain with example set and shift commands in UNIX to manipulate positional parameters. **(06 Marks)**
   c. With syntax and programming example explain while and for loops. **(06 Marks)**

OR

4 a. Which command is used for listening of file attributes? Explain the significance of each field. **(08 Marks)**
   b. Write syntax of grep command and explain any five options of grep command. **(06 Marks)**
   c. In detail discuss the three standard file supported by UNIX. **(06 Marks)**

Module-3

5 a. Explain with a neat diagram memory layout of a C program and briefly discuss the different functions used for memory allocation. **(10 Marks)**
   b. Explain the following general APIs along with syntax :
      i) open   ii) create iii) read iv) write   v) close. **(10 Marks)**

OR

6 a. With a neat block diagram, explain how a C program is started and how it terminates. (10 Marks)
  b. Explain getrlimit and setrlinit function with prototype. (06 Marks)
  c. Define race condition. Write a 'C' program to demonstrate the race condition. (04 Marks)

Module-4

7 a. What are pipes? What are its limitations? Write a program to send data from present to child over a pipe. (10 Marks)
  b. Briefly explain the semaphore. Explain following APIs with prototype :
     i) semget( )   ii) semetl   iii) semop. (10 Marks)

OR

8 a. What is a FIFO? Writ uses of FIFO with a neat diagram, explain client server communication using FIFO. (08 Marks)
  b. Explain the following APIs with prototype :
     i)   Setreuid( ) and setregid( )
     ii) System( ). (08 Marks)
  c. Briefly explain job control. (04 Marks)

Module-5

9 a. With a neat diagram, explain the BSD syslog facility daemon process. (10 Marks)
  b. Explain the following APIs with prototype :
     i)   Siprocmask
     ii) Sigaction. (10 Marks)

OR

10 a. What are daemon process List the coding rules. (10 Marks)
   b. Explain the following APIs with prototype
      i)   Sigsetjmp and siglongjmp
      ii) Kill( ). (10 Marks)

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