

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

CS-321 System Programming

SPRING Term 2017

Student ID: _____

Quiz 03

Time: 15 mins

Marks: 20

Question # 1

[14]

- a. We know that `O_SYNC` flag to `open()` system call is used to turn off disk buffering. It tells the kernel that calls to `write()` should return only when the bytes are written to the actual hardware rather than the default action of returning when the bytes are copied to a kernel buffer. However, setting `O_SYNC` eliminates all the efficiency kernel buffering provides. You forgot to set this flag while calling the `open()` system call. Write code snippet to set this flag using `fcntl()` call. You can assume the file is already opened by the process at descriptor `fd`?
- b. Mention the four main operations performed by kernel when a new file is created in a UNIX based system
- c. Assume that the mode of a file in octal is 0104711. Mention the permission bits, in binary as well as in character format.
- d. Give a Bash Shell command to display the number of seconds passed since UNIX epoch.
- e. Write a single C statement that will read 54 characters starting from offset 100, from a file pointed to by file descriptor 7 and place the data in a buffer named **buff**. After the operation the current file offset is not changed
- 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 down a C code snippet, that converts the given group ID to group name.

**Question No 02.**

**[6]**

Write down a C-function that is passed a filename out of any seven file types and it displays its mode, nlink, uid, gid, size, and mtime. The time should be in human readable format

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