

**Code No: 117EE****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech IV Year I Semester Examinations, November/December - 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 shell responsibilities? [2]
- b) What are the applications of awk? [3]
- c) What are hard links? [2]
- d) Write about file locking? [3]
- e) What are reliable signals? [2]
- f) Differentiate threads and processes. [3]
- g) What is IPC? [2]
- h) Explain popen. [3]
- i) What are Berkeley sockets? [2]
- j) List the APIs for shared memory. [3]

**PART-B****(50 Marks)**

- 2.a) Explain associative arrays.
  - b) Write a shell script to find the factorial of a number. [5+5]
- OR**
- 3.a) Develop an AWK program to summarize from the list of all processes, a count of processes run by every user (including root).
  - b) Write about text processing utilities. [5+5]
4. Differentiate between the following terms:
    - a) getc( ) Vs fgetc( )
    - b) stat( ) Vs fsat( )
    - c) printf( ) Vs fprintf( )
    - d) scanf( ) Vs fscanf( ).[10]
- OR**
- 5.a) Explain the following system calls:
    - i) open( )
    - ii) seek( )
    - iii) read( )
    - iv) link( )
  - b) Explain directory handling system calls. [5+5]

- 6.a) Differentiate between fork( ) and vfork( ).  
b) Write the syntax of six versions of exec functions and also explain how these functions differ from each other. [5+5]

**OR**

7. Write a c program that accepts two small numbers as arguments and then sums the two numbers in a child process. The sum should be returned by child to the parent as its exit status and the parent should print the sum? [10]

8. Write a program and explain how to transfer a large amount of data between two processes using Message queues. [10]

**OR**

9. Explain the following concepts about pipes:  
a) Pipes between two process  
b) Pipes among three process in a shell. [5+5]

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

**OR**

- 11.a) Explain briefly about the following socket APIs with clear syntax:  
i) socket( ) ii) bind( ) iii) listen( ) iv) accept( ) v) connect( )  
b) Compare various IPC mechanisms. [5+5]

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