CSCI 2330 – Syscall Exercises

1. Consider the following C code:

```
int main(void) {
    printf("hello\n");
    if (fork() == 0) {
        printf("begin\n");
        execlp("echo", "echo", "barf", NULL);
        printf("end\n");
    }
    waitpid(-1, NULL, 0);
    printf("reaped\n");
    return 0;
}
```

Identify every possible sequence of output (assume that no system calls return errors).

2. Consider the following C code:

```
int main(void) {
    if (fork() == 0) {
        execlp("sleep", "sleep", "5", NULL);
    }
    waitpid(-1, NULL, 0);
    execvp("sleep", (char *[]) {"sleep", "5", NULL});
    return 1;
}
```

Draw the process tree (a) immediately before **execlp()** is executed and then (b) immediately after it is executed. Then draw the process tree (c) immediately before **execvp()** is executed and then (d) immediately after it is executed.

3. Write C code that spawns a process that executes `whoami` storing the output in a new file named `whoiam.txt`. You may assume that all necessary C headers are included and that no system calls return errors.