R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2016
LINUX PROGRAMMING
(Computer Science and Engineering)

Time: 3 Hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a) What are filters? List out various filters available in linux. [2]
b) Explain command substitution [3]
c) Distinguish between dup() and dup2() system calls. [2]
d) Explain the functionality of fcntl() function [3]
e) Explain the sleep() function with syntax. [2]
f) What is the difference between wait() and waitpid()? [3]
g) Differentiate between unnamed and named pipes. [2]
h) With the help of syntax explain popen() function. [3]
i) Explain the necessity of socket address structures. [2]
j) Explain how to perform IPC between processes over a network. [3]

PART-B

(50 Marks)

2.a) Explain various process utilities available in linux.
b) Write a shell script that deletes all lines containing a specified word in one or more files supplied as arguments to it. [5+5]

OR

3.a) Explain various patterns and actions in awk.
b) Write an awk script to perform simple arithmetic operations [5+5]

4.a) Explain the support given by kernel for files in detail.
b) What do you mean by a hole in a file? How does the use of lseek() result in hole in a file? Explain with an example program. [5+5]

OR

5. Explain the file and record locking techniques with relevant example code snippet [10]

6.a) Explain the layout of a C program image in main memory
b) Define orphan process. Write a program to illustrate the orphan process concept. [5+5]

OR

7. Explain the below system calls with the help of syntax and examples:
a) kill b) raise c) alarm d) pause e) abort [10]

8.a) Describe the API provided by linux for semaphores
b) Write a program for locking a file using semaphore [5+5]

OR

9.a) Define unnamed pipe? How do we create unnamed pipe? Explain the limitations of unnamed pipe.
b) Write a program to accept the two integer numbers accepted by child, add them and result should be passed to parent. Parent process should print result on the screen using pipes. [5+5]

10. Describe Socket system calls used for connectionless protocol with syntax and usage. [10]

OR

11.a) Compare the IPC functionality provided by message queues with shared memory.
b) Explain how to handle multiple simultaneous clients. [5+5]