CBCS SCHEME

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

18CS56

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)**

* * * * *