Code No: 9A05602/R09

Set-4

III B.Tech. II Semester Regular and Supplementary Examinations

April/May - 2013

UNIX INTERNALS

(Computer Science and Engineering)

Time: 3 Hours | Max. Marks: 70

*Answer any **FIVE** Questions*

***All** Questions carry **equal** marks*

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1. (a) Distinguish between kernel stack and user stack of a process.
   (b) Give brief description about the different data structures used by the kernel.

2. (a) Write and explain the algorithm for buffer allocation.
   (b) What is a race condition? Explain it in detail.

3. (a) Draw and explain the structure of a regular file.
   (b) Explain the block layout of a file and its inode.

4. (a) The standard I/O library makes user reading and writing more efficient by buffering the data in the library and thus potentially saving the number of system calls a user has to make. How would you implement the library functions f read and f write? What should the library f open and f close do?
   (b) What is the use of unlink system call? Write and explain the algorithm for unlinking a file.

5. (a) What happens if the kernel issues a wakeup call for all processes asleep on address A, but no processes are asleep on that address at the time?
   (b) Write a detailed note on allocation of a region to a process.

6. (a) Present an algorithm for fork system call and explain it in detail.
   (b) Write a program to share file access by both child and parent.

7. (a) Explain the data structures used in demand paging.
   (b) Give brief description about page stealer process.

8. (a) Explain various system calls used in socket programming.
   (b) What is the role of semaphore in system calls? Explain in detail.