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06CS62

Sixth Semester B.E. Degree Examination, Dec.2013/Jan.2014
Unix System Programming

Time: 3 hrs. Max. Marks:100

Note: ***Answer FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. Explain the major difference between ANSI C and K and R C? **(04 Marks)**

b. List and explain all the POSIX.1 defined constants for limits checking at compile time and Run time. **(08 Marks)**

c. Write a C/C++ program to print the POSIX-defined configuration options supported on any given system. **(08 Marks)**

2 a. With a neat diagram explain the Unix kernel support for files. **(08 Marks)**

b. What are inodes in Unix? What are its significances? Explain with examples. **(06 Marks)**

c. Describe Hard links and symbolic links in Unix. Differentiate between them with examples. **(06 Marks)**

3 a. Explain the following general file APIs:
(i) fcntl( ) (ii) lseek( ) (iii) stat( ) **(12 Marks)**

b. Explain the device file APIs and FIFO file APIs with examples. **(08 Marks)**

4 a. With a neat diagram, describe how a C-program is started and various ways it terminates? **(07 Marks)**

b. With a neat sketch, explain the memory layout of a C-program. **(07 Marks)**

c. Write a C/C++ program to illustrate the use of setjmp( ) and longjmp( ) functions? **(06 Marks)**

PART – B

5 a. Write a C/C++ program to create a new process? Also explain the similarities and dissimilarities between the parent and child process? **(07 Marks)**

b. Explain in detail the family of exec functions. **(07 Marks)**

c. What is process accounting? Write a C/C++ program to generate accounting data. **(06 Marks)**

6 a. What are signals? Write a C/C++ program to catch, ignore and accept the default actions of the signal? **(06 Marks)**

b. What is a signal mask of a process? Write a C/C++ program to check whether the SIGINT signal is present in a signal mask and adds if it is not there? **(06 Marks)**

c. Describe the Daemon characteristics and coding rules for the Daemon process? Also write a C/C++ program to initialize the daemon process. **(08 Marks)**

7 a. What are pipes? Write a C/C++ program to send data from parent to child over a pipe? **(10 Marks)**

b. What are FIFOs? With a neat diagram, explain the client server communicating FIFOs. **(10 Marks)**

8 a. Explain the socket system calls for both in the connection-oriented and connectionless protocols with neat diagrams for both the cases. **(10 Marks)**

b. Write short notes on the following :
(i) Terminal login (ii) Job control
(iii) wait( ) and waitpid( ) APIs (iv) Resource limit functions/APIs **(10 Marks)**

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