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06CS62

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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