Fifth Semester B.E. Degree Examination, June/July 2024
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. Explain with a neat diagram a architecture of UNIX OS.   (08 Marks)
   b. List and explain the salient features of UNIX OS.   (07 Marks)
   c. What are internal and external commands in UNIX? Explain with an example each.   (05 Marks)

OR

2 a. Briefly explain different types of files supported in UNIX.   (05 Marks)
   b. Illustrate with a diagram, the typical UNIX file system.   (05 Marks)
   c. Explain Absolute and Relative pathnames with an example.   (05 Marks)
   d. Explain the following commands with the help of example :
      i) cat   ii) mv   iii) cp   iv) wc   v) pwd.   (05 Marks)

Module-2

3 a. Define File Permission. Describe different ways of changing file permission.   (05 Marks)
   b. Which command is used for listing file attributes? Explain the significance of each field in
      the output.   (07 Marks)
   c. File current permissions are rw _ _ w _ r _ _. Write chmod expression required to change
      them to relative and absolute mode for following.
      i)   r _ _ r _ _ _ x   ii) rwx rwx _ _ x
      iii) r _ xr _ xr _ x   iv) rw _ _ w _ _ w _   (08 Marks)

OR

4 a. Explain three standard files with respect to UNIX OS.   (06 Marks)
   b. With the help of an example, explain grep command with all the options (any five options).
                                                                                          (08 Marks)
   c. Write a shell script to : i) display list of files   ii) Process of user
      iii) Today's date   iv) Users of the system   v) Content of a file.   (06 Marks)

Module-3

5 a. Explain the following API's along with their prototype :
      i) Open   ii) fcntℓ   iii) ℓseek.   (12 Marks)
   b. Define the following :
      i) Read lock   ii) Write lock   iii) Mandatory lock   iv) Advisory lock.   (04 Marks)
   c. Explain getrlimit and setrlimit functions with prototype.   (04 Marks)

OR

6 a. With a neat diagram, explain how a C program is started and terminated in various ways.
      Demonstrate the use of atexit function with a sample program.   (10 Marks)
   b. With a neat sketch, explain memory layout of a C program.   (05 Marks)
   c. Write a C/C++ program to display :
      i) Command line arguments   ii) Environment variables.   (05 Marks)

Module-4

7 a. What are Interpreter files? Give the difference between interpreter files and interpreter. **(06 Marks)**

b. What are Pipes? What are its limitations? Explain how pipes are created and used in IPC, also write a program to send data from parent to child over a pipe. **(12 Marks)**

c. What is Inter – Process Communication? List any 4 mechanisms of IPC. **(02 Marks)**

OR

8 a. With a neat block diagram, explain how FIFO can be used to implement client server communication model. **(08 Marks)**

b. Briefly explain with example :
  i) message queue   ii) semaphores. **(08 Marks)**

c. What are Stream pipes? What are the different ways to view stream pipes? **(04 Marks)**

Module-5

9 a. What are Signals? Mention different sources of signals. Write a program to setup signal handlers for SIGINIT and SIGALRM. **(10 Marks)**

b. What are Daemon process? Explain the characteristics and coding rules of a daemon process. **(10 Marks)**

OR

10 a. Explain Kill ( ) API and alarm ( ) API. **(06 Marks)**

b. Write a C/C++ program to illustrate the use of 'Sigaction'. **(06 Marks)**

c. Explain the sig.setjmp and sig.longjmp function with an example. **(08 Marks)**

* * * * *