CBCS SCHEME

USN | | | | | | | | | | 15CS744

Seventh Semester B.E. Degree Examination, June/July 2019

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. What do you understand by the term feature test macros? List all the five feature test macros along with their meanings. **(08 Marks)**

b. Write C/C++ program to check the following limit using function defined by POSIX.1
i) Number of clock ticks per second
ii) Maximum number of child process
iii) Maximum path length
iv) Maximum number of character in a filename **(08 Marks)**

OR

2 a. Write notes on: i) POSIX.1 FIPS standard ii) X/open standard **(08 Marks)**

b. Explain the common characteristics of API and describe the error status code and their meaning. **(08 Marks)**

Module-2

3 a. What is a tile? Explain different file types available in UNIX or POSIX systems. Also write the commands to create all the files. **(08 Marks)**

b. Explain the UNIX Kernel support for files with a neat diagram• **(08 Marks)**

OR

4 a. Explain the following API's along with prototypes:
i) open ii) fend iii)S,seek iv) stat & fstat **(08 Marks)**

b- Explain directory file API's and FIFO file API's. **(08 Marks)**

Module-3

5 a. Explain with a neat diagram how a C-program is started and terminated in various ways. **(08 Marks)**

b. Describe the UNIX Kernel support for a process. Show the related data structure. **(08 Marks)**

OR

6 a. Explain the following functions: i) waitid ii) wait3( ) iii) wait4( ) **(08 Marks)**

b. What is job control? What are the three forms of support from OS required for job control mechanism? Explain with the help of neat diagram. **(08 Marks)**

Module-4

7 a. What is signal? Discuss any five POSIX defined signals. Explain how to set **up a signal** handler. **(08 Marks)**

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

OR

8 a. Briefly explain the Kill( )API and alarm( )API. **(08 Marks)**

b. What is daemon? Explain coding rules and error logging. **(08 Marks)**

Module-5

9 a. What are pipes? What are its limitations? Write a program to send data from parent to child over a pipe. **(08 Marks)**

b. What is FIFO? Explain how it is used in 1PC. Discuss with an example, the client server communications using FIFO's. **(08 Marks)**

OR

10 a. What are message queues? Write the structure of the message queue and explain each member in detail. **(08 Marks)**

b. Write short notes on:

i) Stream pipes

ii) Passing File Descriptors **(08 Marks)**