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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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) ls –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 ls –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) ls –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)