R15

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 2018
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 the responsibilities of a kernel? [2]
 b) Mention the functionality of the following commands: grep, uniq, sort. [3]
 c) Define the terms: root directory, home directory, parent directory. [2]
 d) Differentiate between advisory locking and mandatory locking. [3]
 e) Name the advantages of vfork( ) over fork( ) system call. [2]
 f) Discuss kill( ) and raise( ) system calls briefly. [3]
 g) Give the limitations of using pipes. [2]
 h) Compare named pipe FIFO and unnamed Pipes. [3]
 i) Write down the differences between stream sockets and datagram socket. [2]
 j) Explain the system call used to destroy a shared memory segment. [3]

PART-B
(50 Marks)

2.a) Write an awk script to find the smallest integer of 10 integers.
 b) Explain various process utilities in LINUX with clear syntax, few options and example.
[5+5]

OR

3.a) With an example script explain the differences between 'for' and 'foreach' statements.
 b) Explain how debugging can be done in a shell script. [5+5]

4. Discuss the need and importance of fcntl( ) system call with its relative merits and drawbacks. [10]

OR

5. Write the syntax of the following system calls and explain with an example code.
 a) rewinddir( ) b) seekdir( ) [5+5]

6.a) What is a zombie process and explain how it may manifest itself?
 b) Mention the similarities and dissimilarities in between a child process and its parent process. [5+5]

OR

7.a) Explain various exit statuses with an example program.
 b) What are the signals that are not ignored or blocked? Explain the reason behind it. [5+5]

8. Describe various APIs used to implement client/server communication between two unrelated processes in a system using FIFOs with an illustrative example code. [10]

OR

9.a) Give the description of various fields in the permission structure of IPC.
 b) Describe the operations of semop( ) with a sample C program. [5+5]

10. How a shared memory model implemented to achieve IPC? Explain briefly. [10]

OR

11. Explain briefly about the following socket APIs with clear syntax:
 a) socket( ) b) bind( ) [5+5]

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