CBCS SCHEME

USN | | | | | | | | | | |

17CS35

Third Semester B.E. Degree Examination, June/July 2019
UNIX and Shell Programming

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. With a neat diagram, explain the architecture of UNIX operating system. **(08 Marks)**

b. Differentiate between internal and external commands in UNIX with suitable examples. **(05 Marks)**

c. Write down the key combinations for managing the non-uniform behavior of key board and terminal for the following :
i) Backspacing doesn't work
ii) Killing a line
iii) Interrupting a command
iv) Terminating commands input
v) Keyboard is locked
vi) [Enter] key doesn't work
vii) Terminal behaves in eratic manner (command). **(07 Marks)**

OR

2 a. Explain the salient features of UNIX operating system. **(08 Marks)**

b. Differentiate between 'more' and 'less' page programs in UNIX. **(04 Marks)**

c. List and describe the mandatory and optional sections of man page in UNIX operating system. **(08 Marks)**

Module-2

3 a. Illustrate with a neat diagram typical UNIX file system and explain different types of files supported in UNIX. **(08 Marks)**

b. Assume you are in /home/Kumar, which of these commands will work when executed in sequence? Explain the proper reasons.
mkdir a/b/c → mkdir a a/b
mkdir a a/b a/b/c → rmdir a/b/c → rmdir a a/b → mkdir a/p a/q a/p/r
Draw the final tree structure for directory 'a'. **(07 Marks)**

c. Explain the following commands with an example. i) cd ii) pwd iv) rmdir v) wc. **(05 Marks)**

OR

4 a. Which command is used for listing file attributes? Explain the significance of each field in the output. **(08 Marks)**

b. Explain the following commands with an example for each.
i) cp ii) rm iii) mv iv) cat. **(04 Marks)**

c. Current file permissions of a regular file "unix" are rw_ _w_ _ _x. Write chmod expressions required to change it to the following :
i) _wxrwxr_x ii) _ _ _r _ xrw_ iii) rwx_ _x _ _ _ iv) r _ _ _ wx _ _ _.
Using both relative and absolute methods of assigning permissions. **(08 Marks)**

Module-3

5 a. Explain the three modes of vi. Indicate clearly how can you switch form one mode to another. Explain the following input mode commands : i, I, a A, r, R, o, O, s, S. **(10 Marks)**

b. Explain what these wild-card pattern match
i) [A – Z]???? * ii) *[! 0 – 9]* iii) *.[!t][!x][!t] **(06 Marks)**

c. Explain the navigation keys for the following types of navigations in vi editor.
i)Movement in four directions
ii)Word navigation. **(04 Marks)**

OR

6 a. With suitable examples, explain the 'grep' command with its various options. **(06 Marks)**

b. Briefly explain Basic Regular Expression (BRE) and Extended Regular Expression (ERE) metacharacters. **(10 Marks)**

c. Write a regular expression to match the following i) a decimal number which is non negative and floating point number ii) A valid 'C' variable. **(04 Marks)**

Module-4

7 a. Explain the following commands with an example for each. i) head ii) tail iii) cut iv) paste. **(08 Marks)**

b. What is shell programming? Write a shell program to create a simple calculator which can perform basic arithmetic operations like addition, subtraction, multiplication or division, depending upon the user input. **(10 Marks)**

c. Write the syntax for if-else-fi statement in shell programming. **(02 Marks)**

OR

8 a. Write a shell program to get the following details of the student. Name, age, USN and gender. Output all the details to the terminal. And also output whether the student is eligible to vote or not with suitable messages. **(08 Marks)**

b. Distinguish between hard links and soft links. **(04 Marks)**

c. Write and explain the syntax of 'while' and 'for' loops in shell programming. **(08 Marks)**

Module-5

9 a. Write a Perl script to determine whether the given year is a leap year or not. **(08 Marks)**

b. What is the difference between a job and a process? How do you i) suspend the foreground job ii) move a suspended job to the background iii) bring back a suspended job to the foreground? **(06 Marks)**

c. Explain the mechanism of process creation. **(06 Marks)**

OR

10 a. Explain the following string handling functions of PERL with example :
i) length ii) index iii) substr iv) reverse. **(08 Marks)**

b. Explain the following commands :
i) at ii) cron iii) nice iv) nohup. **(08 Marks)**

c. With suitable examples, explain 'split' and 'join' functions in PERL. **(04 Marks)**

* * * * *

CBCS SCHEME

USN | | | | | | | | | | |

17CS35

Third Semester B.E. Degree Examination, Dec.2018/Jan.2019
Unix and Shell Programming

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. By writing a neat diagram, explain the architecture of UNIX. **(10 Marks)**

b. Discuss the following commands
i) ls ii) who iii) cat iv) echo **(10 Marks)**

OR

2 a. Explain the features of UNIX. **(10 Marks)**

b. Explain the commands used to add, modify and delete users. **(10 Marks)**

Module-2

3 a. What is a file? Explain different categories of files. **(10 Marks)**

b. By giving example, explain the following commands.
i) pwd ii) cd iii) mkdir iv) rmdir. **(10 Marks)**

OR

4 a. Discuss ls commands with options. **(10 Marks)**

b. Explain absolute method of changing permissions by giving example. **(10 Marks)**

Module-3

5 a. Explain different modes of Vi editor **(10 Marks)**

b. Discuss ex-mode commands of Vi editor. **(10 Marks)**

OR

6 a. Explain shell interpretive cycle. **(04 Marks)**

b. Which are standard files used in UNIX? Explain. **(08 Marks)**

c. By giving examples, explain extended regular expression. **(08 Marks)**

Module-4

7 a. With example, explain logical operators in shell programming. **(05 Marks)**

b. Discuss for statement in shell script with example. **(05 Marks)**

c. Write a shell program to do the following :
i) List of files ii) Processes of user iii) Today's date vi) Users of the system.
Using case conditional. **(10 Marks)**

OR

8 a. Discuss head and tail commands along with its options. **(10 Marks)**

b. By specifying examples, explain hard and soft links. **(10 Marks)**

Module-5

9 a. Along with the options and examples, explain ps command. **(10 Marks)**

b. By giving example, explain nice and nohup commands. **(10 Marks)**

OR

10 a. Explain string handling function of perl. **(06 Marks)**

b. With example, explain split and join function of perl. **(06 Marks)**

c. What is subroutine? Explain by giving example. **(08 Marks)**

* * * * *

CBCS SCHEME

USN | | | | | | | | | | |

15CS35

Third Semester B.E. Degree Examination, Dec.2018/Jan.2019
UNIX and Shell Programming

Time: 3 hrs. Max. Marks: 80

Note: Answer any FIVE full questions, choosing one full question from each module.

Module-1

1 a. Explain the UNIX architecture with a neat sketch. **(08 Marks)**

b. Explain the following commands: i) man-k ii) apropos iii) what is iv) ls-r. **(04 Marks)**

c. What is the output of the following commands:
i) date + % h ii) date + "% h % m" iii) echo "$x" iv) cal. **(04 Marks)**

OR

2 a. Explain how to create a user or group. Along with the updations made in /etc/passwd file. **(08 Marks)**

b. What is the difference between internal and external command give example? **(04 Marks)**

c. Write a note on file and process. **(04 Marks)**

Module-2

3 a. Explain the parent child relationship UNIX. **(08 Marks)**

b. Write the output and tree structure for the following commands; assume present working directory is /home /vtu.

```
mkdir scheme
cd scheme
mkdir 2002/Branch 2006/Branch
cd 2002/Branch
mkdir CSE ECE ME
cd ../../2006/Branch
mkdir CSE ECE ME
cd ../../2002/Branch/ECE
pwd
cd ../../2006/CSE
pwd.
```

(08 Marks)

OR

4 a. What is the difference between absolute and relative path? **(04 Marks)**

b. Explain the output of ls-l command. **(04 Marks)**

c. Files current permissions are rw - r - xr - - specify chmod expression required to change them for the following:
i) rwxrwxrwx
ii) r - - r - - - - -
iii) - - - - - - - - -
iv) - - - r - - r - - **(08 Marks)**

Module-3

5 a. Explain the different modes in vi editor. (05 Mar

b. What is the output of the following commands:

i) ls [ijk] * .doc

ii) ls [a – z] ???? . txt

iii) ls foo \ * ? . txt

iv) ls . * . * (08 Mar

c. Explain the 3 standard UNIX files. (03 Mar

OR

6 a. Write a note on shell variables. (04 Mar

b. With a suitable example, Explain the grep command and its various options. (08 Mar

c. Explain the following environmental variables i) SHELL ii) PATH. (04 Mar

Module-4

7 a. What is shell programming? Write a shell program that will do the following tasks in orde
i) Clear the screen ii) Print current directory iii) Display current login users. (08 Mar

b. Explain the shell features of 'while' and 'for' with syntax. (04 Mar

c. Explain the following commands: i) umask ii) tail iii) head iv) pr. (04 Mar

OR

8 a. What is the difference between hard link and soft link? (08 Mar

b. Write a shell script to test file attributes. (08 Mar

Module-5

9 a. Write a Perl program to print numbers that are accepted from keyboard using 'for'. (08 Ma

b. Explain the mechanism of process creation. (08 Ma

OR

10 a. Explain the process status command with its various options. (08 Ma

b. Write a Perl program to convert decimal number to binary. (08 Ma

* * * *

CBCS SCHEME

USN | | | | | | | | | | |

15CS35

Third Semester B.E. Degree Examination, June/July 2018
UNIX and Shell Programming

Time: 3 hrs. Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. Explain the architecture of UNIX operating system with a neat diagram. **(06 Marks)**

b. What are internal and external commands in UNIX? Explain with any three examples in each type. **(06 Marks)**

c. Explain the fields of /etc/passwd and /etc/shadow. **(04 Marks**

OR

2 a. Write a note on man command with options. **(06 Marks)**

b. Explain the following commands with examples :
i) printf ii) passwd iii) date iv) who. **(04 Marks)**

c. Describe with appropriate commands, how to display and set terminal characteristics. **(06 Marks)**

Module-2

3 a. Explain UNIX file system with the help of neat diagram. **(06 Marks)**

b. Explain briefly absolute and relative pathnames with examples. **(04 Marks)**

c. Briefly describe : i) HOME ii) PATH ii) WC iv) pwd. **(06 Marks)**

OR

4 a. Interpret the significance of seven fields of ls–l output. **(06 Marks)**

b. Assuming the files current permission are rwx r – – r – x, specify the chmod expression required to change the following using both absolute and relative method of assigning permissions.
i) rwxrwx r–x
ii) r–xr–x– –x
iii) r– –r– – –w– **(06 Marks)**

c. Write a note on directory permissions with examples. **(04 Marks)**

Module-3

5 a. Explain with a neat diagram, three modes of Vi editor. **(06 Marks)**

b. Explain briefly S(substitute command) in exmode of Vi editor. **(04 Marks)**

c. Explain the following commands with examples :
i) set ii) map iii) abbr **(06 Marks**

OR

6 a. Define wild card. With examples, explain shells wild cards. **(06 Marks)**

b. Explain the three standard files with respect to UNIX operating system. **(06 Marks)**

c. Write a command for the following using grep
i) To delete all blank lines from a file named Emp
ii) To list only subdirecteries in the current directory
iii) To display lines containing pattern in file sample SIGSTOP or SIGTSTP
iv) To display number of lines that does not contain pattern 'USA' in file times.txt. **(04 Marks)**

Module-4

7 a. Define shell script. Write a menu driven shell script which displays :
   i) Current users of system
   ii) List of flies
   iii) Today's date
   iv) Process status
   v) Contents of a file **(06 Marks)**

b. Explain expr command applicable to computation and string functions. **(06 Marks)**

c. Explain with example set and shift command in UNIX to manipulate positional parameters. **(04 Marks)**

OR

8 a. Explain the following filters with examples :
   i) head ii) tail iii) cut iv) paste. **(08 Marks)**

b. Differentiate between hardlink and softlink in UNIX with examples. **(04 Marks)**

c. Explain the following with examples :
   i) Umask ii) /dev/null and /dev/tty. **(04 Marks)**

Module-5

9 a. Explain three distinct phases of process creation. Explain how shell is created. **(08 Marks)**

b. Explain the following commands with examples.
   i) Running jobs in background (& and nohup)
   ii) Execute later (at and batch). **(06 Marks)**

c. Write find command to locate from home directory.
   i) All files having inode number 9076
   ii) All files named a.out and all C sources files and remove them interactively. **(02 Marks)**

OR

10 a. Explain string handling functions in Perl with examples. **(06 Marks)**

b. Write a Perl program to find whether a given year is leap year or not using command line arguments. **(04 Marks)**

c. Explain the following in Perl with examples. i) split ii) join. **(06 Marks)**

* * * * *

CBCS Scheme

USN | | | | | | | | | | |

15CS35

Third Semester B.E. Degree Examination, Dec.2017/Jan.2018
UNIX and Shell Programming

Time: 3 hrs. Max. Marks: 80

Note: *Answer any FIVE full questions, choosing ONE full question from each module.*

Module-1

1 a. List and explain features of UNIX operating system. **(07 Marks)**

b. Discuss internal and external commands, with suitable examples. **(06 Marks)**

Write the outputs of the following commands :

i) cal 8 1947

ii) echo 'Todays date is `date`'

iii) date + "Date is : %a/%h/%Y". **(03 Marks)**

OR

2 a. Explain "man" documentation, and its internal commands. **(08 Marks)**

b. Describe command arguments and options with suitable examples. **(04 Marks)**

c. How an ordinary user can become a super user and vise versa? Explain with suitable commands. **(04 Marks)**

Module-2

3 a. What is a file system? Explain Unix file system with neat diagram, also explain parent and child relationships with suitable examples. **(08 Marks)**

b. What is pathname? List and explain types of path-names with an examples. **(06 Marks)**

c. Write the command line to perform the followings :

i) Change current directory to home directory

ii) Change to parent of parent directory. **(02 Marks)**

OR

4 a. What are file permissions? Describe different ways of changing the file permissions. **(07 Marks)**

b. Explain CP and Od commands with options. **(06 Marks)**

c. Write the output for the following command lines.

i) mv filenamea dir_name

ii) ls ¦ wc -w

iii) who ¦ wc -l. **(03 Marks)**

Module-3

5 a. List and explain the different modes of Vi editor, also explain different ways of quitting Vi editor. **(08 Marks)**

b. Discuss the following commands with respect to Vi editor.
i) b ii) w iii) ¦ iv) G v) :1, 5w ab.txt vi) h vii) J viii) abbr. **(08 Marks)**

OR

6 a. What are wild cards characters? Explain each of them with suitable examples. **(08 Marks)**

b. What is the purpose of grep? Explain grep with all options. **(06 Marks)**

c. Explain tee command with an example. **(02 Marks)**

Module-4

7 a. Explain test command for handling strings. **(04 Marks)**

b. Write a shell script using case to perform all arithmetic operations. **(06 Marks)**

c. Explain for loop, also possible sources of argument list. **(06 Marks)**

OR

8 a. Explain cut command with all options, with examples. **(05 Marks)**

b. What are links? How to create different types of links? And list their differences. **(06 Marks)**

c. Discuss umask and default file permissions. **(05 Marks)**

Module-5

9 a. Discuss how to execute commands periodically with suitable example. **(05 Marks)**

b. Explain find command in detail. **(06 Marks)**

c. What is process? Explain different mechanisms of process creation. **(05 Marks)**

OR

10 a. Explain string handling functions in PERL. **(07 Marks)**

b. Write a PERL programs check the given year is leap year or not. **(07 Marks)**

c. Explain split function in PERL briefly. **(02 Marks)**

* * * * *

CBCS Scheme

USN | | | | | | | | | | |

15CS35

Third Semester B.E. Degree Examination, June/July 2017
Unix and Shell Programming

Time: 3 hrs. Max. Marks: 80

Note: Answer any FIVE full questions, choosing one full question from each module.

Module-1

1 a. With a neat diagram, explain the architecture of Unix operating system. **(08 Marks)**

b. With the help of a diagram, explain the parent – child relationship in Unix File System. **(04 Marks)**

c. Explain the following commands with the syntax and example :
i) tty ii) printf iii) date iv) Uname **(04 Marks)**

OR

2 a. Explain the salient features of Unix operating system. **(08 Marks)**

b. Differentiate between external and internal commands in Unix with suitable example. **(04 Marks)**

c. Explain the following commands with syntax and example :
i) stty ii) echo iii) cal iv) passwd **(04 Marks)**

Module-2

3 a. Illustrate with a diagram typical Unix file system and explain different types of files supported in Unix. **(08 Marks)**

b. Name the command used for creating, deleting and changing the directory. Explain with the syntax and example. **(08 Marks)**

OR

4 a. Which command is used for listing file attributes? Explain the significance of each field in the output. **(08 Marks)**

b. Files current permissions are rw - - w – r - - write chmod expressions required to change them for the following.
i) r - - r - - - - x ii) rwxrwx - - x iii) r - xr - xr - x iv) rwxrwxr - -.
Using both relative and Absolute methods of assigning permissions. **(08 Marks)**

Module-3

5 a. Explain the three modes of Vi and explain how can you switch from one mode to another. **(04 Marks)**

b. Explain what these wild – card pattern match :
i) [A – Z] ????* ii) *[!0 – 9]* iii) * · [!S] [!h] **(06 Marks)**

c. With suitable examples, explain the grep command and its various options. **(06 Marks)**

OR

6 a. Briefly explain the extended Regular expression with an example. **(06 Marks)**

b. Explain the three sources of standard input and standard output. **(04 Marks)**

c. Write the Unix commands for the following :
   i) Find and replace all the occurrences of "Unix" with "UNIX" in the text file after confirming the user. [Vi editor command].
   ii) To delete all files with three character extension except "*.out" from current directory.
   iii) List all the files in PWD which are having exactly five characters in their filename and any numbers characters in their extension.
   iv) Writing the first 50 lines to another file. [Vi editor command].
   v) Inserting a text at the beginning of the line. [Vi editor command].
   vi) Searching for a pattern in backward direction. **(06 Marks)**

Module-4

7 a. What is shell programming? Write a shell program to create a menu and execute a given options based on users choice. Options include
   i) List of users ii) List of processes iii) List of files
   iv) Current date v) Content of files vi) Display current login users. **(10 Marks)**

   b. Explain the following with an example: i) head ii) tail iii) cut. **(06 Marks)**

OR

8 a. What is shell script? Explain the following statements with syntax and example :
   i) if ii) case iii) while. **(10 Marks)**

   b. Distinguish between hard links and soft links with suitable example. **(06 Marks)**

Module-5

9 a. Write a Perl script to determine whether the given year is a leap year or not. **(08 Marks)**

   b. Explain the mechanisms of process creation. **(06 Marks)**

   c. What is an associative array? **(02 Marks)**

OR

10 a. Explain the following in PERL with example. i) Split iii) Join. **(08 Marks)**

   b. Explain variables and operators in PERL. **(06 Marks)**

   c. Briefly explain the subroutines in PERL. **(02 Marks)**

* * * * *

CBCS Scheme

USN | | | | | | | | | | |

15CS35

Third Semester B.E. Degree Examination, Dec.2016/Jan.2017
UNIX and Shell Programming

Time: 3 hrs. Max. Marks: 80

Note: ***Answer FIVE full questions, choosing one full question from each module.***

Module-1

1 a. Discuss the salient features of UNIX Operating system. **(06 Marks)**

b. Explain the following commands with examples :
i) echo ii) ls iii) who iv) date. **(04 Marks)**

c. Write a note on man documentation and explain the keyword option and whatis option? **(06 Marks)**

OR

2 a. Explain how to display and set the terminal characteristics of a UNIX OS. **(06 Marks)**

b. Explain the contents of /etc/passwd and /etc/shadow file with respect to UNIX OS. **(06 Marks)**

c. Explain the commands to add and delete a user. **(04 Marks)**

Module-2

3 a. Explain the different file types available in UNIX. **(06 Marks)**

b. With the help of a neat diagram, explain the parent child relationship with respect to UNIX file system. **(05 Marks)**

c. Explain the following commands with example :
i) HOME ii) cd iii) pwd iv) mkdir v) rmdir. **(05 Marks)**

OR

4 a. Explain the following commands with example :
i) cat ii) mv iii) rm iv) cp v) wc. **(05 Marks)**

b. Explain the seven field output of ls - l command. **(05 Marks)**

c. What are different ways of setting file permissions? **(06 Marks)**

Module-3

5 a. Explain the different modes of vi editor. **(04 Marks)**

b. Explain how the text is entered and replaced in input mode of vi editor. **(06 Marks)**

c. Discuss the navigation commands in vi editor with example. **(06 Marks)**

OR

6 a. Explain Shell's interpretive life cycle. **(04 Marks)**

b. Discuss the three standard files supported by UNIX. Also give details about the special files used for output redirection in UNIX. **(06 Marks)**

c. With the help of example, explain grep command and list its options with their significance. **(06 Marks)**

Module-4

7 a. Explain the shell features of "while" and "for" with syntax. **(08 Marks)**

b. Explain with example set and shift commands in UNIX to manipulate positional parameters. **(08 Marks)**

OR

8	a.	Differentiate between hard link and soft link.	**(04 Marks)**
	b.	Explain the following with example : i) head ii) tail iii) cut iv) paste.	**(08 Marks)**
	c.	Discuss briefly sort command with its options.	**(04 Marks)**

Module-5

9	a.	Explain mechanism of process creation.	**(04 Marks)**
	b.	Explain the following command : i) at ii) cron iii) nice iv) nohup.	**(08 Marks)**
	c.	Explain find command with its options.	**(04 Marks)**

OR

10	a.	Explain the following string handling functions of PERL with examples : i) length ii) index iii) substr iv) reverse.	**(08 Marks)**
	b.	With suitable examples, explain split and join functions in Perl.	**(04 Marks)**
	c.	Explain file handling in Perl.	**(04 Marks)**

* * * * *

USN | | | | | | | | | | |

10CS44

Fourth Semester B.E. Degree Examination, June/July 2016
UNIX and Shell Programming

Time: 3 hrs. Max. Marks: 100

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

PART – A

1 a. With neat diagram, explain architecture of UNIX operating system. **(06 Marks)**

b. With the help of examples, explain the following commands :
i) apropos ii) whatis **(06 Marks)**

c. Explain the following with suitable examples :
i) absolute and relative pathnames
ii) internal and external commands. **(08 Marks)**

2 a. Files current permissions are rw − − w − r − − write chmod expressions required to change them for the following :
i) r − − r − − − − x
ii) r w x r w x − − x
iii) r − x r − x r − x
iv) r w x r w x r − −
using both relative and absolute methods of assigning permissions. **(08 Marks)**

b. What are different modes of vi editor? Explain with a neat diagram. **(06 Marks)**

c. Write UNIX commands for the following :
i) Find and replace all the occurrences of unix with UNIX in the text file after confirming the user (vi editor command).
ii) List all the files in PWD which are having exactly five characters in their filename and any number of characters in their extension
iii) To copy all files stored in /home/vtu with ·c, ·cpp and ·java extensions to progs directory in current directory
iv) To delete all files containing ∗ in their file name
v) To delete all files with three character extension except ·out from current directory
vi) To display (list) contents of current directory and its subdirectories. **(06 Marks)**

3 a. Explain 3 standard files supported by UNIX. Also give details about special files used for output redirection in UNIX. **(08 Marks)**

b. Explain mechanism of process creation. Also given details about process states and zombies. **(08 Marks)**

c. Explain following with examples :
i) cron ii) HOME iii) PATH iv) MAIL. **(04 Marks)**

4 a. i) Differentiate between hard link and symbolic link
ii) Explain significance of permissions to directory. **(08 Marks)**

b. What does touch foo command mean? Why touch command is important for the system administrator? **(06 Marks)**

c. Explain the following with example :
i) head ii) tail iii) cut. **(06 Marks)**

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

PART – B

5 a. With the help of example explain grep command and list its options with their significance. **(08 Marks)**

b. Explain line addressing and context addressing in sed with example. **(06 Marks)**

c. Briefly explain interval regular expression and tagged regular expression. **(06 Marks)**

6 a. Explain shell features of while and for with syntax. **(08 Marks)**

b. What is exit status of a command and where it is stored? And how it can be accessed? Give examples. **(06 Marks)**

c. Write a shell code to accept a string from the terminal and display suitable message if it doesn't have at least 10 characters using : i) case ii) expr. **(06 Marks)**

7 a. What is AWK? Explain any three built in functions of AWK. **(08 Marks)**

b. What are associative arrays? How they are implemented in AWK? **(06 Marks)**

c. With syntax and examples, explain control flow statements in AWK. **(06 Marks)**

8 a. Explain any three string handling functions in Perl. **(06 Marks)**

b. With suitable examples explain split and join functions in Perl. **(06 Marks)**

c. Write a Perl program that prompts the user to input string and a number and prints the string those many times on different lines to standard output. **(08 Marks)**

* * * * *

USN | | | | | | | | | | **10CS44**

Fourth Semester B.E. Degree Examination, Dec.2015/Jan.2016

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. Explain the Architecture of UNIX operating system with a neat diagram. **(08 Marks)**
b. Describe the salient features of UNIX operating system. **(08 Marks)**
c. Write a note on man command. **(04 Marks)**

2 a. Explain the different types of files supported in UNIX. **(06 Marks)**
b. Which command is used for listing file attributes? Explain significance of each field in the output. **(08 Marks)**
c. Explain with a neat diagram the three modes of Vi – editor. **(06 Marks)**

3 a. What are standard input, standard output and standard error? Explain in detail with example. **(06 Marks)**
b. Define the term process. Explain the mechanism of process creation in UNIX. **(06 Marks)**
c. Explain the following command with an example.
   i) Running jobs in background (& and nohup)
   ii) Execute later (at and batch) **(08 Marks)**

4 a. Write a note on sort and find command. **(08 Marks)**
b. Differentiate between Hard link and Soft link in UNIX with example. **(06 Marks)**
c. Explain the following commands with example
   i) Head ii) tail iii) Pr **(06 Marks)**

PART – B

5 a. What is the difference between a wild card and regular expression? Explain 'grep' command using n, ℓ and f option with example. **(06 Marks)**
b. What are Extended Regular Expressions? Explain any four ERE set used by grep and egrep. **(06 Marks)**
c. Explain line addressing and context addressing in sed with example. **(08 Marks)**

6 a. What is shell programming? Write a shell program to create a menu which displays,
   i) List of files ii) Current date iii) Process status
   iv) Current user of the system and v) Quit to UNIX **(08 Marks)**
b. Explain shell features of 'while' and 'for' with syntax. **(06 Marks)**
c. Explain the use of test and [ ] to evaluate an expression in shell. **(06 Marks)**

7 a. What is AWK? Explain any three built – in function in AWK. **(06 Marks)**
b. Write an AWK sequence to find HRA, DA and Netpay of an employee, where DA is 50% of basic, HRA is 12% of basic and the Netpay is the sum of HRA, DA and Basic pay. **(08 Marks)**
c. Briefly describe built in variables in AWK. **(06 Marks)**

8 a. Explain with example the string handling function supported by perl. **(08 Marks)**
b. Explain Lists, Arrays and Associative Arrays with respect to perl. **(06 Marks)**
c. Write a perl script to convert decimal number to binary number. **(06 Marks)**

* * * * *

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

USN | | | | | | | | | | |

10CS44

Fourth Semester B.E. Degree Examination, June/July 2015
UNIX and Shell Programming

Time: 3 hrs. Max. Marks:100

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

PART – A

1 a. Explain the architecture of UNIX operating system with a neat diagram. **(08 Marks)**

b. Illustrate with a diagram, the typical UNIX file system and explain different types of files supported in UNIX. **(08 Marks)**

c. Explain internal and external commands with example. **(04 Marks)**

2 a. Which command is used for listing file attributes? Briefly describe the significance of each field of the output. **(08 Marks)**

b. A file's current permissions are rw – r – x r – –. Specify the chmod expression required to change them for the following :

i) r w x r w x r w x

ii) r – – r – – – – –

iii) – – – – – – – – –

Using both the relative and absolute methods of assigning permissions. **(06 Marks)**

c. What are the different modes of vi editor? Explain with a diagram. **(06 Marks)**

3 a. Explain the three standard files with respect to UNIX operating system. **(06 Marks)**

b. Explain the mechanism of process creation using system calls in UNIX. **(06 Marks)**

c. Explain the following environment variables with examples :

i) SHELL

ii) LOGNAME

iii) PATH

iv) PS2. **(08 Marks)**

4 a. Distinguish between hard links and soft links with suitable examples. **(06 Marks)**

b. Explain the following filters with options :

i) pr

ii) sort. **(08 Marks)**

c. Use find command to locate from your home directory :

i) All files with the extension ·html

ii) All flies 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

vi) All files named a·out and all "C" source files and remove them interactively. **(06 Marks)**

PART – B

5 a. Explain grep command with all options. **(08 Marks)**
b. Briefly explain the different ways of addressing used in sed with example. **(06 Marks)**
c. Explain BRE (Basic Regular Expression) character subset used for constructing regular expressions. **(04 Marks)**
d. Write the commands for the following :
i) Use sed to delete all blank lines from a file named sample
ii) Use sed to replace all occurrences of the word "UNIX" with "LINUX" in a file named sample. **(02 Marks)**

6 a. What is shell programming? 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) Today's date
iv) Quit to UNIX. **(08 Marks)**
b. Explain with an example "while" and "for" loop in shell programming. **(06 Marks)**
c. Briefly explain set and shift commands in UNIX to manipulate positional parameters with example. **(06 Marks)**

7 a. What is AWK? Explain any three built – in functions in AWK. **(07 Marks)**
b. Explain associative arrays in AWK. **(06 Marks)**
c. Explain built – in variables in AWK. **(07 Marks)**

8 a. Explain the string handling functions supported by PERL and also write a PERL script to convert a given decimal number to binary equivalent. **(12 Marks)**
b. Explain the following in PERL with example :
i) split
ii) join. **(08 Marks)**

* * * * *

USN | | | | | | | | | | |

10CS44

Fourth Semester B.E. Degree Examination, Dec.2014/Jan. 2015
UNIX and Shell Programming

Time: 3 hrs. Max. Marks:100

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

PART – A

1 a. Describe briefly the UNIX architecture explaining the role played by the kernel and shell in sharing the work load. **(08 Marks)**

b. Draw the tree structure of the file system created by the following commands (assume you are in the directory/usr/office). Why is it not possible to issue the command rmdir/usr/office/right.

```
$ mkdir left
$ mkdir middle
$ mkdir right
$ cd left
$ mkdir left middle right
$ cd ••/middle
$ mkdir dir1 dir2/usr/office/right/dir3.
```

(08 Marks)

c. Explain the concept of absolute path name and relative pathname. **(04 Marks)**

2 a. Which command is used for listing file attributes? Explain briefly the significance of each field of the output. **(06 Marks)**

b. Assuming that a file's current permissions are r w x r – – r – x, specify the chmod expression required to change them to :

i) r w x r w x r – x,
ii) r – xr – x – – x
iii) – – – r – – r – x
iv) – – – r w – r – –,

using both relative and absolute methods of assigning permissions. **(08 Marks)**

c. Explain the three modes of vi and explain how you can switch from one mode to another. **(06 Marks)**

3 a. Explain the three sources of standard input and standard output. **(06 Marks)**

b. Explain what these wild – card patterns match :

i) [A – Z]????*
ii) *[0 – 9]*
iii) *[!0 – 9]
iv) *·[!s] [!h]. **(08 Marks)**

c. What is a process? Mention briefly the role of fork – exec mechanism in process creation. **(06 Marks)**

4 a. What are hard-links? Explain two application areas of hard-links. What are the two main disadvantages of the hard-link? **(06 Marks)**

b. Explain these commands with examples : i) umask ii) touch . **(06 Marks)**

c. Explain the following commands :

i) pr ii) tail iii) sort iv) tr. **(08 Marks)**

PART – B

5 a. Explain the grep command with options. **(08 Marks)**

b. What is sed? Explain addressing in sed, with suitable examples. **(08 Marks)**

c. Explain the anchoring characters. **(04 Marks)**

6 a. Explain the special parameters used by the shell. **(06 Marks)**

b. What is shell script? Explain the following statements with syntax and examples :
i) if ii) case iii)while. **(10 Marks)**

c. What is the exit status of a command and where is it stored? **(04 Marks)**

7 a. Explain awk's build-in variables. **(06 Marks)**

b. Write a program in awk to store the totals of the basic pay, da, hra and gross pay of the sales and marketing people. **(06 Marks)**

c. Briefly describe the built-in functions in awk, with examples. **(08 Marks)**

8 a. Write a Perl script to determine whether the given year is a leap year or not. **(07 Marks)**

b. Write a Perl script to convert decimal number to binary. **(07 Marks)**

c. Explain variables and operators in Perl. **(06 Marks)**

* * * * *

USN | 4 | C | I | 1 | I | T | S | 0 | 1 | 6 | **10CS44**

Fourth Semester B.E. Degree Examination, June/July 2014
UNIX and Shell Programming

Time: 3 hrs. Max. Marks:100

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

PART – A

1 a. With a neat diagram, explain the architecture of UNIX operating system. List the features also. **(08 Marks)**

b. Explain the parent–child relationship of UNIX file system with a diagram. **(06 Marks)**

c. Explain with examples :
i) Absolute pathname and relative pathname
ii) Internal and external commands. **(06 Marks)**

2 a. Interpret the significance of seven fields of ls – l output. **(07 Marks)**

b. Briefly explain the different ways of setting file permissions. **(07 Marks)**

c. With a diagram, explain 3 modes of Vi editor. **(06 Marks)**

3 a. What are wild cards? Explain the shells wild cards, with examples. **(08 Marks)**

b. What is a process? Explain the process creation mechanism? Why directory change can't be made in separate process. **(08 Marks)**

c. Explain the following environment variables, with examples :
i) HOME ii) PATH iii) IFS iv) SHELL. **(04 Marks)**

4 a. What are hard links and soft link? Explain with examples. **(06 Marks)**

b. Write a short note on find command. **(06 Marks)**

c. Explain the following filters with examples :
i) head iii) tail iii) cut. **(08 Marks)**

PART – B

5 a. Explain grep command with all options. **(10 Marks)**

b. What is sed? With example, explain line addressing and context addressing. **(10 Marks)**

6 a. What is shell programming? Write a shell script to create a menu which displays :
i) List of files ii) Contents of a file iii) Process status
iv) Current date v) Clear the screen vi) Current users of system. **(10 Marks)**

b. Explain shell features of 'for'. With syntax and examples. **(10 Marks)**

7 a. What is an awk? Explain all the built in variables used by awk. **(10 Marks)**

b. With syntax and examples, discuss the control flow statements used by awk. **(10 Marks)**

8 a. Write a Perl script to demonstrate the use of chop function. **(06 Marks)**

b. Write a Perl script to find the square root of command line arguments. **(06 Marks)**

c. Explain the string handling functions of Perl with appropriate examples. **(08 Marks)**

* * * * *

USN | | | | | | | | | | |

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)**

* * * * *

USN | | | | | | | | | | |

10CS44

Fourth Semester B.E. Degree Examination, June/July 2013
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. With a neat diagram, explain the architecture of unix operating system. **(08 Marks)**
b. With the help of a neat diagram, explain the parent-child relationship. Explain unix file system. **(06 Marks)**
c. Explain briefly absolute pathname and relative pathname with examples. **(06 Marks)**

2 a. Give the significance of the seven fields of the "$ls - l$" command. **(07 Marks)**
b. What is file permission? Explain how to use "Chmod" command to set the permissions in a relative manner with an example. **(07 Marks)**
c. Explain the three different modes in which "Vi" editor works. **(06 Marks)**

3 a. Explain the standard input, standard output and standard error with respect to UNIX operating system. **(07 Marks)**
b. Explain the mechanism of process creation. **(07 Marks)**
c. What are environment variables? Explain any four. **(06 Marks)**

4 a. Differentiate between hard link and soft link with examples. **(06 Marks)**
b. Explain "sort" command briefly. Also discuss its important options with examples (any five). **(06 Marks)**
c. Explain the following commands with example:
i) head ii) tr iii) uniq iv) find **(08 Marks)**

PART – B

5 a. Explain 'grep' command with its options. **(08 Marks)**
b. Explain line addressing and context addressing in "sed" with examples. **(06 Marks)**
c. What are extended regular expression (ERE)? Explain any four ERE set used by "grep" and "egrep". **(06 Marks)**

6 a. Explain the use of "test" and [ ] to evaluate an expression in shell. **(06 Marks)**
b. Explain the shell features of "while" and "for" with syntax. **(06 Marks)**
c. Explain the "expr" command applicable to computation and string functions. **(08 Marks)**

7 a. What is AWK? Explain any three built-in functions in AWK. **(07 Marks)**
b. Write short notes on operators and expressions in AWK. **(06 Marks)**
c. Explain built-in variables in AWK. **(07 Marks)**

8 a. List the string handling functions in PERL. Write a program to find number of characters, words as well as to print reverse of a given string. **(08 Marks)**
b. Explain "chop( )" and "split( )" functions with examples. **(06 Marks)**
c. Explain file handling in PERL. **(06 Marks)**

USN | | | | | | | | | | |

10CS44

Fourth Semester B.E. Degree Examination, December 2012

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. Explain salient features of UNIX operating system. **(07 Marks)**

b. Compare internal and external commands in UNIX with suitable example. Explain why cd command cannot be an external command. **(06 Marks)**

c. Illustrate with a diagram typical UNIX file system and explain different types of files supported in UNIX. **(07 Marks)**

2 a. Explain the basic file attributes displayed by ls – l command. **(06 Marks)**

b. Discuss relative and absolute methods for changing file permissions. **(06 Marks)**

c. Explain with a diagram the different modes of Vi editor and list the commands in each mode. **(08 Marks)**

3 a. Explain with an example use of single quote, double quote and back quote in a command line. **(06 Marks)**

b. Explain the following commands:

i) cp ????? progs ii) kill –S KILL 121 122

iii) wc –l < user.txt iv) ps – e l **(06 Marks)**

c. Explain the mechanism of process creation using system calls in UNIX. **(04 Marks)**

d. Explain the following environment variables:

i) PATH ii) HISTSIZE iii) PS2 iv) SHELL **(04 Marks)**

4 a. Discuss with example hard link and soft link applicable to UNIX files. **(06 Marks)**

b. Explain the following commands:

i) umask 022

ii) find / ! – name "*.C" – Print

iii) tr –d ':/' < emp.txt

iv) touch – m 0303 10 30 vtu.txt **(08 Marks)**

c. Explain the following filters with options:

i) Paginate – Pr

ii) Sort – Sort **(06 Marks)**

PART – B

5 a. Explain with example basic regular expressions. **(06 Marks)**

b. Locate lines longer than 100 and smaller than 150 characters using (i) grep, (ii) sed. **(04 Marks)**

c. Discuss stream editor – sed with options. **(06 Marks)**

d. How do these expressions differ:

i) [0 – 9] * and [0 – 9] [0 – 9] *

ii) ^ [^ ^] and ^ ^ ^ **(04 Marks)**

6 a. What is shell programming? Write a shell program to create a menu and execute a given option based on users choice. Options include (i) list of users, (ii) list of processes, (iii) list of files. **(06 Marks)**

b. Explain with example set and shift commands in UNIX to manipulate positional parameters. **(04 Marks)**

c. Discuss use of trap statement for interrupting a program in UNIX. **(04 Marks)**

d. Explain with an example while and for loop in shell programming. **(06 Marks)**

7 a. Write a note on awk and explain built in variables in awk. **(08 Marks)**

b. Explain with example the following awk function:
i) Split ( ) ii) Substr ( ) iii) length ( ) iv) index ( ) **(08 Marks)**

c. i) Write an awk statement to print odd numbered lines in a file.
ii) Write an awk statement to delete blank lines from a file. **(04 Marks)**

8 a. Explain string handling function in perl. **(06 Marks)**

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

c. Write a perl program to convert a given decimal number to binary equivalent. **(07 Marks)**

* * * * *

USN | | | | | | | | | | |

10CS44

Fourth Semester B.E. Degree Examination, June 2012
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. With neat diagram, explain the architecture of unix operating system. **(06 Marks)**

b. With the help of a diagram, explain the parent-child relationship. Explain the unix file system. **(06 Marks)**

c. Explain the following with examples:
i) Absolute and relative path names ii) Internal and external commands. **(08 Marks)**

2 a. A file's current permissions are rw _ r _ x r _ _ . Specify the chmod expression required to change them for the following:
i) rwx rwx rwx ii) r _ _ r _ _ _ _ _
iii) _ _ _ _ _ _ _ _ _ iv) _ _ _ r _ _ r _ _
using both the relative and absolute methods of assigning permissions. **(08 Marks)**

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 the three standard files with respect to unix operating systems. **(06 Marks)**

b. Explain the mechanism of process creation. **(06 Marks)**

c. Explain the following commands with an example:
i) Running jobs in background ii) Execute later. **(08 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 example:
i) tail ii) paste iii) tr iv) pr **(08 Marks)**

PART – B

5 a. With suitable examples, explain the grep command and its various options. **(08 Marks)**

b. Explain the line addressing and context addressing in sed with examples. **(06 Marks)**

c. Explain the different ways of using test statements, with examples. **(06 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 stores? **(04 Marks)**

7 a. What is AWK? Explain any three built in functions in AWK. **(07 Marks)**

b. Write an AWK sequence to find HRA, DA and Netpay of an employee, where DA is 25% of basic, HRA is 50% basic and netpay is the sum of HRA, DA and basic pay. **(07 Marks)**

c. Explain the list and arrays in PERL. **(06 Marks)**

8 a. Explain the following storing 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 keyboard using while and array construct. **(06 Marks)**

c. Explain the following in PERL with examples.
i) fore each loping construct ii) join **(06 Marks)**

* * * * *