Quiz 2, CSCI U511, Fall 2019 **Name: _____Key_____**

Instructions: You must show your work and put your final answers in the blanks. If you round a numerical answer, you must give at least 3 significant digits.

1) How many processes are created if the following program is run?

```
main (int argc, char ** argv) {
        forkthem(5)
}
void forkthem (int n) {
        if (n > 0) {
                fork();
                forkthem(n-1);
        }
}
```

ANS: Six, one for main, and five children from forkthem(5).

Final answer: _____Six_____

2) How many different copies of the variable x are there? What are their values when their process finishes?

```
main (int argc, char ** argv) {
        int child = fork();
        int x = 5;

        if (child == 0) {
                x += 5;
                }
                else {
                        child = fork ();
                        x += 10;
                        if (child) {
                                x += 5;
                        }
                }
}
```

ANS:
One for main, it finishes with x = 20.
One for the first child of main, it finishes with x = 10.
One for the second child of main, it finishes with x = 15.

3) Explain, what will happen if you run the following program on UNIX?

```
main() {
   while (fork() >= 0)
        ;
}
```

ANS:
The UNIX kernel has a configured limit on the maximum number of live processes, so eventually fork will return an error, but at that point, no other process will be allowed to create a process either.
Create an infinite number of child process