Solutions to Assignment 5
Programming

Question 1

This is only one of many possible solutions.

(a) phone call:

- look up number
  - find phone book
  - find required number
  - copy it out
- dial number
  - pick up receiver
  - wait for dial tone
  - press the digits
- talk
  - introduce yourself
  - talk
  - say goodbye

(b) cook an egg

- heat pan
  - find pan
  - put on stove
  - turn on stove
- put egg in pan
  - get egg
  - crack it
  - put on pan
- cook it
  - wait until done on side 1
  - flip over
  - wait until done on side 2

(c) borrow a library book

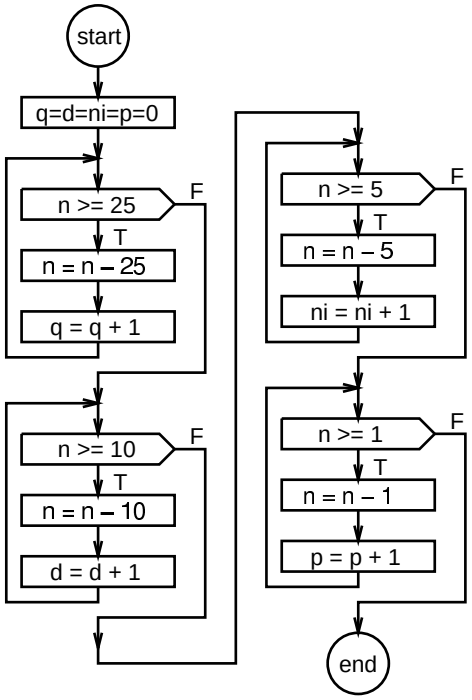
- get catalog number
  - go to library
  - look up in catalog
  - record catalog number
- get book
  - search for right floor
  - search for right shelf
  - search for right book
  - pick up the book
- check it out
  - go to clerk
  - check it out
  - leave

Question 2

The algorithm can be written in pseudo-code as follows:

```
set required number of quarters, dimes
        nickels and pennies to zero.

while ( remaining value is more than 25 cents ) {
        subtract 25 cents from remaining value
        increment number of quarters
}

while ( remaining value is more than 10 cents ) {
        subtract 10 cents from remaining value
        increment number of dimes
}

while ( remaining value is more than 5 cents ) {
        subtract 5 cents from remaining value
        increment number of nickels
}

while ( remaining value is more than 1 cents ) {
        subtract 1 cents from remaining value
        increment number of pennies
}
```

The flowchart is as follows:



Question 3

The flowchart corresponding the C code for the solution to Lab 1 is as follows: