**System Programming** **Quiz #1** **2016-10-05**
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Name: _____ Student ID: _____

Score : _____/ 50

1. (5 points) Fig. 1 shows the UNIX operating system architecture. Fill in following blanks
   (1) _____ (2) _____ (3) _____ (4) _____ (5) _____

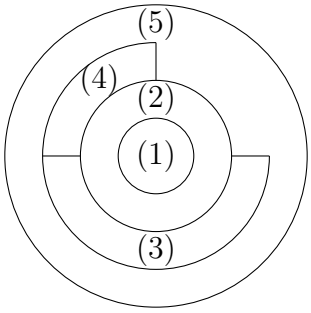


Figure 1: Architecture of the UNIX operating system

2. (5 points) Following is a part of man page.

```
SEE ALSO
   fork(2), sigaction(2), wait(2), exit(3)
```

   If you want to read more about exit, then how would you search for the information using the shell command.

3. (5 points) `int create()` is deprecated and is replaced with `int open()` function. What flags would you use to make `open()` equivalent to `create()` function.

4. (5 points) An file's offset can be set explicitly by calling `lseek`. *whence* argument can recieve one of three values. Explain them in detail.

Please go to the next page ...

5. (5 points) What is the difference of sequential and random I/O operation. Give an example using system calls.

6. (5 points) There are three data structures to represent an open file. What are the they, explain them in detail?

7. (5 points) Describe what happens when a file is opened with `O_APPEND` flag.

8. (5 points) Calling _____ is equivalent to calling `lseek` followed by `write`; there is no way to interrupt the two operations that occur when we call the function. These functions are called _____

9. (10 points) Alice wants to change the file permission to `rw-r--r-x`. How can you help Alice to change the permission (both shell and with system call is required for full credit)?