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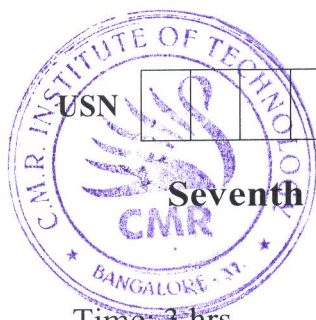
Seventh Semester B.E. Degree Examination, Dec.2023/Jan.2024
UNIX System Programming

Time: 3 hrs.   Max. Marks: 80

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

Module-1

1   a. Explain the differences between ANSI 'C' and K & R 'C' with examples.   (08 Marks)
    b. Describe the all feature test macros.   (05 Marks)
    c. Explain the different substes of posix standard.   (03 Marks)

OR

2   a. Write a C++ program to check the following limits:
       (i)   Maximum number of child processes that can be created.
       (ii) Maximum number of files that can be opened simultaneously
       (iii) Maximum number of characters in a filename
       (iv) Maximum number of links a file may have.   (06 Marks)
    b. Define the API. List the functions of API and give the reason for API's more time
       consuming than the library functions.   (04 Marks)
    c. Explain the any six error status codes for API failure.   (06 Marks)

Module-2

3   a. List and explain the different file types available in UNIX.   (06 Marks)
    b. Describe the UNIX Kernel support for files.   (06 Marks)
    c. List the differences between hard link and symbolic link.   (04 Marks)

OR

4   a. Explain the open( ) and lseek( ) API's.   (06 Marks)
    b. Explain the fcntl( ) API for file and record locking with an example. (10 Marks)

Module-3

5   a. Explain the different ways of process termination.   (06 Marks)
    b. Illustrate the use of setjmp and longjmp functions.   (06 Marks)
    c. Explain the fork( ) API with example.   (04 Marks)

OR

6   a. Explain the different versions of exec( ) functions.   (06 Marks)
    b. Write a short note on network login.   (04 Marks)
    c. Briefly summarize job control features with neat diagram.   (06 Marks)

Module-4

7   a. Define the signal. Explain the three ways the process can react to pending signals. (04 Marks)
    b. Describe the API used to mask the signals with program example.   (06 Marks)
    c. Briefly explain the Kill( ) and alarm( ) API.   (06 Marks)

OR

8 a. Define daemon process. List and explain daemon process characteristics and coding rules.
(10 Marks)

b. With a neat diagram, explain the method of error logging.
(06 Marks)

Module-5

9 a. Explain the pipes for inter process communication with a program example.   (07 Marks)

b. Describe the FIFOs, with neat diagram for IPC.   (06 Marks)

c. List the different ways in which the client and server processes can get access to same IPC structure.   (03 Marks)

OR

10 a. Explain the following functions with prototype: (i) msgctl( )   (ii) semctl( )   (08 Marks)

b. Write a program to drive the add2 filter using stream pipe.   (08 Marks)

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