USN | | | | | | | | | | |

06CS62

Sixth Semester B.E. Degree Examination, May/June 2010
UNIX Systems Programming

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. What are the major differences between ANSI 'C' and K and R 'C'? Explain with examples. **(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 POSIX API? Why is calling an API more time consuming than calling a user function? **(04 Marks)**

2 a. Explain the different file types available in UNIX or POSIX systems. **(08 Marks)**

b. Discuss with a neat diagram the different data structures supported by UNIX Kernel for file manipulation. **(08 Marks)**

c. Bring out the differences between hard link and symbolic link. **(04 Marks)**

3 a. Explain the following APIs along with their prototype definitions :
i) Open ; ii) Write ; iii) Fcntl ; iv) Fstat. **(08 Marks)**

b. What are symbolic link file APIs? Write a C/C++ program to emulate the UNIX Ln command. **(08 Marks)**

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

4 a. Write a C/C++ program to demonstrate the use of atexit function. **(10 Marks)**

b. Explain briefly the memory layout of C program. **(10 Marks)**

PART – B

5 a. What is fork and vfork? Explain with a program for each. **(10 Marks)**

b. What is a controlling terminal? Explain its characteristics and relation to session and process groups. **(10 Marks)**

6 a. What is a signal? Explain with a program how to set up a signal handler. **(10 Marks)**

b. What is a daemon process? Explain daemon characteristics and basic coding rules. **(10 Marks)**

7 a. Explain how FIFO is used in JPC. Discuss with an example the client – server communication using FJFO. **(10 Marks)**

b. Explain popen and pclose functions with prototypes and write a program to demonstrate popen and pclose functions. **(10 Marks)**

8 a. Explain socket addressing, socket creation, connection establishment and data transfer with appropriate APIs. **(10 Marks)**

b. What are send and recv socket calls? Explain various flags used with send and recv calls. **(10 Marks)**

* * * * *