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]

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