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CS61

Sixth Semester B.E. Degree Examination, Dec.08 / Jan.09
Unix System Programming

Time: 3 hrs. Max. Marks:100

Note : ***Answer any FIVE full questions.***

1 a. List the differences between ANSI 'C' and K and R 'C'. Explain. **(05 Marks)**

b. What are POSIX feature test macros available? Explain their significance. Write a program to check for POSIX feature test macros. **(10 Marks)**

c. Explain any five error status codes for error no. **(05 Marks)**

2 a. What are different categories of file types available with Unix? Explain. Give some commands to create each of them. **(10 Marks)**

b. Consider there is a file"x_1.c". You create hard link "x_2.c" to "x_1.c". Next file descriptor of opened file "x_1.c" is copied to file descriptor "fd_3". Further the process which does all these, creates a child process. Explain the kernel support for files for the above scenario. Justify the values for entries of various data structures. **(10 Marks)**

3 a. Write a program to implement ls – l command. **(10 Marks)**

b. Consider last 50 bytes as a region. Write a program to check whether the region is locked or not. If the region is locked print pid of the process which has locked. If the region is not locked, lock the region, read last 20 bytes and unlock the region. **(10 Marks)**

4 a. With a neat diagram explain how the 'C' program is started and how it terminates. **(10 Marks)**

b. What are setimp and longimp function? Explain with a program to transfer the control across functions using them. **(10 Marks)**

5 a. Explain the following system calls :
i) fork ii) vfork iii) exit iv) wait **(10 Marks)**

b. Giving the prototype explain different variants of exec system call. **(10 Marks)**

6 a. What are process groups, sessions and controlling terminal? Explain. And also explain their interrelationship. **(10 Marks)**

b. What are the supports needed by operating system to provide job control? Explain. **(10 Marks)**

7 a. Briefly explain any five Unix signals. **(05 Marks)**

b. What is signal function? Explain its significance. **(05 Marks)**

c. What is daemon process? Explain the coding rules for creating daemon process. Write a program to create daemon process. **(10 Marks)**

8 a. Write a program to implement popen and pclose system calls. **(10 Marks)**

b. What are different system calls available to create and manipulate semaphores? Explain. **(10 Marks)**

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