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201602

May, 2019
B.Tech. (CE) - VI SEMESTER
UNIX & SHELL PROGRAMMING (CE-304-C)

Time : 3 Hours]   [Max. Marks : 75

Instructions :

1. *It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.*

2. *Answer any four questions from Part-B in detail.*

3. *Different sub-parts of a question are to be attempted adjacent to each other.*

4. *Explain your answers with diagrams wherever necessary.*

PART–A

1. (a) What are the basic features possessed by UNIX operating system. (1.5)

    (b) Discuss various shell wild cards. (1.5)

    (c) What is Shell's interpretive cycle? (1.5)

    (d) Explain the concept of Internal & External commands. (1.5)

    (e) What is the difference between the following Vi editor commands :

    :wq,   :q!,   :q (1.5)

(f) Explain the significance of following shell parameters:

$$, $?, $*   (1.5)

(g) Give description of following UNIX commands:

ls, script, who   (1.5)

(h) Give commands for the following:

(i) Print 5 to 9 lines of the file abc.txt

(ii) To find out the total number of files in the current directory

(iii) To display the current date in the format dd/mm/yy.   (1.5)

(i) What is meant by standard output file? How its redirection can be performed?   (1.5)

(j) What is password aging?   (1.5)

PART–B

2. (a) Explain in detail the structure of UNIX kernel with the help of block diagram showing all the modules and their interactions.   (8)

(b) Explain the structure of an ordinary file assuming 10 direct, 2 single indirect, 1 double indirect and 1 triple indirect block. Also calculate the maximum size of such a file.   (7)

3. (a) What are the data structures used by a demand paging system?   (5)

(b) Explain five system administration commands in detail. (5)

(c) What are various file permissions? How these permissions can be managed in UNIX? (5)

4. (a) Explain different modes of operation of Vi editor. How switching from one mode to another can be carried out? (5)

(b) Write a shell script that renames all C files having read, write and execute permissions in your current directory to the name <oldname>.<logname>, where logname is your login name. For example the file stack.c should be renamed as stack.madan, if madan is your logname. (10)

5. (a) Devise a shell script to find largest among three numbers which are supplied as the command line arguments. (5)

(b) What do you mean by pipes and filters? How are these helpful in UNIX environment? Illustrate through suitable examples. (10)

6. (a) Draw the detailed process state diagram showing all possible states. (5)

(b) How process scheduling is performed in the UNIX operating system, explain by taking suitable example. (10)

7. Discuss the difference between the following :

   (i) grep and sed.

   (ii) A process running with '&' and with 'nohup'.

   (iii) talk and write.

   (iv) cp, mv and ln.

   (v) cmp and diff. (15)