First Semester MCA Degree Examination, June/July 2017
Introduction to UNIX

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions.*

1   a.   With the help of a neat diagram, explain the architecture of UNIX operating system.   (08 Marks)
    b.   With an example explain the differences between internal command and external commands.   (04 Marks)
    c.   Explain the following commands with an example :
       i) stty   ii) script   iii) who-H   iv) cat.   (08 Marks)

2   a.   Explain absolute path name and relative path name with an example.   (06 Marks)
    b.   With a neat diagram, explain the parent-child relationship with respect to file.   (08 Marks)
    c.   Discuss the output of ls command and explain any five options available with the command.   (06 Marks)

3   a.   Write a shell script to accept two filenames as arguments and copy the contents of these two files to file3. Also display the contents of file3 after copying. Explain the commands used.   (06 Marks)
    b.   Explain the syntax forms of if statement and explain the string tests that can be done.   (08 Marks)
    c.   What are positional parameters? Illustrate the significances of $# and $* with an example.   (06 Marks)

4   a.   With sample output demonstrate the following :
       i)   Changing the permission set of a file such that the owner has read, write and execute permission. Group and others have only read permission
       ii)   Change the ownership of a file to "Ram".   (04 Marks)
    b.   Suppose you have the following files in your current working directory :
      file1   file2   file33   file4   f5   f6   f7   Nfile1   Nfile2   Nfile441   file19   file2a   file2b
      State the output of the following commands with the file names :
      i) ls file?   ii) ls ?file*   iii) ls file[a–z]   iv) ls *file $[0 – 9]$*   (08 Marks)
    c.   What is an inode? What are the contents of inode? Explain how Kernel accesses a file.   (08 Marks)

5   a.   Explain the following regular expression used by egrep with examples :
       i) ch?   ii) exp1 ¦ exp2   iii) $(x_1 ¦ x_2)x_3$.   (06 Marks)
    b.   Discuss remembered pattern and repeated pattern with an example.   (06 Marks)
    c.   Explain the following filters with examples :
       i) head   ii) tail   iii) cut   iv) paste.   (08 Marks)

6   a.   What are the advantages of using awk? Explain its syntax with an example.   (06 Marks)
    b.   Write an Awk sequence to find HRA, DA and net-pay of an employee where DA = 70% basic, HRA = 10% of basic pay and net – pay is sum of HRA, DA and basic pay.   (08 Marks)
    c.   Write sed or awk instruction to :
       i)   Replace the word "gum" with "drum" in a file named f_1
       ii)   Print the line numbers before each line.   (06 Marks)

7 a. Explain the syntax and working of a shell function with an example. (06 Marks)
   b. Write a shell function to generate a filename from the system date. (06 Marks)
   c. Explain the use of eval and exec statement. (08 Marks)

8 a. What is a process? Explain the mechanism of process creation. How can the user know the
       PID of the current shell? (08 Marks)
   b. How can priority of a process be changed? Illustrate with an example. (06 Marks)
   c. Explain how the foreground and background jobs can be switched. (06 Marks)

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