

CBCS SCHEME

17CS744

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Seventh Semester B.E. Degree Examination, July/August 2021 Unix System Programming

Max. Marks: 100

Time: 3 hrs.

Note: Answer any FIVE full questions.

- 1 a. Explain the major differences between ANSI C and K&RC. (10 Marks)
b. Explain the POSIX Feature Test Macros, write a program that prints POSIX defined configuration options supported on a given system. (10 Marks)
- 2 a. Explain any 10 compile time limits. (10 Marks)
b. Explain the functions used to query configuration limits at run time with program. (10 Marks)
- 3 a. Explain the UNIX kernel support for files. (10 Marks)
b. Explain the following APIs:
i) open() ii) lseek() iii) write() iv) stat() v) create. (10 Marks)
- 4 a. Explain File and Record locking. (10 Marks)
b. Write a program illustrating use of mknod, open, read, write and close APIs on a block device file. (10 Marks)
- 5 a. What are the features provided by wait pid functions and not by wait function? (03 Marks)
b. Write a program to avoid zombic processes by forking twice. (07 Marks)
c. Explain Terminal logins and Network logins. (10 Marks)
- 6 a. With a neat diagram, explain the characteristics of sessions and process groups with their prototypes. (10 Marks)
b. Explain: i) Race condition ii) Exec Functions. (10 Marks)
- 7 a. Define Signal. With prototype explain any five signals and three methods of handling signals. (10 Marks)
b. Write a program to illustrate the implementation of the UNIX kill command. (05 Marks)
c. Write a program to implement sleep API using alarm API. (05 Marks)
- 8 a. Explain SVR4 log and 4.3 + BSD sys log facilities. (10 Marks)
b. Define daemons. Explain the characteristics and coding rules for creating daemon process. (10 Marks)
- 9 a. Define pipes. Explain their limitations. Also write a program to create a pipe and illustrate IPC mechanism. (10 Marks)
b. Explain passing file descriptors along with the three functions to send and receive file descriptors with a neat diagram. (10 Marks)
- 10 a. Explain semaphores with its prototypes in detail. (10 Marks)
b. Explain message queues with its prototypes in detail. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.