

Code No: 115ED**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech III Year I Semester Examinations, November/December - 2016****LINUX PROGRAMMING****(Information Technology)****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) Draw the architecture of UNIX like systems. [2]
- b) Explain 3 network related commands. [3]
- c) What are symbolic links? How is it different from hard links? [2]
- d) Why do we need chmod and fchmod functions? [3]
- e) What are the uses of fork function? [2]
- f) What is a zombie process? [3]
- g) Define Inter process communication. [2]
- h) State the importance of file locking. [3]
- i) List out some APIs associated for shared memory. [2]
- j) Write the differences between unix domain and inter domain. [3]

PART - B**(50 Marks)**

- 2.a) Explain briefly about text processing and process utilities.
- b) Differentiate between shell variables and environment variables and user defined variables. [6+4]

OR

- 3.a) Explain the following commands with syntax, options and examples:
i) head ii) tail
- b) Write a shell script to count the number of lines in a text file without using wc command. [4+6]

4. Write about File and Directory maintenance system calls? Give Syntax and examples. [10]

OR

- 5.a) Define a system call? Explain how the system call differs from that of the library functions.
- b) Write the syntax for the following
i) opendir ii) readdir iii) closedir iv) rewinddir [6+4]

- 6.a) Differentiate between `fork()` and `vfork()`.
b) Explain clearly the Signal concept with a suitable example. [4+6]

OR

- 7.a) Write the syntax of six versions of 'exec' functions and also explain how these functions differ from each other.
b) What are the signals that are not ignored or blocked? Explain the reason behind it with an example. [6+4]

8. What are pipes? Explain their limitations. Explain how pipes are created and used in IPC with an examples. [10]

OR

- 9.a) Write a program to illustrate `msgsnd()` and `msgrcv()` system calls.
b) What is meant by name space? Give the name spaces of various IPC mechanisms in Unix. [5+5]

- 10.a) Explain how to attach and detach a shared-memory segment.
b) Explain the working of 'fork' and 'join' in TCP/IP sockets. [5+5]

OR

- 11.a) Explain how to control a shared-memory segment.
b) Explain briefly about the following socket APIs with clear syntax: [4+6]
i) `bind()` ii) `listen()`

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