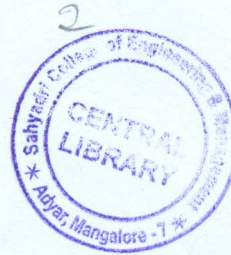


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10CS62

Sixth Semester B.E. Degree Examination, Dec.2015/Jan.2016

## UNIX System Programming

Time: 3 hrs.

Max. Marks: 100

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

### PART – A

- 1 a. Discuss the differences between ANSI C and K & R C with example for each. (10 Marks)  
b. What are the API common characteristics? List any six values of the global variable `errno` along with their meanings whenever API's fail. (10 Marks)
- 2 a. Explain the commands to create different file types supported by UNIX. (06 Marks)  
b. Explain UNIX Kernel support for files with a neat diagram. (08 Marks)  
c. Differentiate symbolic links and hard links. (06 Marks)
- 3 a. Explain the following general file API's:  
i) `open()`      ii) `fcntl()`      iii) `lseek()` (12 Marks)  
b. Explain Symbolic Link file API's. (08 Marks)
- 4 a. Draw and explain the summary of starting and terminating a C program. (06 Marks)  
b. With a neat sketch, explain the memory layout of a C-program. (06 Marks)  
c. Explain `exit`, `_exit` and `atexit` functions with their prototypes. (08 Marks)

### PART – B

- 5 a. What is a race condition? Write a program for generating race condition. (08 Marks)  
b. Explain in detail the family of `exec` functions. (12 Marks)
- 6 a. What are signals? Write a program to setup signal handler for the `SIGINT` signal using `sigaction` API. (06 Marks)  
b. What is signal mask of a process? Explain `sigprocmask` function along with its prototype. (06 Marks)  
c. Define daemon process. Discuss the basic coding rules of the daemon process. (08 Marks)
- 7 a. Discuss the applications of FIFOs. (04 Marks)  
b. Explain `Popen` and `Pclose` functions. (06 Marks)  
c. Explain different API's used with message queues. (10 Marks)
- 8 a. Explain `shmget`, `shmctl`, `shmat` and `shmdt` functions. (12 Marks)  
b. Write short notes on client server properties. (08 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and/or equations written eg, 42+8 = 50, will be treated as malpractice.