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Sixth Semester B.E. Degree Examination, December 2012
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 different functions used to query system-wide limits. Write a C program to demonstrate how to use the functions to query the limits. (10 Marks)
- b. What is an API? List the functions which are performed by the Unix system APIs. Also explain why calling an API is more time-consuming than calling a user defined functions. (06 Marks)
- c. Differentiate between ANSIC and C++. (04 Marks)
- 2 a. Explain the different types of Unix or POSIX files. Also explain how to create these files. (10 Marks)
- b. Differentiate between C stream pointers and file descriptors. (05 Marks)
- c. Differentiate between hard link and symbolic links. (05 Marks)
- 3 a. Explain the following file APIs with their prototypes:
i) write ii) lseek iii) link iv) stat (10 Marks)
- b. Discuss the file and record locking in unix system. Explain the fcntl API for file locking. (10 Marks)
- 4 a. What are the different ways of process termination? Differentiate between exit and –exit functions. (06 Marks)
- b. Write a C program to echo all its command-line arguments to standard output. (04 Marks)
- c. Explain the setjmp and longjmp functions with its prototypes. Illustrate the use of setjmp and longjmp function, with a example program. (10 Marks)

PART – B

- 5 a. Explain how vfork function is different than fork function. Also, write a program to demonstrate both fork and vfork functions. (10 Marks)
- b. Explain process groups and sessions. Discuss their relationship, with controlling terminal. (10 Marks)
- 6 a. Explain the following APIs related to signals with their prototypes:
i) Sigprocmask ii) Sigaction iii) Sigsetjmp iv) kill. (10 Marks)
- b. What are Daemon processes? Explain the Daemon characteristics and coding rules. (10 Marks)
- 7 a. What are pipes? List the two limitations of pipes. Explain how to create a pipe. Write a program to send data from parent to child over a pipe. (10 Marks)
- b. Explain how client and server will communicate using FIFOs. (05 Marks)
- c. Explain the following functions related to message queues:
i) msgget ii) msgsnd (05 Marks)
- 8 a. Explain the following socket programming functions with their prototypes:
i) socket ii) connect iii) listen iv) accept. (10 Marks)
- b. Explain the different functions which will be used for exchanging data on sockets. (10 Marks)

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