



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 directories 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)



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**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<sub>i</sub> editor. (06 Marks)
- c. Explain the commands search for pattern and search and replace in V<sub>i</sub> 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.08/Jan.09**  
**UNIX & Shell Programming**

Time: 3 hrs.

Max. Marks: 100

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

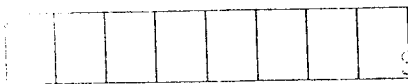
**PART – A**

1.
  - a. Explain the salient features of UNIX operating system. (07 Marks)
  - b. Explain the concept of absolute pathname and relative pathname with suitable examples. (04 Marks)
  - c. What is parent –child relationship? With the help of neat diagram explain UNIX file system tree. (05 Marks)
  - d. What is the output of the following command. (04 Marks)
    - (i) echo \$PATH
    - (ii) man man
    - (iii) cmp f<sub>1</sub> f<sub>2</sub> [f<sub>1</sub> and f<sub>2</sub> are identical]
    - (iv) ls -i
  
2.
  - a. What is file permission? What are the different ways of setting file permission? Explain. (08 Marks)
  - b. Explain the following with respect to vi editor. (06 Marks)
    - (i) Search for a pattern printf, then repeat the search in both forward and backward direction
    - (ii) : \$s | director | member | g
    - (iii) : .w tempfile
    - (iv) : . , \$w tempfile
    - (v) —recover
    - (vi) 20h
  - c. Explain the different modes of operation in a vi editor with a suitable diagram. (06 Marks)
  
3.
  - a. Explain the concept of Escaping and quoting with suitable examples. (06 Marks)
  - b. Frame wild card pattern for the following: (06 Marks)
    - (i) Retrieve hidden files
    - (ii) Any number of characters followed by 4 characters.
    - (iii) Matches all filenames that do not begin with an alphabetic character.
  - c. What is a process? Explain how a process is created using the three primitives fork, exec and wait. (08 Marks)
  
4.
  - a. Discuss standard input, standard output and standard errors files, in UNIX. (06 Marks)
  - b. Explain the following environment variables with examples. (06 Marks)
    - (i) SHELL
    - (ii) PS2
    - (iii) HOME
  - c. Explain the following commands with examples. (08 Marks)
    - (i) tr
    - (ii) tee
    - (iii) sort
    - (iv) pr

**PART – B**

- 5 a. Explain grep command with any five options with suitable examples. (06 Marks)  
b. List and explain Extended Regular Expression (ERE) set used by grep, egrep and awk. (06 Marks)  
c. Explain the following:  
(i) sed '3q' abc  
(ii) ls -l | grep '^d' > directories  
(iii) sed -n '\$p' abc  
(iv) sed -n '3, \$!p' abc (08 Marks)
- 6 a. Explain special parameters used by the shell. (06 Marks)  
b. Explain the expr command applicable to numeric and string functions. (06 Marks)  
c. Explain here document with an example. Also mention its use. (04 Marks)  
d. Explain trap in shell scripts with a suitable example. (04 Marks)
- 7 a. Explain awk built-in variables and built-in function with suitable examples. (10 Marks)  
b. Explain if statement, for and while loop statement with respect to awk with suitable example. (10 Marks)
- 8 a. Explain the following in perl.  
(i) split  
(ii) join  
(iii) \$ - default variable (06 Marks)  
b. Using command line arguments, write a perl program to find whether a given year is leap year. (07 Marks)  
c. Write a perl program that accepts decimal number as arguments and convert it into binary number. (07 Marks)

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**Third Semester B.E. Degree Examination, June-July 2009**  
**Unix & Shell Programming**

Time: 3 hrs.

Max. Marks: 100

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

**PART – A**

- 1 a. With a neat diagram, explain the architecture of UNIX, clearly bringing out the division of labor between kernel and shell. (08 Marks)
- b. Write a note on man documentation. Also give the usage of apropos and what is. (06 Marks)
- c. Explain the different types of files in UNIX. (06 Marks)
- 2 a. What is file permission? What are the different ways of setting file permission? Explain. (08 Marks)
- b. With suitable examples, bring out the difference between absolute and relative pathnames. (06 Marks)
- c. What is a process? Explain the mechanism of process creation. (06 Marks)
- 3 a. What are standard input, standard output and standard error? Explain with respect to UNIX. (06 Marks)
- b. With a neat diagram, explain different modes of operation of vi editors. Also give the internal commands available in each mode. (08 Marks)
- c. Differentiate between hard link and soft link with examples. (06 Marks)
- 4 a. What is a job? Describe different job control facilities with suitable examples. (09 Marks)
- b. Use find command to locate from your home directory
  - i) all files with the extension .html
  - ii) all files having inode number 9076
  - iii) all directories having permissions 666
  - iv) all files not accessed for more than a year
  - v) all but the C program files. (05 Marks)
- c. Explain the following commands with examples: (06 Marks)
  - i) pr
  - ii) sort
  - iii) uniq

**PART – B**

- 5 a. With suitable examples, explain the grep command and its various options. (08 Marks)
- b. Explain line addressing and context addressing in sed with examples. (06 Marks)
- c. Explain different ways of using test statement, with examples. (06 Marks)
- 6 a. Give the syntax of for statement in shell. Explain the possible sources of list in for statement. (08 Marks)
- b. Write a shell script that accepts a word and five filenames as arguments, counts and reports the occurrence of the word in each of the files. (06 Marks)
- c. Write a shell script to find the smallest of three numbers that are read from keyboard. (06 Marks)
- 7 a. With suitable examples, explain the if and while statements in awk. (06 Marks)
- b. Explain the following built-in functions in awk. (08 Marks)
  - i) split()
  - ii) substr()
  - iii) length()
  - iv) index()
- c. Write a note on operators and expressions in awk. (06 Marks)
- 8 a. Explain file handling in perl. (08 Marks)
- b. Perl offers a grand superset of all possible regular expressions in UNIX. Discuss. (08 Marks)
- c. Explain the following perl features. (06 Marks)
  - i) \$\_
  - ii) foreach
  - iii) join

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**Third Semester B.E. Degree Examination, Dec.09/Jan.10**  
**Unix and Shell Programming**

Time: 3 hrs.

Max. Marks:100

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

**PART – A**

- 1 a. Define an operating system. Discuss the salient features of UNIX operating system. (06 Marks)
- b. Explain the architecture of the UNIX operating system. (08 Marks)
- c. Explain the following commands with examples : i) cat ; ii) rmdir ; iii) pwd. (06 Marks)
- 2 a. A file's current permission are rw\_r\_xr\_ . Specify the chmod expression required to change them for the following:  
i) rw x rw x rw x ; ii) r\_\_r\_\_\_\_\_ ; iii) \_\_\_\_\_ ; iv) \_\_\_r\_\_r\_\_\_. (08 Marks)
- Using both the relative and absolute methods of assigning permissions.
- b. Explain briefly the file attributes listed using ls -l command. (06 Marks)
- c. What are the different modes of Vi editor? Explain with a diagram. (06 Marks)
- 3 a. Explain what wild – card patterns match:  
i) [A – Z] ????\*      ii) \* [0 – 9] \*  
iii) \* [!0 – 9]      iv) \* · [!s] [!h]. (08 Marks)
- b. What are standard input, standard output and standard error? Explain with respect to UNIX. (06 Marks)
- c. What is process status? Explain PS command with options. (06 Marks)
- 4 a. Explain the following environment variables with examples:  
i) SHELL ; ii) LOGNAME ; iii) PATH. (06 Marks)
- b. Differentiate between hard link and soft link in UNIX with examples. (06 Marks)
- c. Explain the following commands with examples: i) tail ; ii) paste ; iii) tr ; iv) pr. (08 Marks)

**PART – B**

- 5 a. What is the difference between a wildcard and a regular expression? Explain the “grep” command using n, l and f options with examples. (08 Marks)
- b. What do these regular expressions match? i) a · \* b ; ii) ^ { \$. (04 Marks)
- c. What is sed? With examples explain the difference between line addressing and context addressing in sed? (08 Marks)
- 6 a. What is shell programming? Write a shell program that will do the following tasks, in order:  
Clear the screen  
Print the current directory  
Display current login users. (08 Marks)
- b. Explain the shell features of “while” and “for” with syntax. (08 Marks)
- c. What is the “exit” status of a command and where is it stored? (04 Marks)
- 7 a. Write an awk program to find square of all the numbers from 1 to 10. (08 Marks)
- b. With example, explain the following built-in variables of awk:  
i) FS ; ii) NF ; iii) FILENAME. (06 Marks)
- c. Explain the following built-in functions of awk with examples:  
i) substr ; ii) index ; iii) length. (06 Marks)
- 8 a. Explain the following string handling functions of PERL with examples:  
i) length ; ii) index ; iii) substr ; iv) reverse. (08 Marks)
- b. Write a PERL program to print numbers that are accepted from the keyboard using while and an array construct. (06 Marks)
- c. Explain the following in PERL with examples:  
i) Foreach looping construct ; ii) Join. (06 Marks)

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Important Note: 1. On completing your answer, do exactly draw a line that is 100 lines on the remaining board. 2. Any revealing of identification card at to evaluator and or equations written eg, 42+3=20, will be treated as malpractice.



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**Third Semester B.E. Degree Examination, May/June 2010**  
**UNIX and Shell Programming**

Time: 3 hrs.

Max. Marks:100

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

**PART – A**

- 1 a. Explain salient features of UNIX operating system. (06 Marks)  
b. Explain the different types of files supported in UNIX. (06 Marks)  
c. Explain the following commands, with example :  
mailx, passwd, stty, who (08 Marks)
- 2 a. Briefly describe the different ways of setting file permissions. (06 Marks)  
b. What are the three modes of vi editor? Explain. (06 Marks)  
c. What is a navigation? What are commands used for navigation in vi editor? (08 Marks)
- 3 a. What are environmental variables? State their significance. (06 Marks)  
b. What are three standard files used by UNIX commands? Explain. (06 Marks)  
c. What is shell process? What are three different phases in the creation of process? (08 Marks)
- 4 a. What are hard links and symbolic links? (06 Marks)  
b. Explain with an example, find command and its operators. (06 Marks)  
c. Explain the following filters, with examples :  
head, tail, cut, tr. (08 Marks)

**PART – B**

- 5 a. How to search for a pattern using grep? What are the options used by grep? (08 Marks)  
b. Explain extended regular expression (ERE) set used by grep. (06 Marks)  
c. What are internal commands used by sed? (06 Marks)
- 6 a. What are the special parameters used by the shell? (06 Marks)  
b. Explain how numeric and string comparison is done by using test. (06 Marks)  
c. Write a menu driven shell script to display list of files, process of user, todays date and users of the system. (08 Marks)
- 7 a. Explain any three built in variables used in awk. (06 Marks)  
b. Give the syntax of three control flow statements used by awk. (06 Marks)  
c. Explain built in functions used in awk. (08 Marks)
- 8 a. Explain string handling function in Perl. (06 Marks)  
b. Explain split and join functions. (06 Marks)  
c. Write a Perl script to convert a decimal number to binary. (08 Marks)

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Important Note : 1. On completing your answers, temporarily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, aid to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.

