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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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