

--	--	--	--	--	--	--	--	--	--

Sixth Semester B.E. Degree Examination, June/July 2014
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. What are the major differences between ANSI C and K&R C? Explain with examples. (08 Marks)
 b. What is POSIX API? Explain the commonly occurring error status codes and their meaning. (08 Marks)
 c. Write a C++ program to check and display the POSIX version constant of the system on which it is run. (04 Marks)
2. a. Discuss with a neat diagram the different data structures supported by Unix kernel for file manipulation. (08 Marks)
 b. List all the attributes of UNIX or POSIX file along with their meaning. Which are the attributes that remains unchanged for the entire life of the file and why? (08 Marks)
 c. Differentiate between hard link and symbolic link. (04 Marks)
3. a. Explain the following API's along with their prototype definition and possible cause for failure:
 (i) open (ii) write (iii) fcntl (iv) stat (12 Marks)
 b. How do you access and modify the time stamps of a file? Explain the prototype used for that. Write a program to illustrate the usage of the above prototype. (08 Marks)
4. a. Explain the use of setjmp and longjmp functions, with examples. (08 Marks)
 b. With related data structure, explain the Unix kernel support for a process. (08 Marks)
 c. What are the different ways in which a process can terminate normally? (04 Marks)

PART – B

5. a. List and explain the different forms of exec function with prototype declaration along with meaning. Write a program to echo all its command line arguments and environment variables. (12 Marks)
 b. What is process accounting? Write a program to illustrate the generation of accounting data. (08 Marks)
6. a. What are signals? List any four signals along with brief explanation. Write a program to setup signals handler for SIGALRM and SIGINT signals. (08 Marks)
 b. What are daemon processes? Explain the BSD facility adopted by daemon processes for error handling. (08 Marks)
 c. Write a C++ program to illustrate the implementation of the Unix Kill command using the Kill API. (04 Marks)

- 7 a. What are pipes? Explain the different ways to view a half duplex pipe. Write a program to create a pipe between a parent and its child and to send data down the pipe. (10 Marks)
- b. Discuss with an example, the client-server communication using FIFO. (06 Marks)
- c. List along with prototype declaration and meaning, the different types of system calls available to create and manipulate semaphore. (04 Marks)
- 8 a. What is a socket? Describe the socket API. Explain the different API's used for establishing connection between two system using socket? (10 Marks)
- b. Write a short notes on the following : (10 Marks)
- (i) Race condition (ii) File and Record locking.

stupidstupid.com