

ICS'13 Homework 6

Problem 1: Fork

```
1 #include "csapp.h"
2
3 int main()
4 {
5     int i;
6     for(i=0; i<2; i++)
7         fork();
8     printf("hello!\n");
9     exit(0);
10 }
```

How many "hello" will be output ?

Problem 2: Waitpid

```
int main() {
    if(fork() == 0){
        printf("a");
        exit(0);
    }
    else{
        printf("b");
        waitpid(-1,NULL,0);
    }
    printf("c");
    exit(0);
}
```

Write down all the possible output string.

Problem 3: Signal

```
pid_t pid;
int counter = 2;

void handler1(int sig) {
    counter = counter - 1;
    printf("%d", counter);
    fflush(stdout);
    exit(0);
}
```

```
int main() {
    signal(SIGUSR1, handler1);
    printf("%d", counter);
    fflush(stdout);
    if ((pid = fork()) == 0) {
        while(1) {};
    }
    kill(pid, SIGUSR1);
    waitpid(-1, NULL, 0);
    counter = counter + 1;
    printf("%d", counter);
    exit(0);
}
```

What is the output ?

Problem 4: Shell

When you type Ctrl-C at the keyboard, what will happen? Give the details.

Problem 5:

Which of the following is preserved across *exec*?

- A. Signal handlers
- B. Blocked signals
- C. A and B
- D. Neither