1. (2 pt.)

    a)
        Sol) preprocessor attach header file to source code and create a modified source code.

    b)   F
    c)
        (Sol) integer, floating point number, character and Boolean

    d)
        Sol) that is forcing one variable of one type to be another type.

    e)
        Sol) 8 bits.
    f)
        Sol) a constant variable is a variable whose content cannot be changed. A constant variable must be initialized when it is declared.

    g) T

    h) F

    i) T

    j) F

    k) T

    l) F

    m) T

    n) F

2.

	Insertion Sort	Selection Sort	Bubble Sort (bubble up)
0	7, 5, 2, 4, 6, 3, 1	7, 5, 2, 4, 6, 3, 1,	7, 5, 2, 4, 6, 3, 1,
1	**5, 7**, 2, 4, 6, 3, 1	**1**, 5, 2, 4, 6, 3, 7	5, 2, 4, 6, 3, 1, **7**
2	**2, 5, 7**, 4, 6, 3, 1	**1, 2**, 5, 4, 6, 3, 7	2, 4, 5, 3, 1, **6, 7**
3	**2, 4, 5, 7**, 6, 3, 1	**1, 2, 3**, 4, 6, 5, 7	2, 4, 3, 1, **5, 6, 7**
4	**2, 4, 5, 6, 7**, 3, 1	**1, 2, 3, 4**, 6, 5, 7	2, 3, 1, **4, 5, 6, 7**
5	**2, 3, 4, 5, 6, 7**, 1	**1, 2, 3, 4, 5**, 6, 7	2, 1, **3, 4, 5, 6, 7**
6	**1, 2, 3, 4, 5, 6, 7**	**1, 2, 3, 4, 5, 6**, 7	1, **2, 3, 4, 5, 6, 7**

3. (2 pt.)

```cpp
#include <iostream>
using namespace std;

// Here write function prototype
void swap(int &, int &);


int main()
{
      int a = 5;
      int b = 6;

      cout <<"Before swap, a = "<<a<< ", b = "<< b<< endl;
      swap(a,b);
      cout <<"After swap, a = "<<a<< ", b = "<< b<< endl;

      return 0;
}


//Here define swap
void swap(int &a, int &b)
{
      int tmp;
      tmp =a;
      a = b;
      b =tmp;
}
```

4. (4 pt)

```cpp
#include <iostream>
#include <iomanip>
#include <fstream>
using namespace std;

int main()
{
      ifstream input;
      ofstream output;
      int ID, StdNum =0;
      float Score1, Score2, Score3;
      float Average, Tot=0.0;

      input.open("cosc120.txt",ios::in);
      output.open("average.txt",ios::out);
      while (input >> ID>> Score1 >> Score2 >> Score3)
      {
            StdNum++;
            Average= (Score1+Score2+Score3)/3;
            Tot =Tot + Average;
            output<< setprecision(3) <<showpoint;
            output <<"Student " << ID <<":"<<"Average= "<<Average <<endl;
      }
      output<<endl;
      output <<"COSC 120 Student Average = " << Tot /StdNum <<endl;
      input.close();
      output.close();
      return 0;

}
```