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10CS44

Fourth Semester B.E. Degree Examination, Dec.2013/Jan.2014
UNIX and Shell Programming

Time: 3 hrs. Max. Marks:100

Note: ***Answer FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. Describe briefly the major features of the UNIX operating system. **(08 Marks)**

b. Define a file. With examples, explain the three categories of files supported by UNIX. **(06 Marks)**

c. Briefly describe:
i) System calls ii) PATH iii) HOME. **(06 Marks)**

2 a. Explain the significance of all the fields of *ls –l* output. Which of the attributes can be changed only by the super user? **(08 Marks)**

b. With a neat diagram, explain the three modes of vi editor. **(06 Marks)**

c. Assuming that a file's current permissions are rw(– r – x r – –, specify the chmod expression (using both relative and absolute methods) required to change them to:
i) rwx rwx rwx
ii) r – – r – – – – –
iii) – – – r – – r – – **(06 Marks)**

3 a. Devise wild – card patterns to match filenames:
i) Comprising of atleast three characters where the first char is numeric and the last char is not alphabetic.
ii) With three character extensions except the ones with log extension.
iii) Containing 2004 as an embedded string except at the beginning or end. **(06 Marks)**

b. Explain the three distinct phases of process creation. How is the shell created? **(08 Marks)**

c. What are environment variables? Briefly describe any five of them. **(06 Marks)**

4 a. Distinguish between hard links and symbolic links with suitable examples. **(08 Marks)**

b. Describe the sort filter and illustrate its usage with –k, –u, –n, –r and –c options. **(06 Marks)**

c. i) Use find to locate all files named a.out and all C source files in your home directory tree and remove them interactively.
ii) Display only the names of all users who are logged in and also store the result in users.txt.
iii) Invoke the vi editor with the last modified file. **(06 Marks)**

PART – B

5 a. Explain with suitable examples, the sed filter along with its two forms of addressing. Also describe in brief the substitution feature provided by sed. **(08 Marks)**

b. Describe the grep filter along with any five options. **(06 Marks)**

c. i) Use sed to delete all blank lines from a file named sample.
ii) Use grep to list only the sub-directories in the current directory.
iii) Replace all occurrences of the word "UNIX" with "LINUX" in a file named sample. **(06 Marks)**

6 a. Define a shell script. What are the two ways of running a shell script? Write a shell script to accept pattern and a file and search for the pattern in the file. **(08 Marks)**

b. Explain the shell's for loop giving the possible sources of the list. **(06 Marks)**

c. Write a menu-driven shell script to perform the following:
i) List of users who are logged in.
ii) List of files in the current directory.
iii) List of processes of user.
iv) Today's date.
v) Quit to UNIX. **(06 Marks)**

7 a. Describe the awk filter with syntax and example. How are awk arrays different from the ones used in most programming languages? **(08 Marks)**

b. Explain the looping constructs supported by awk. **(06 Marks)**

c. Briefly describe the built-in functions supported by awk for arithmetic and string operations. **(06 Marks)**

8 a. With examples, explain the string handling functions supported by perl. **(08 Marks)**

b. How are split and join used in perl scripts? **(06 Marks)**

c. Write a perl script to determine whether a year is leap year or not. **(06 Marks)**

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