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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
- Number of clock ticks per second
 - Maximum number of child process
 - Maximum path length
 - 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 file? 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) fcntl iii) lseek 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 prototype. (08 Marks)



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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 IPC. 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)
