## Sixth Semester B.E. Degree Examination, Dec.2016/Jan.2017
## UNIX System Programming

Time: 3 hrs.

Max. Marks:100

**Note:** *Answer FIVE full questions, selecting atleast TWO questions from each part.*

### PART – A

1 a. Discuss the unix and posix standards. **(12 Marks)**
  b. Distinguish between ANSI C and ANSI C++. **(08 Marks)**

2 a. What are files? Discuss the various file types and their attributes and usages. **(12 Marks)**
  b. Write a C/C+++ program to check the following limits : i) No. of clock ticks ii) maximum number of child processes iii) maximum path length iv) maximum number of characters in a file name. **(08 Marks)**

3 a. Write the prototype and structure of APIs mentioned below. Write a simple program using these APIs. i) open( ) ii) read iii) write iv) close( ). **(12 Marks)**
  b. Describe the use of fcntl( ) API for file and record locking. **(08 Marks)**

4 a. Explain how FIFO file is used to support inter-process communication with a relevant program along with FIFO API. **(12 Marks)**
  b. With a neat diagram, explain how a 'C" program is started and how it is terminated. **(08 Marks)**

### PART – B

5 a. List and explain the different forms of exce functions with prototypes along with their meaning. Write a program to echo all its command line arguments and environment variables. **(12 Marks)**
  b. What is job control? What support is needed for job control? Briefly summarize job control features along with a diagram. **(08 Marks)**

6 a. Discuss the SIGNAL API. Explain any five signals. **(07 Marks)**
  b. Explain the following signal functions : i) sigpromask( ) ii) sigaction. **(06 Marks)**
  c. Write a prototype of ALARM and PAUSE APIs and explain how they operate with a relevant program. **(07 Marks)**

7 a. What are pipes? What are its limitations? Write a program to send data from parent to child over a pipe. **(10 Marks)**
  b. With a neat diagram explain inter-process communication using FIFO. **(06 Marks)**
  c. List the different types of system calls available to create and manipulate semaphore along with prototypes and meanings. **(04 Marks)**

8 a. Write short notes on the following :
  i) Race condition
  ii) Zombie. **(10 Marks)**
  b. What are stream pipes? Write a program to drive the add2 filter using stream pipe. **(10 Marks)**

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