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06CS36

Third Semester B.E. Degree Examination, June / July 08
UNIX and Shell Programming

Time: 3 hrs. Max. Marks:100

Note : ***Answer any FIVE full questions selecting atleast TWO full questions from each part.***

PART A

1 a. With a neat diagram, explain the relationship between the kernel and shell in UNIX. **(08 Marks)**

b. Explain briefly the different types of files in an UNIX operating system. **(06 Marks)**

c. Explain the following commands with examples:
i) mkdir ii) Ls – *l* iii) echo iv) cd. **(06 Marks)**

2 a. What is file permission? What are the different ways of setting file permission? Explain. **(08 Marks)**

b. Explain the different modes of operation in a V_i editor. **(06 Marks)**

c. Explain the commands search for pattern and search and replace in V_i editor. **(06 Marks)**

3 a. What is a standard input, standard output and standard error? Explain with respect to UNIX. **(08 Marks)**

b. Frame wild-card patterns:
i) Where the last character is not numeric
ii) That have atleast four characters. **(04 Marks)**

c. What is a process? Explain how a process is created using the three primitives: fork, exec, and wait. **(08 Marks)**

4 a. Explain following environment variables with examples:
i) TERM ii) PATH iii) HOME iv) PS1. **(08 Marks)**

b. Differentiate between hard link and symbolic link with examples. **(04 Marks)**

c. Explain the following commands with examples:
i) head ii) cut iii) sort iv) tr. **(08 Marks)**

PART B

5 a. Explain the grep command using c, i and v options with examples. **(06 Marks)**

b. List and example the Extended Regular Expression (ERE) set used by grep, egrep and awk. **(06 Marks)**

c. List and explain the internal commands used by sed. **(08 Marks)**

6 a. What is shell programming? Explain with examples how expressions are evaluated in shell programming. **(08 Marks)**

b. What are the shell parameters $*, $#, $? and $$? Discuss very briefly. **(06 Marks)**

c. What is 'for' loop in a shell script? Explain the different ways of making the lists. **(06 Marks)**

7 a. State and six built-in variables in awk and explain each. **(06 Marks)**

b. Explain any three built-in functions in awk. **(06 Marks)**

c. Explain 'if' statement and 'while' loop statements with respect to awk, with examples. **(08 Marks)**

8 a. Explain the variables and operators in perl. **(06 Marks)**

b. Explain file handling in perl, with an example. **(08 Marks)**

c. Explain the string handling functions in perl. **(06 Marks)**

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06CS36

Third Semester B.E. Degree Examination, Dec. 07 / Jan. 08
UNIX and Shell Programming

Time: 3 hrs. Max. Marks:100

Note : ***Answer any FIVE full questions.***

1 a. Explain UNIX architecture and its salient features. Distinguish between INTERNAL and EXTERNAL commands. **(08 Marks)**

b. Explain with example different types of files supported in UNIX. **(05 Marks)**

c. What is the output of the following commands: i) echo $PATH ii) Is –l/wc –l iii) type mkdir; mkdir new; iv) who > userlist **(04 Marks)**

d. Explain man command with its option. **(03 Marks)**

2 a. Explain briefly the file attributed listed using Is –l command. **(05 Marks)**

b. Explain with suitable example how and who can change file permissions. **(05 Marks)**

c. Explain different modes in vi editor and list commands in each mode. **(06 Marks)**

d. How to do the following using vi editor: i) Combine 5 lines in to single line ii) Move the cursor to last line in a file iii) Replace has with have in the current line iv) Add /* at the beginning of the line and */ at the end of the line. **(04 Marks)**

3 a. Explain the mechanism of a process creation and role of system calls. **(05 Marks)**

b. Explain the following commands with suitable example and list its options: i) ps ii) kill. **(05 Marks)**

c. Define job. How is job control done in UNIX? Explain with example. **(05 Marks)**

d. What are environment variables that control UNIX system? Explain any three such variables. **(05 Marks)**

4 a. Explain with example find command and its options. **(06 Marks)**

b. Write a note on sort command. Discuss its options with example. **(04 Marks)**

c. Explain the following commands: i) umask 022, its effect on files and directions ii) find / -name a.out –o –name core –print iii) head results.txt | tail +5 iv) tr '^ $' 'R' <US.txt>India.txt v) date|cut –d " " –f 1 **(05 Marks)**

d. Differentiate between hard-link and soft-link in UNIX with example. **(05 Marks)**

5 a. What is the difference between wildcard and regular expression? Explain with examples Basic Regular Expression and Extended regular expression. **(06 Marks)**

b. Explain the following commands: i) Is –l | grep "^d" > directories ii) grep –v "USA" news.txt | wc –l iii) sed '10,$ s/loop/ loop with in loop/g' <loop.txt> moreloops iv) grep "$SHELL$" /etc/passwd | cut-d ":" –f 1 v) grep a b c > found.txt **(10 Marks)**

c. What is sed? Explain with example line addressing and context addressing in sed. **(04 Marks)**

6 a. What is shell programming? Write a shell script to create a menu which displays the list of files, current users, contents of a particular file and process status of the system based on the user choice. **(07 Marks)**

b. Explain the expr command applicable to numeric and string functions. **(05 Marks)**

c. Explain the following with reference to shell programming:i) $? ii) test iii) shift iv) trap. **(04 Marks)**

d. Write a shell script to display list of all process running in the system every 30 seconds for five times using a i) while loop ii) for loop. **(04 Marks)**

7 a. Write a note on awk. Explain built-in variables. **(06 Marks)**

b. Write an awk sequence to find the DA, HRA and gross pay of employees. DA at 50% of basic, HRA at 25% of basic and the gross pay is sum of basic pay, DA and HRA, also compute the average gross pay. **(08 Marks)**

c. Explain with example the following built in functions: i) split( ) ii) substr( ) iii) length( ) iv) index( ) **(06 Marks)**

8 a. Explain the following in perl i) $_default variable ii) foreach loop construct iii) join( ) **(06 Marks)**

b. Write a PERL program that accepts decimal number as arguments and convert it into binary number. **(07 Marks)**

c. Using command line arguments, write a Perl program to find whether a given year is leap year. **(07 Marks)**