CBCS SCHEME

Fifth Semester B.E. Degree Examination, Jan./Feb. 2023
UNIX Programming

Time: 3 hrs.   Max. Marks: 100

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

Module-1

1   a.   Compare internal commands and external commends, files and processes.   **(06 Marks)**
     b.   Explain all the features of UNIX operating system.   **(09 Marks)**
     c.   Write the output for the following commands :
         i)   cal 10 2021
         ii)   date +"%D%T"
         iii)   type echo
         iv)   passwd
         v)   who.   **(05 Marks)**

OR

2   a.   Explain the different categories of files with examples.   **(06 Marks)**
     b.   Describe the parent child relationship in UNIX file system and differentiate absolute pathnames with relative path names.   **(06 Marks)**
     c.   Write the description for the following commands.
         i)   mkdir college college/ISE college/CSE
         ii)   mV $f_1 \cdot C$ $f_2 \cdot C$ $f_3 \cdot C$ cprogs
         iii)   if my pwd is /home/ravi/progs then Cd ··/··
         iv)   ls – l ¦ wc – l
         v)   cp f_1 f_2 f_3 files
         vi)   rm – i chap1
         vii)   cat >> test·txt
         viii) rmdir college/ISE   **(08 Marks)**

Module-2

3   a.   Explain all the options of ls commands with examples.   **(06 Marks)**
     b.   Consider a file test·txt with default permissions as – rw – r – – r – –, grant execute permission to owner, write and execute permission to group members and execute permission to others using both relative and absolute approaches.   **(04 Marks)**
     c.   Write the output for the following commands.
         i)   cp ???? progs
         ii)   rm 'chap*'
         iii)   mV *·[!C][!P][!P] progs
         iv)   cat *·txt ¦ wc – C
         v)   cp chap\[0 – 1\].   **(05 Marks)**
     d.   Explain the grep command with all its options.   **(05 Marks)**

OR

4 a. Write a program to read pattern and filename from the user and search the pattern in the given file. **(05 Marks)**

   b. Write the output for the following commands.
   i) grep "Anil" std.lst || echo "pattern not found"
   ii) test $x – gt $y
   iii) [–Z $stg]
   iv) [–r $file]
   v) [!– n $stg] **(05 Marks)**

   c. Explain all the looping statements with syntax. **(06 Marks)**

   d. Write a shell script to read multiple patterns from the command line and search these patterns in the given file which is also read from command line by using shift command.
   [Ex. Command line arguments as below #>script.sh pat$_1$ pat$_2$ pat$_3$ pat$_4$ pat$_5$]. **(04 Marks)**

Module-3

5 a. Explain the General File API's open( ), read( ), write( ), lseek( ) with their prototype. **(10 Marks)**

   b. Describe the memory layout of a C program with a diagram and explain memory allocation API's with their prototypes. **(10 Marks)**

OR

6 a. Explain setjmp and longjmp, getrlimit and setrlimit function with examples. **(10 Marks)**

   b. Describe how the process is created by using fork( ) and vfork( ). List out the properties inherited from the parent when the child process is created? **(10 Marks)**

Module-4

7 a. Explain the implementation of system function using fork( ), exec( ), wait( ) API's. **(10 Marks)**

   b. Define pipes, write a program to send data from parent to child using pipe API and also list its limitations. **(10 Marks)**

OR

8 a. Define semaphores and explain how the IPC is implemented using various semaphore API's. **(10 Marks)**

   b. Explain the implementation of shared memory IPC mechanism with all its API's and their prototypes. **(10 Marks)**

Module-5

9 a. Define signal and list the actions taken by a process when the signal is raised. Explain the signal API's signal( ), sigset( ), sigaction( ). **(10 Marks)**

   b. Explain how kill API is used for sending a signal to a process and explain the implementation of sleep API using alarm API. **(10 Marks)**

OR

10 a. Define the Daemon process. Explain all the coding rules to be followed while coding a daemon process **(10 Marks)**

   b. Write a note on interval timer. **(05 Marks)**

   c. Explain the BSD syslog facility for handling Daemons error messages. **(05 Marks)**

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