**Five years Integrated M.Sc. (IT) & B. Sc. (IT) (Semester - 4)**
**Practical List**
**IT4009 Linux and Shell Programming**

| **Practical No: 1** | **Enrollment No:** |
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| **Practical Problems** | 1: Write a **date** command to display date in following format:<br>1. dd/mm/yy hh:mm:ss<br>2. Today's date is: 01/04/14. Current time is: 14:50:03 04th January 2015<br>3. 2015-02-04<br>4. Sat Jan 4 2015 5 PM<br>5. Wish you happy Monday<br>6. What will be the output of following commands?<br>a. $date "+This is Date"<br>b. $date "+This is date: %B"<br><br>2: Write a **cal** command to do following:<br>1. To display calendar of current month. (don't give argument as 2017)<br>2. Display calendar for single month and Monday as the first day of week.<br>3. Display calendar of January month of 2050 year.<br><br>3: Write **ls** command for following:<br>1. Display all files names including hidden files.<br>2. Display current working directory name.<br>3. Display all file names in one column.<br>4. List all current directory recursively.<br>5. List all file names having only one character length.<br>6. List filenames with their inode numbers.<br><br>4: Do as directed.<br>1. Create three directories named **UNIX, Assembly** and **C++** under your Home directory.<br>2. Write command to move into **UNIX** from current directory by writing single command.<br>3. Write command to move directly to **Assembly** by writing single command. (Your current directory is **UNIX**).<br>4. Create a directory named **LINUX** in **Desktop** directory by writing single command. (Your current directory is **UNIX** and do not use cd command.)<br>5. Write command to create text file named "Linux.txt"; Rename the file "Linux.txt" to "Unix.txt".<br>6. Recursively list all of the directories you created in Home directory by writing single command. (Your current directory is **UNIX** and do not use cd command).<br><br>5: Write a **bc** command for following:<br>1. To evaluate "21/2". Answer should contain 5 decimal places.<br>2. To convert 42 from decimal to hexadecimal.<br>3. To print digits from 1 to 10 using for loop.<br>4. To convert 1100 from binary to decimal.<br>5. To print digits from 11 to 20 using while loop.<br><br>6: Solve following using **echo** command:<br>1. Write the output of a command:<br>$ echo "Current directory file list is `ls`" ( ` is back quote)<br>2. Write an interpretation of a command:<br>$ echo Welcome to the LINUX's world. |

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| | 3. Write the output of a command:<br>echo {first, second, black, white}fish<br>4. Write an interpretation of a command:<br>echo -e "Welcome to the LINUX \c world."<br>echo "Welcome to the LINUX \c world."<br>5. Write the output of a command: echo *.txt<br>6. Write output and interpretation of:<br>echo "0 \|\| 0" \| bc<br>echo "0 \|\| 0"<br>7. Write output and interpretation of:<br>echo "3*4+2"\|bc*<br>echo "3*4+2"\|bc<br>8. Write output and interpretation of:<br>echo "length(123456)" \| bc<br>echo "length(123456)"<br>9. Write output of and interpretation:<br>echo "(2+3)*4"\|bc<br>echo "(2+3)*4"<br>10. Write output and interpretation of following commands:<br>a. echo "1 == 2" \| bc<br>b. echo "10 == 10" \| bc<br>c. echo "10 == 1 \|\| 1 == 2" \| bc<br>d. echo "10 == 10 \|\| 1 == 2" \| bc<br><br>7: Write **ls** & **echo** command to display following list of files:<br>File names:<br>1. Having digit at the end of filename.<br>2. First characters should be capital rest of could be anything.<br>3. Having three consecutive alphabets.<br>4. Having "?" and "*" characters in filename.<br>5. Minimum length is 5 characters.<br>6. First character may be in uppercase or lowercase & second character must in uppercase.<br>7. Having first and last character must be capital letter. |
| **Objective(s)** | • Students will be able to learn **date** command with options and formats.<br>• Students will be able to learn **cal** command with options.<br>• Students will learn **echo** command with options & escape sequences.<br>• Students will learn **bc** command with options & conditional statements.<br>• Students will be able to get an idea of using **bc** command with piping mechanism.<br>• Students will learn **ls** command with options.<br>• Student will learn operations on directory and file. |
| **Pre-requisite** | ✓ Use shell to run commands & usage of date command.<br>✓ Usage of **bc** command, use of 'banch calculator' in interactive mode.<br>✓ Usage of **echo** command and pipe.<br>✓ Usage of **ls** command, meaning of all options.<br>✓ Usage of **ls** & **echo** command and meaning of different meta characters. |
| **Duration for completion** | 5 hours |
| **PEO(s) to be achieved** | **PEO1**: To provide sound foundation in the fundamentals of computer application along with analytical, problem-solving, design and communication skill for life-long learning in chosen field. |

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| | **PEO2**: To provide quality practical skill of tools and technologies to solve industry problems. |
| **PO(s) to be achieved** | **PO6**: Ability to use the techniques, skills and modern tools as necessary for software development. |
| **CO(s) to be achieved** | **CO1**: Study of LINUX/UNIX environment and its need.<br>**CO2**: Understand and use utilities to work with LINUX/UNIX environment. |
| **Solution must contain** | Command, output and interpretation |
| **Nature of submission** | Handwritten |
| **Reference for solving the problem** | Book:<br>i. Forouzan B. A., Gilberg R. R., UNIX and Shell Programming, Thomson<br>ii. Das S., UNIX aoncepts and Applications, McGraw Hill |
| **Post laboratory questions** | 1. What is the syntax of **date** command?<br>2. List out different options of **date** command.<br>3. List out different formats of **date** command.<br>4. What is the syntax of **cal** command?<br>5. List out different options of **cal** command.<br>6. How can you display calendar of year 1800?<br>7. What is the syntax of **echo** command?<br>8. List out different options of **echo** command.<br>9. List out different types of escape sequences of **echo** command.<br>10. What is the purpose of **bc** command?<br>11. What is the syntax of **ls** command?<br>12. List out different options of **ls** command.<br>13. Which fields are displayed in output of "**ls –l"** command?<br>14. What are meta characters?<br>15. List out different meta characters.<br>16. Write your observation on output of 9th practical while using ls and echo. |

| **Practical No: 2** | **Enrollment No:** |
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| **Practical Problems** | 1. Write a script to find the smallest number amongst three numbers read from the keyboard.<br>2. Write a script that accepts three digits number as argument as well as from keyboard and check whether the number is Armstrong or not.<br>3. Write a script that should display message like “Good Morning”, “Good Afternoon”, “Good Evening” or “Good Night” based on the time when you are executing that script.<br>4. Write a script to input a number and display following pattern up to inputted number.<br>If inputted number is 5 then pattern will be:<br>* * * * *<br>* * * *<br>* * *<br>* *<br>*<br>5. Write a script to input a number and display following pattern up to inputted number.<br>If inputted number is 5 then pattern will be:<br>*<br>* *<br>* * *<br>* * * *<br>* * * * *<br>6. Write a script to input a number and display following pattern up to inputted number.<br>If inputted number is 5 then pattern will be:<br>*<br>* *<br>* * *<br>* * * *<br>* * * * *<br>* * * *<br>* * *<br>* *<br>*<br>7. Write a script to input a number and display following pattern up to inputted number.<br>If inputted number is 5 then pattern will be:<br>0<br>0 1<br>0 1 0<br>0 1 0 1<br>0 1 0 1 0<br>8. Write a script to input a number and display following pattern up to inputted number.<br>If inputted number is 5 then pattern will be:<br>1 2 3 4 5<br>1 2 3 4<br>1 2 3<br>1 2<br>1<br>9. Write a script to input a number and display following pattern. |

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10. Write a script that accepts number from keyboard and display reverse of it.
11. Write a menu-driven script that will execute the following command as per user's choice: ls -l, date , cal, who, pwd & exit.
12. The year of joining an employee, employee details, salary, and the current year are input through the keyboard. If the years of service are greater than 3 then employee is given a bonus of Rs. 3000. Write a script that displays the employee's detail report with the allowed bonus.
13. A mathematics student has three equation with him:
    $x = 20$
    $z = a^2 + 2ab$
    $c = b^2 - x - 2z$
    Write a script that accept a, b as an input from user and print the value of c.
14. Write a script that displays a number among given inputted numbers of the largest addition of digits. For example if input numbers are 123, 13 and 45 then the output should be 45 because the addition of the digits 4 + 5 = 9 which is largest among other numbers.
15. Write a script to perform all Arithmetic operations on floating-point values.
16. Write a script that accepts numbers from the command line and calculate the sum of the first N natural numbers. Put appropriate validation on command line.
17. Write a script to print multiplication table of any number using FOR loop.
18. Write a script to print the Fibonacci series.
19. Write a script to count total number of directories and files under the current directory.
20. Write Script to see current date, time, username, and current directory.
21. Write script to determine whether given file exist or not, file name is supplied as command-line argument, also check for sufficient number of command-line argument.
22. Write script to print lines of file from given line number to next given number of lines. For e.g., If we called this script as "scr20" and run as $ Scr20 5 5 myfile , Here print lines of 'myfile' file from line number 5 to next 5 line of that file. Put proper command line validations.
23. Write a script that accepts weekday number from command line and display the weekday name on terminal. If the user passes the wrong week number or any other wrong input, then display the appropriate error message on the terminal.
24. Write a script to find sum and product of all digits of a number.
    **Enter an integer number :1234**
    **SUM of all Digits is : 10**
    **PRODUCT of all digits: 24**
25. Write a menu-driven script that takes file name from the command line and print total words and lines in the file. Do not use wc command directly and put appropriate command line validation.
26. Write a command line script which accept filename and line numbers. Display all lines from the given file. Do not use head and tail command. e.g. ScriptName file 1 3 6 8 10
27. Write a command-line script to display following report(regular files in current directory):

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| | Ex. scriptname file1 file2 file3<br>---<br>file1<br>---<br>Line Word Characters<br>1 4 21<br>2 3 12<br>---<br>file2 is not readable or not exist<br>---<br>file3<br>---<br>Line Word Characters<br>1 3 20<br>2 4 11<br>---<br>**Note:** Do not use wc command. |
| **Objective(s)** | • Student shall be able to apply knowledge of commands to develop shell script.<br>• Student shall understand use of different operators used in shell script.<br>• Student shall understand use of different looping constructs.<br>• Student shall understand use of commands inside shell script and file operations.<br>• Student shall understand use of case and select loop constructs. |
| **Pre-requisite** | ✓ Purpose and syntax of all commands as well as different shell script constructs.<br>✓ Purpose and syntax of different shell script constructs.<br>✓ Usage of commands inside shell script. |
| **Duration for completion** | 15 hours |
| **PEO(s) to be achieved** | **PEO1**: To provide sound foundation in the fundamentals of computer application along with analytical, problem-solving, design and communication skill for life-long learning in chosen field.<br>**PEO2**: To provide quality practical skill of tools and technologies to solve industry problems. |
| **PO(s) to be achieved** | **PO6**: Ability to use the techniques, skills and modern tools as necessary for software development. |
| **CO(s) to be achieved** | **CO1**: Study of LINUX/UNIX environment and its need.<br>**CO2**: Understand and use utilities to work with LINUX/UNIX environment.<br>**CO3:** Understand and use Shell features of redirection, pipe, grouping commands, joining commands and running jobs. |
| **Solution must contain** | Program, output and description |
| **Nature of submission** | Handwritten |
| **Reference for solving the problem** | Book:<br>i. Forouzan B. A., Gilberg R. R., UNIX and Shell Programming, Thomson<br>ii. Das S., UNIX aoncepts and Applications, McGraw Hill |
| **Post laboratory questions** | 1. What is shell script?<br>2. How will you take input from user in shell script?<br>3. What is the difference between using if statement for numeric and string values?<br>4. What are different types of file operators?<br>5. What are positional parameters?<br>6. What is the purpose of **expr** command?<br>7. What is a **loop**? |

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| | 8. What are different types of looping constructs?<br>9. What is the difference between **while loop** & **until loop**?<br>10. What is argument validation?<br>11. What is the purpose of **shift** command?<br>12. What is the use of **$@** and **$*** parameters?<br>13. What is the use of **$#** and **$0** parameters? |

| **Practical No : 3** | **Enrollment No:** |
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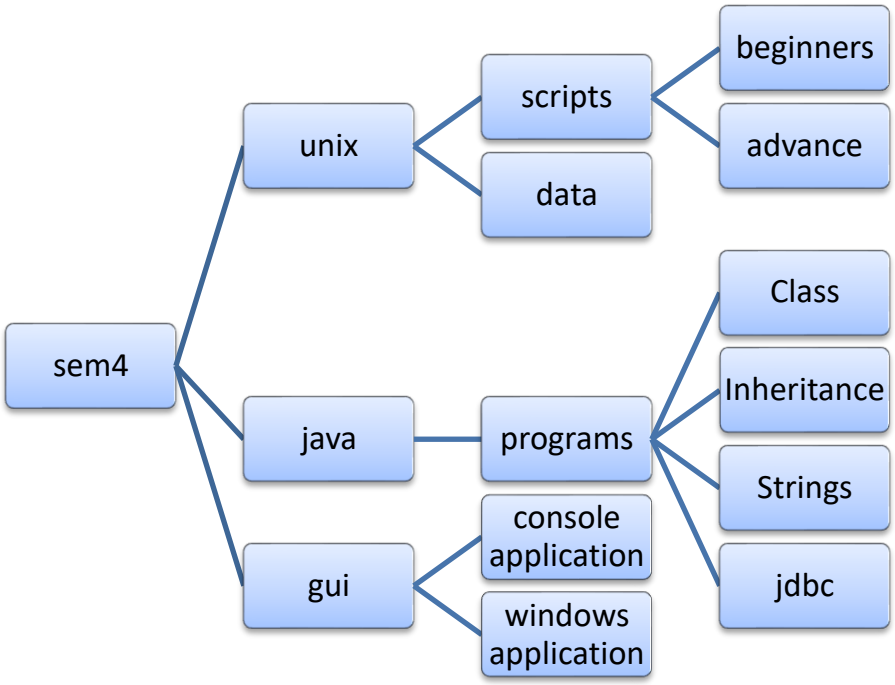
| **Practical Problems** | 1. Create following directory structure under your Desktop directory and perform following. |




After each of the following command check your working directory.

1. Change your current working directory to sem4.
2. List files.
3. Display complete directory structure you created.
4. Change your current working directory to beginners.
5. Change your current working directory to jdbc using single command.
6. List files of gui directory.
7. Perform command cd ../..
8. Check your current working directory.
9. Perform command cd –
10. Check your current working directory.
11. Change your working directory to data.
12. Create two text files with some content.
13. Display content of file.
14. Check file size using ls –l command.
15. Create the data directory under the programs directory.
16. Copy one of the text file from data directory of unix to data directory of java.
17. Copy another text file from data directory of unix to data directory of java with different name.
18. Rename the first text file.
19. Change the current directory to data directory under the unix directory.
20. Delete the one text file.
21. Change the current directory to parent directory.
22. Delete the data directory.
23. Copy data directory to gui directory.
24. Delete Class and Inheritance directory.
25. Change your present working directory to sem4.
26. Display directory structure.

27. Change directory to gui.
28. Perform ls . and ls .. command.
29. Create a hidden file in unix directory.
30. List files along with hidden files.
31. Delete java directory.
32. Create java, program directory inside java directory and jdbc directory in program directory using a single command.

2. Write commands for the following(use echo, read commands):

1. Display Hello world message.
2. Display Hello <username>. Store username in variable.
3. Input person name and display.
4. Input person age and display.
5. Display message person name and age in single message.
6. Input two numbers using single read command and display.
7. Input two string value using single read command and display. (give 1 to 5 words as input and observe output)
8. Display name and age using single echo command on different line.
9. Input two numbers one by one with appropriate message and display using echo command.
10. Create two variable say N=5 and M=7. Check value of following variable
    a. P=M
    b. Q=$M
    c. R=M+N
    d. S=$M+N
    e. T=$M+$N
    f. U=$m+$n
    g. V=$M + $N

3. Write command for the following: (create text files in unix directory with different names like file1, file2, file3, data, friend, Alist, Blist, data12, data15, jan, jack, globe, country, city, 5data, 6data, 8data, test.sh testing.sh, wish.sh, .list, .data etc….)

1. Write a command to display all filenames from the current directory.
2. Write a command that matches all files with names starting with d.
3. Write a command that matches all files names ends with a.
4. Write a command to display four characters file names.
5. Write a command that matches all files with names starting with f followed by any of the vowel characters but ending with st.sh.
6. Write a command that matches all files names having first character digit.
7. Write a command that matches all files names having last character as digit.
8. Write a command that matches all files names start and end with alphabet.
9. Write a command that matches all files names having period (.) in filename.
10. Write a command that will match all filenames prefixed with any two characters followed by st but ending with one or more occurrence of any character.
11. Write a command to copy .sh files to your home directory.
12. Write a command to copy all filenames prefixed with file and ending with one or more occurrences of any character to user directory under current directory.
13. Write a command that display content of all files with names beginning with d followed by any single character and ending with st.sh.
14. Write a command to remove files having prg in file name.
15. Write a command to remove files start with alphabet.
16. Write a command to rename file data01 to data*1.
17. Move all files which starts with alphabet to work folder.
18. Delete files that match three characters in which first and second

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| | character alphabet and third as digit. |
| **Objective(s)** | • Students will learn **echo** command with options & escape sequences.<br>• Students will learn **bc** command with options & conditional statements.<br>• Students will be able to get an idea of using **bc** command with piping mechanism.<br>• Students will learn **ls** command with options.<br>• Student will learn operations on directory and file. |
| **Pre-requisite** | ✓ Usage of **bc** command, use of 'banch calculator' in interactive mode.<br>✓ Usage of **echo** command and pipe.<br>✓ Usage of **ls** command, meaning of all options.<br>✓ Usage of **ls** & **echo** command and meaning of different meta characters. |
| **Duration for completion** | 5 hours |
| **PEO(s) to be achieved** | **PEO1**: To provide sound foundation in the fundamentals of computer application along with analytical, problem-solving, design and communication skill for life-long learning in chosen field.<br>**PEO2**: To provide quality practical skill of tools and technologies to solve industry problems. |
| **PO(s) to be achieved** | **PO6**: Ability to use the techniques, skills and modern tools as necessary for software development. |
| **CO(s) to be achieved** | **CO1**: Study of LINUX/UNIX environment and its need.<br>**CO2**: Understand and use utilities to work with LINUX/UNIX environment. |
| **Solution must contain** | Command, output and interpretation |
| **Nature of submission** | Handwritten |
| **Reference for solving the problem** | Book:<br>i. Forouzan B. A., Gilberg R. R., UNIX and Shell Programming, Thomson<br>ii. Das S., UNIX aoncepts and Applications, McGraw Hill |

| **Practical No : 4** | **Enrollment No:** |
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| **Practical Problems** | • Create file "ABC.txt" and "PQR.txt" with at least 10 lines. Apply following on them.<br><br>1. Write a command to store contents of file "ABC.txt" and "PQR.txt" into file "New.txt".<br>2. Write command for following:<br>a. Display first 3 lines.<br>b. Display last 7 lines.<br>c. Display all lines rather than last 1 line.<br>d. Display lines from 6 to 10.<br>e. Display last to 3rd line.<br>f. Display only second line.<br>3. Write command to translate all capital characters into small characters and vice versa in file "ABC.txt".<br>4. Sort long listing of current directory by "size" column in ascending order.<br>5. Lists the five largest files in the current directory.<br>6. Extract the name of only user from file **/etc/passwd**.<br>7. Write command to count total number of words from file without using **wc** command.<br>8. Write sort command to sort long listing of current directories firstly name wise and secondly their size wise using single **sort** command.<br>9. Write command to cut second and third fields from file PQR.txt vertically.<br>10. Write command to concatenate two file name ABC.txt and PQR.txt vertically.<br>11. Write command to merge two sorted file in single file.<br>12. Write command to add today's date and time to the end of a given file. |
| **Objective(s)** | Students will be able to understand the concept of Filtering utilities. |
| **Pre-requisite** | Concepts of redirection, piping & commands like head, tail, cut, paste, uniq, sort, tr etc. |
| **Duration for completion** | 3 hours |
| **PEO(s) to be achieved** | **PEO1**: To provide sound foundation in the fundamentals of computer application along with analytical, problem-solving, design and communication skill for life-long learning in chosen field.<br>**PEO2**: To provide quality practical skill of tools and technologies to solve industry problems. |
| **PO(s) to be achieved** | **PO6**: Ability to use the techniques, skills and modern tools as necessary for software development. |
| **CO(s) to be achieved** | **CO1**: Study of LINUX/UNIX environment and its need.<br>**CO2**: Understand and use utilities to work with LINUX/UNIX environment.<br>**CO3:** Understand and use Shell features of redirection, pipe, grouping commands, joining commands and running jobs. |
| **Solution must contain** | Command, output and description |
| **Nature of submission** | Handwritten |
| **Reference for solving the problem** | Book:<br>i. Forouzan B. A., Gilberg R. R., UNIX and Shell Programming, Thomson<br>ii. Das S., UNIX aoncepts and Applications, McGraw Hill |
| **Post laboratory questions** | 1. What is the purpose of **tr** command?<br>2. List out different options of **uniq** command. |

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| | 3. List out different options with purpose of **sort** command.<br>4. What is the purpose of cut command?<br>5. List the options of cut command.<br>6. List three uses of cat commands.<br>7. State the difference between head and cut command.<br>8. State the difference between cat and paste command.<br>9. What is filter? |

| **Practical No : 5** | **Enrollment No:** |
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| **Practical Problems** | 1. Write a script that accept employee name as an input and display the employee details along with assigned task and the status of the task. Note that there may be more than one task assigned to employee.<br>**Following are the data files:**<br>Employee (emp_id : emp_name : salary : department)<br>Project (project_id : project_name )<br>Task_allocation (task_id : task_description : emp_id : project_id : status)<br><br>2. Write a script which takes game type and cricketer name from command line. If the cricketer played the type of game then calculate the total score of that cricketer. Print "Record not found" in case of data not available. Put appropriate command line validations.<br>**Consider the following data files.**<br>GAME(GAME_ID \| GAME_TYPE)<br>CRICKETER(C_ID \| C_NAME \|GAME_ID \| SCORE \| 4S \| 6S)<br>**Report should be in following format:**<br>**==========**<br>**Cricketer Name: <<==>>**<br>**Game type: <<==>>**<br>**Total Runs: <<==>>**<br>**Runs from 4s: <<==>>**<br>**Runs from 6s: <<==>>**<br>**==========**<br><br>3. Write a script which takes branch name and customer id from command line. Based on input display the amount deposit details for that particular customer who belongs to that branch. Print customer details at the top of report and at last print total deposited amount. Print "Record not found" in case of data not available. Put appropriate command line validations.<br>**Consider the following data files.**<br>BRANCH (BID \| BNAME \| CITY)<br>CUSTOMERS (CID \| CNAME \| CITY)<br>DEPOSIT (ACC_NO \| CID \| BID \| AMOUNT \| DEPODATE)<br><br>4. Write a script that takes author name and publisher name from user and generate the report for the book details which belongs to inputted author name and publisher.<br>**Following are the data files:**<br>Author (author_id : author_name )<br>Publisher (publisher_id : publisher_name)<br>Book (book_id : book_name : author_id : publisher_id : price )<br>**Generate following reports**:<br>1. Author name and publisher name wise report:<br>**book_id book_name author_name publisher_name price**<br>2. Publisher wise book report:<br>**Publisher Name: <<Publisher name>>**<br>**Book id Book Name Author Name Price**<br><br>5. Write a script that takes employee id from user and display the report as given below.<br>**Following are the data files:**<br>Employee (emp_id : emp_name : salary : department)<br>Project (project_id : project_name ) |

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| | Task (task_id : task_description : emp_id : project_id )<br><br>**Generate following reports:**<br>1. Employee id wise report:<br>**Employee Name:** <<Name>><br>**Department:** <<Department>><br>**task_id task_description emp_name project_name**<br>2. Employee wise project details:<br>**Employee Name:** <<Name>><br>**Department:** <<Department>><br>**Project id project name** |
| **Objective(s)** | • Student shall be able to apply knowledge of commands to develop shell script.<br>• Student shall understand use of different operators used in shell script.<br>• Student shall understand use of different looping constructs.<br>• Student shall understand use of commands inside shell script and file operations.<br>• Student shall understand use of case and select loop constructs.<br>• Student shall work with the text files to generate reports. |
| **Pre-requisite** | ✓ Purpose and syntax of all commands as well as different shell script constructs.<br>✓ Purpose and syntax of different shell script constructs.<br>✓ Usage of commands inside shell script. |
| **Duration for completion** | 3 hours |
| **PEO(s) to be achieved** | **PEO1**: To provide sound foundation in the fundamentals of computer application along with analytical, problem-solving, design and communication skill for life-long learning in chosen field.<br>**PEO2**: To provide quality practical skill of tools and technologies to solve industry problems. |
| **PO(s) to be achieved** | **PO6**: Ability to use the techniques, skills and modern tools as necessary for software development. |
| **CO(s) to be achieved** | **CO1**: Study of LINUX/UNIX environment and its need.<br>**CO2**: Understand and use utilities to work with LINUX/UNIX environment.<br>**CO3:** Understand and use Shell features of redirection, pipe, grouping commands, joining commands and running jobs. |
| **Solution must contain** | Program, output and description |
| **Nature of submission** | Handwritten |
| **Reference for solving the problem** | Book:<br>i. Forouzan B. A., Gilberg R. R., UNIX and Shell Programming, Thomson<br>ii. Das S., UNIX aoncepts and Applications, McGraw Hill |

| **Practical No : 6** | **Enrollment No:** |
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| **Practical Problems** | 1: Write a **chmod** command for following rwx triplets using symbolic code & octal code either for file or directory:<br>1. rwxrwxrwx<br>2. - - - - -rw-<br>3. r-xr-xr-x<br>4. -w- -w- -w-<br>5. r- -r- -r- -<br>6. -w---x-w-<br>7. -wx—xr- -<br>8. rw-rw-rw-<br>9. - - - - - - - - -<br>10. rwxrw-r - -<br><br>2: Perform following instruction and execute commands.<br>1. Write command to send your current process in background.<br>2. Write a command to bring lastly suspended job in foreground.<br>3. Write two different ways to terminate a job having ID 5.<br>4. What will be the effect of following command?<br>$fg<br>$fg %%<br>5. What will be the output of ps command? Describe all columns.<br>6. What will be the output of **jobs** command? Give detailed of all columns. |
| **Objective(s)** | • Student shall understand use of **chmod** command for granting and revoking of permissions to files as well as directories using symbolic code and octal values for user, group & others.<br>• Student shall understand concept of converting particular permission into rwx triplets for file.<br>• Student shall understand use of **umask** command for setting default permissions for files as well as directories & convert it into rwx triplets.<br>• Student shall understand use of Job Scheduling commands. |
| **Pre-requisite** | ✓ Usage of **chmod** command and meaning of all set of permissions.<br>✓ Usage and concept of job scheduling commands. |
| **Duration for completion** | 2 hours |
| **PEO(s) to be achieved** | **PEO1**: To provide sound foundation in the fundamentals of computer application along with analytical, problem-solving, design and communication skill for life-long learning in chosen field.<br>**PEO2**: To provide quality practical skill of tools and technologies to solve industry problems. |
| **PO(s) to be achieved** | **PO6**: Ability to use the techniques, skills and modern tools as necessary for software development. |
| **CO(s) to be achieved** | **CO1**: Study of LINUX/UNIX environment and its need.<br>**CO2**: Understand and use utilities to work with LINUX/UNIX environment. |
| **Solution must contain** | Command, output and interpretation |
| **Nature of submission** | Handwritten |
| **Reference for solving the problem** | Book:<br>i. Forouzan B. A., Gilberg R. R., UNIX and Shell Programming, Thomson<br>ii. Das S., UNIX aoncepts and Applications, McGraw Hill |
| **Post laboratory questions** | 1. What is the syntax of **chmod** command?<br>2. List out different symbolic codes with their meaning.<br>3. List out different octal values with permissions.<br>4. List different users' categories. |

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| | 5. What are the three levels of security in LINUX?<br>6. What permission is needed in directory to list the content of a directory?<br>7. What type of permission is needed to delete a file from a directory?<br>8. What is the syntax of **umask** command?<br>9. What is the difference between use of **chmod** & **umask** command for granting and revoking permissions?<br>10. What is foreground job?<br>11. What is background job?<br>12. What is the meaning of "+"(plus) and "-(minus)" sign in output of "jobs" command?<br>13. What are the six different states of job? |