CMPE 260 - ASSIGNMENT #2
Spring 2018

Due date :21.05.2018

1. Consider the following program with pass-by-value parameters:

```
main(){
     f1(int x){
          return x * y;
     };
     f3(int x){
          int y = 1;
          f2(int x){
               x = x + 3;
               return f1(y);
          };
          y = f2(y);
          x = f1(y);
          return x * y;
     };
     int y = 3;
     int x = 5;
     x=f3(x);
     y=f1(y-1);
}
```

Beginning from the execution of main, give the values of the variables of the program *at each line* assuming that the language uses:

a) Static scoping

b) Dynamic scoping

a) Static scope:

Statement	Main_x	Main_y	F_1x	F_1y	F_2x	F_2y	F_3x	F_3y
int y = 3		3						
int x = 5	5	3						
…								

b) Dynamic scope:

Statement	Main_x	Main_y	F_1x	F_1y	F_2x	F_2y	F_3x	F_3y
int y = 3		3						
int x = 5	5	3						
…								

2. Consider the following C++ like pseudo-code. Show execution and write the outputs of the program assuming that the program is executed with each of the following parameter passing methods.

   a) Pass-by-value

   b) Pass-by-value-result

   c) Pass-by-reference

   d) Pass-by-name

Note: cout is a function to print to console. As an example, the following line

cout<<“Hello world”<<endl;

prints the string “Hello world” to console and endl is the end-of-line character which moves the cursor to next line.

```
void function1(int x, int z)
{
      int y = x;
      x = z;
      z = y;
};
```

```
void function2(int x, int y, int z) {
     int x = -1;
     for(; y > 0 ; y = y - 1)
     {
          x = z * x;
     }

};


int main(){

     int x=5;
     int y=10;
     int z=15;
     cout<<x<<","<<y<<","<<z<<endl;
     function1(x,y);
     cout<<x<<","<<y<<","<<z<<endl;
     function2(x,x,y);
     cout<<x<<","<<y<<","<<z<<endl;

}
```

Sample execution table:

Statement	Main_x	Main_y	Main_z	F_1x	F_1y	F_1z	F_2x	F_2y	F_2z
int x= 5	5								
int y=10	5	10							
int z=15	5	10	15						
…									