

**R13****Code No: 117EE****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech IV Year I Semester Examinations, March - 2017****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 shell? [2]
- b) Mention the functionality of the following commands: find, ls, umask. [3]
- c) What is the purpose of dot and dot dot directories in the file system? [2]
- d) Differentiate between soft linking and hard linking. [3]
- e) Name the advantages of waitpid( ) over wait( ). [2]
- f) Discuss signal( ) and abort( ) system calls briefly. [3]
- g) Give the advantages of using named pipes. [2]
- h) What is the effect of O-NDELAY flag on pipes and fifos? [3]
- i) Give the differences between IPv4 and IPv6. [2]
- j) Explain the system call used to create a shared memory segment. [3]

**Part-B (50 Marks)**

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

**OR**

- 3.a) With an example script explain the differences between 'while' and 'until' statements.
- b) List and explain the various meta characters available in shell programming. [5+5]
4. Discuss the need and importance of lseek( ) 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) telldir                      b) mkdir [5+5]
- 6.a) What are process identifiers? Mention the commands for getting different IDs of calling process.
- b) Write a program that demonstrates the use of exit( ). [5+5]

**OR**

- 7.a) What is a signal? How can it be generated? Also explain kernel's action on signal.
- b) Differentiate between reliable signals and unreliable signals. [5+5]

8. Describe various APIs of Message queues that are used for inter process communication. [10]

**OR**

- 9.a) Give the advantages and disadvantages of IPC\_PERM structure.  
b) Describe the operations of semctl( ) with a sample C program. [5+5]

10. Explain with a program how to copy file data from server to client using System V IPC mechanism shared memory. [10]

**OR**

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

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