

Punjab University College of Information Technology
University of the Punjab
BCSF14 (Morning)

CS-321 System Programming

SPRING Term 2017

Student ID: _____

Quiz 03

Time: 15 mins

Marks: 20

Question # 1

[14]

- a. Consider `/var/log/wtmp` log file that stores a history of all logins and logouts. These entries must be made at the end of the file. One can use following code:

```
lseek(fd, 0, SEEK_END);  
write(fd, &buf, size);
```

A race condition will occur if two people login at the same time? Write code snippet so that this race condition can be avoided. You can assume that the `wtmp` file is already opened by the process at descriptor `fd`?

- b. Compute the LBA with corresponding CHS address as `<2, 2, 3>`. You can assume the total heads support is 16.

- c. The call `readdir()` can legitimately returns NULL on reaching the end of directory. How can we handle errors in case of such system calls? Write code snippet showing your logic.

- d. Write down a shell command to create a character special file with the name of `chfile`.

- e. Write C line of codes to determine the current offset of a file having file descriptor `fd`

- f. Consider the following code snippet. What will be the resulting permissions on the file `f1.txt`

```
umask(0123);  
int fd = open("f1.txt", O_CREAT | O_RDWR, 0633)
```

g. Write an `open()` system call that is equivalent to `creat("/tmp/file1.txt", 0666)` system call.

Question No 02.

[6]

Write down a C-function that is passed a filename, and it displays the file type

```
void show_file_type(char* fname);
```

File Type	Octal Code
p	01
c	02
d	04
b	06
-	08
l	10
s	12