CBCS SCHEME

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15CS744

Seventh Semester B.E. Degree Examination, July/August 2022
UNIX System Programming

Time: 3 hrs. Max. Marks: 80

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

Module-1

1 a. Compare and explain: ANSI C and K and R C with examples. **(08 Marks)**

b. Explain feature test macros in POSIX system. **(05 Marks)**

c. Define different versions of POSIX. **(03 Marks)**

OR

2 a. What are API common characteristics? List any six values of the global variable errno along with their meanings. **(08 Marks)**

b. Define FIPS. What are the restrictions specified to POSIX.1 by FIPS standard? **(08 Marks)**

Module-2

3 a. Explain the commands to create different file types supported by UNIX. **(06 Marks)**

b. Explain UNIX Kernel Support for files with a neat sketch. **(06 Marks)**

c. Give any four differences between hard link and symbolic link files. **(04 Marks)**

OR

4 a. Explain the following API's with their prototypes:
(i) open ( )
(ii) read ( )
(iii) write ( )
(iv) close ( ) **(08 Marks)**

b. Write C/C++ command line program to implement UNIX MV Command. **(04 Marks)**

c. Create a write lock for a region behind 5 bytes form current file offset position to the end of the file. Consider file size is 100 bytes and current file offset is at 10 bytes. **(04 Marks)**

Module-3

5 a. Write a C/C++ program to display:
(i) Command line arguments
(ii) Environment variables. **(08 Marks)**

b. What is the use of setjmp and longjmp functions? Illustrate them with simple program. **(08 Marks)**

OR

6 a. Explain in detail the family of exec functions. **(08 Marks)**

b. What is race condition? Mention and explain routines to avoid race condition. **(08 Marks)**

Module-4

7 a. Define Daemon process. Discuss the basic coding rules of the Daemon process. **(08 Marks)**

b. What is signal mask of a process? Explain sigprocmask function along with its prototype. **(08 Marks)**

OR

8 a. Explain in detail (i) Kill ( ) (ii) alarm ( ) with programs if necessary. **(08 Marks)**

b. Explain Sigaction API with its prototype. **(08 Marks)**

Module-5

9 a. What is FIFO? With a neat figure show FIFOs are used for client server communication. **(08 Marks)**

b. What is message queue? Write and explain functions to use message queue for sending and receiving data. **(08 Marks)**

OR

10 a. What is inter-process communication? List any four mechanism (IPC). Also write C/C++ to create child process to print a message. **(08 Marks)**

b. Explain shared memory as an Inter-Process Mechanism (IPC). **(08 Marks)**

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