

**R13****Code No: 813AM****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****MCA III Semester Examinations, January - 2018****LINUX PROGRAMMING****Time: 3 Hours****Max. Marks: 60****Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 20 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 8 marks and may have a, b, c as sub questions.

PART - A**5 × 4 Marks = 20**

- 1.a) What are filters? List out various filters available in linux. [4]
- b) Distinguish between dup() and dup2() system calls. [4]
- c) Explain the sleep() function with syntax. [4]
- d) Explain briefly about file locking with semaphores. [4]
- e) Explain the necessity of socket address structures. [4]

PART - B**5 × 8 Marks = 40**

- 2.a) Explain associative arrays.
 - b) Write a shell script to find the factorial of a number. [4+4]
- OR**
- 3.a) Explain various patterns and actions in awk.
 - b) Write an awk script to perform simple arithmetic operations. [4+4]
- 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. [4+4]

OR

- 5.a) Explain the following system calls:
i) open() ii) seek() iii) read() iv) link().
 - b) Explain directory handling system calls. [4+4]
- 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? [4+4]

OR

7. Explain the below system calls with the help of syntax and examples:
a) kill b) raise c) alarm d) pause e) abort [8]

8. Explain the following concepts about pipes:
a) Pipes between two process
b) Pipes among three process in a shell. [4+4]
- 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. [4+4]
- 10.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. [4+4]
- OR**
- 11.a) Compare the IPC functionality provided by message queues with shared memory.
b) Explain how to handle multiple simultaneous clients. [4+4]

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