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10CS62

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 atleast TWO questions from each part.***

PART – A

1 a. Explain the major differences between K and R 'C' and ANSI 'C' with examples. **(08 Marks)**

b. List all feature test macros along with their effect if defined in a system. **(05 Marks)**

c. Explain why calling API's is more time consuming than calling library functionary? List any six error status codes returned by API's with their meaning. **(07 Marks)**

2 a. Explain the different file types supported by UNIX/ POSIX systems. **(08 Marks)**

b. Explain UNIX Kernel support for files, with a neat diagram. **(07 Marks)**

c. What are hard link and symbolis links? Write any four differences between them. **(05 Marks)**

3 a. Explain the following API's along with prototypes
i) open ii) stat( ) & fstat( ) iii) read( ). **(09 Marks)**

b. Describe the use of fcntl( ) function for file and record locking. **(06 Marks)**

c. Explain device and FIFO file API's with prototype. **(05 Marks)**

4 a. With a neat diagram, explain how a 'C' program is stated and how it is terminated. **(06 Marks)**

b. Explain memory layout of a 'C' program, with a neat diagram. **(06 Marks)**

c. Explain the use of getrlimit( ) and setrlimit( ) functions along with prototypes. What are the rules that govern the changing of resource limits? **(08 Marks)**

PART – B

5 a. Explain fork( ) along with prototype write a program to illustrate the use of fork( ). **(07 Marks)**

b. Explain wait( ) and waitpid( ) functions along with prototypes. **(05 Marks)**

c. What is job control? What support is need for job control? Briefly summarize job control features along, with a diagram. **(08 Marks)**

6 a. Discuss signal concept. Explain any five signals briefly. **(07 Marks)**

b. Explain the following signal functions :
i) Sigprocmask( ) ii) Sigaction( ). **(06 Marks)**

c. Explain Daemon process? What are its coding rules? Write a program that initializes itself as a daemon. **(07 Marks)**

7 a. What are pipes? What are its limitations? Write a program to send data form parent to child over a pipe. **(07 Marks)**

b. With a neat diagram, explain interprocess communication using FIFO. **(06 Marks)**

c. What are the different system calls available to create and manipulate semaphores? **(07 Marks)**

8 a. Along with prototype, explain the following functions related to shared memory :
i) shmget ii) shmctl( ). **(08 Marks)**

b. What are stream pipes? Write a program to drive the add2 filter using stream pipe. **(12 Marks)**

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