IC221 System Programming
Spring 2015 NAME:_____
HW7

COLLABORATOR(S):_____

5/3/1/0 1. What is the output of this code snippet, and to which standard file descriptor does each write to.

```
write(1, "Go Navy!", 7 );
write(2, "Beat Army!", 9);
```

5/3/1/0 2. What is the difference between a string and a buffer

5/3/1/0 3. What is the type of a file descriptor? What does a file descriptor reference?

8/5/3/0 4. Complete the following code segment for write the bytes of the float f to the standard output file descriptor, and reading in the bytes of a float into f.

```
float f=3.1415926;
write(                                    );

float f;
read(                                     );
```

5/3/1/0 5. Explain the concept of an ORing and how it encodes options and mode to open()?

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10/8/4/0 6. Complete the ORing option strings to match the equivelent fopen() options:

r

w

r+

w+

a

10/8/4/0 7. Complete the program below that properly opens the file **helloworld.txt** with read permission and then writes the string "Hello World" to that file:

```
#include <unistd.h>
#include <fnctl.h>

int main(int argc, int argv[]){

      int fd;
      char helloworld[]="Hello World!";

      //open file helloworld.txt
```

```
      //write helloworld to file
```

```
      //close file
```

```
}
```

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10/8/4/0 8. Write the equivlent mode ORing for the octal permissions:
(note: leading 0 indicates number is in octal)

0777

0640

0740

0501

5/3/1/0 9. What is the umask and when is it applied? Why is it considered a security perameter?

5/3/1/0 10. Type **umask** in the shell on a lab computer, what is your current umask?

5/3/1/0 11. The **touch** command will opeb a file with the creation mode of 0666, that is, read+write for user, group, and everyone. What should be the permission of the new created file? **Exlpain.**

5/3/1/0 12. What is the umask such that alll created files should never have group should never have default write or execute, but everyone and user can have any permission?

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10/8/4/0 13. Match the following description to the **struct stat** member:

st_mode ____	(a) The user id of the owner
st_uid ____	(b) The last modificaiton time
st_atime ____	(c) The size in bytes of the file
st_mtime ____	(d) The group id of file
st_ctime ____	(e) The creation time
st_size ____	(f) The number of file-system blocks to store the file
st_blksize ____	(g) The last access time
st_gid ____	(h) The permissions for the file

5/3/1/0 14. System calls return what on error? What function can print a succient error message based on checking **errno**?

7/5/3/0 15. The system call **utimes()** modifies the access and modification time and has the following protype:

```
utimes(const char *path, const struct timeval times[2]);
```

The array of **struct timeval** is of length 2, what is the first timevalin the array refer to and what does the second with respect to the file being modified?

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