

## Problem 7. (9 points):

This question tests your understanding of signals and signal handlers.

It presents 3 different snippets of C code. Assume that all functions and procedures return correctly and that all variables are declared and initialized properly. Also, assume that an arbitrary number of SIGINT signals, and only SIGINT signals, can be sent to the code snippets randomly from some external source.

For each code snippet, circle the value(s) of `i` that could possibly be printed by the `printf` command at the end of each program. *Careful: There may be more than one correct answer for each question. Circle all the answers that could be correct.*

### Code Snippet 1:

```
int i = 0;

void handler(int sig) {
    i = 0;
}

int main() {
    int j;

    signal(SIGINT, handler);
    for (j=0; j < 100; j++) {
        i++;
        sleep(1);
    }
    printf("i = %d\n", i);
    exit(0);
}
```

1. Circle possible values of `i` printed by snippet 1:

- A. 0
- B. 1
- C. 50
- D. 100
- E. 101
- F. None of the above

### Code Snippet 2:

```
int i = 0;

void handler(int sig) {
    i = 0;
}

int main () {
    int j;
    sigset_t s;

    signal(SIGINT, handler);

    /* Assume that s has been
       initialized and declared
       properly for SIGINT */

    sigprocmask(SIG_BLOCK, &s, 0);
    for (j=0; j < 100; j++) {
        i++;
        sleep(1);
    }
    sigprocmask(SIG_UNBLOCK, &s, 0);
    printf("i = %d\n", i);
    exit(0);
}
```

2. Circle possible values of `i` printed by snippet 2:

- A. 0
- B. 1
- C. 50
- D. 100
- E. 101
- F. None of the above

### Code Snippet 3:

```
int i = 0;

void handler(int sig) {
    i = 0;
    sleep(1);
}

int main () {
    int j;
    sigset_t s;

    /* Assume that s has been
       initialized and declared
       properly for SIGINT */

    sigprocmask(SIG_BLOCK, &s, 0);
    signal(SIGINT, handler);
    for (j=0; j < 100; j++) {
        i++;
        sleep(1);
    }
    printf("i = %d\n", i);
    sigprocmask(SIG_UNBLOCK, &s, 0);
    exit(0);
}
```

3. Circle possible values of `i` printed by snippet 3:

- A. 0
- B. 1
- C. 50
- D. 100
- E. 101
- F. None of the above