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NEW SCHEME

Sixth Semester B.E. Degree Examination, July 2007
CS / IS
Unix System Programming

Time: 3 hrs.] [Max. Marks:100

Note: ***Answer any FIVE full questions.***

1 a. What is POSIX standard? Explain different subsets of POSIX standard. Write the structure of the program to filter out non – POSIX compliant codes from a user program. **(08 Marks)**

b. Write a C/C++ POSIX compliant program that prints the POSIX defined configuration options supported on any given system using feature test macros. **(08 Marks)**

c. What is an API? How it is different from the C library function? Why is calling an API is more time consuming than calling a user function? **(04 Marks)**

2 a. List and explain the access mode flags and access modifier flags used in open API. Also explain how the permission value specified in an56+ 'open ' call is modified by its calling process 'umask' value. **(08 Marks)**

b. Describe the UNIX kernel support for files. **(08 Marks)**

c. Write the command to create a block device file called SCS15 with major and minor device numbers 15 and 3 respectively and access rights read – write – execute for everyone. **(04 Marks)**

3 a. Discuss how fcntl API is used for file and record locking. **(08 Marks)**

b. Describe the UNIX kernel support for a process. Show the related data structures. **(08 Marks)**

c. Give the hierarchy structure of the file classes. **(04 Marks)**

4 a. What is fork and vfork? Explain with an example program for each. **(08 Marks)**

b. What is race condition? Write a program in C/C++ to illustrate the race condition. **(08 Marks)**

c. Write a C/C++ program that outputs the contents of its environment list. **(04 Marks)**

5 a. Explain the different exec functions. How does their functioning differ from each other? **(10 Marks)**

b. What is Job control? Summarize the Job control features with the help of a figure. **(10 Marks)**

6 a. What is a Signal? Discuss any five POSIX defined signals. Explain how to setup a signal handler. **(10 Marks)**

b. Discuss daemon characteristics and coding rules. **(10 Marks)**

7 a. What is shared memory concept? How it is used for implementing IPC? **(10 Marks)**

b. What are Pipes? Explain their limitations. Explain how pipes are created and used in IPC with an example. **(10 Marks)**

8 Write short notes on any Four:

a. Zombie process

b. Inodes.

c. Network login

d. Semaphores.

e. Process group and sessions. **(20 Marks)**