PART I - 10 SHORT QUESTIONS (20 Points: 2 points for each Question)

For the following ten questions circle the letter "T" or the letter "F" to indicate whether or not each of the statements is true or false, respectively.

1. T (F): An exception that is not caught is ignored. Thus the program continues its execution normally.

2. (T) F : `catch(...)` is used to catch any exception type.

3. (T) F : `throw` with no arguments rethrows the same exception type.

4. (T) F : The `Seekg()` and `scekp()` functions are used to reposition the "*file position pointer*".

5. T (F) : The insertion operator "<<" can be used with both sequential and random-access files.

6. (T) F : Data can be modified in a random access file without destroying other data in the file.

7. T (F) : A stack is first-in, first-out data structure

8. T (F) : A derived class pointer can point to an object of the base class without the need for casting.

9. (T) F : Derived class can provide their own implementation of a base class virtual function. But if they do not, the base class implementation is used.

10. (T) F : Any destructor in a class hierarchy can be declared virtual.

F T T F F T F

T F F T T

Name:		
ID number:		001 / 1 - 1

PART II - 7 PROBLEMS (35 Points)

1. **What is the output of the following program when it is executed? (Points)**

```
#include <iostream.h>
void main() {
  try {
     for(int val=0; val<6; val++) {
        cout << "Value is: " << val << endl;
        if ( val > 1 )
           throw(val);
     }
  }
  catch(int v) {
     cout << "Value caught is: " << v << endl;
  }
  catch(...) {
     cout << "Value 0, 1, 2 are caught\n";
  }
}

void catch_Zero(int v) {
  cout << "One is caught\n";
}

void catch_Two(int v) {
  cout << "Two is caught\n";
}
```

```
Value is: 0
Value is: 1
Value is: 2
Value caught is: 2
```

2. **What is the output of the following program when it is executed? (Points)**

```
#include <iostream.h>

void bar(int j) {
  if (j < 0)
     throw(j);
  cout << "Result is: " << 100 / j << endl;
}

void foo(int i) {
  bar(i);
  cout << "Value is:" << i << endl;
}
```

```
void main() {
  foo(10);
  try {
     foo(-1);
  }
  catch(char * s) {
     cout << "Devide by zero\n";
  }
  catch(int v) {
     cout << "No can do!\n";
  }
}
```

Result is: 10
Value is:10
No can do!

3. **What is the output of the following program when it is executed? (Points)**

```
#include <iostream.h>
#include <fstream.h>
struct finalS {
   int vOne;
   double vTwo;
};
void main() {
  finalS fs;
  ofstream ofObj("final.dat", ios::binary);
  for (int i=1; i <=10; i++) {
     fs.vOne = i;
     fs.vTwo = i + 0.5;
     ofObj.write(reinterpret_cast<const char*>(&fs),sizeof(finalS));
  }
  ofObj.close();
  ifstream ifObj("final.dat", ios::ate|ios::binary);
  ifObj.seekg(sizeof(finalS),ios::beg);
  ifObj.read(reinterpret_cast<char *>( &fs),sizeof(finalS));
  cout << fs.vOne <<endl << fs.vTwo << endl;
  ifObj.read(reinterpret_cast<char *>( &fs),sizeof(finalS));
  cout << fs.vOne <<endl << fs.vTwo << endl;
}
```

2
2.5
3
3.5

Given a data file "TEST.DAT" with 6 records of different integer values
What is printed following the execution if this program? (Points)

test.dat
87
43
10
23
65
12

```
#include <iostream.h>
#include <fstream.h>

class myFile {
 public:
  myFile(char * nm) {
     ifo.open(nm,ios::in);
  }
  void mk() { bm = ifo.tellg();}
  void ps(long mk) { ifo.seekg(mk,ios::beg);}
  void go() { ps(bm);}
  int gt() {
     int i;
     ifo >> i;
     return i;
  }
 private:
  ifstream ifo;
  long bm;
};

void main() {
  myFile mf("test.dat");

  cout << mf.gt() << " - ";
  cout << mf.gt() << " - ";
  cout << mf.gt() << " - ";
  mf.mk();
  mf.ps(0);
  cout << mf.gt() << " - ";
  mf.go();
  cout << mf.gt() << endl;
}
```

1 each

```
87 - 43 - 10 - 87 - 23
```

4. **What is the output of the following program when it is executed? (Points)**

```
#include <iostream.h>
template <class T>

class arrC {
 public:
  arrC(int sz ) {
     szV = sz;
     arr = new T[sz];
  }
  void fl(T);
  void ot() const;
 private:
  int szV;
  T inV;
  T *arr;
};
```

```
template <class T>
void arrC<T>::fl(T in) {
  inV = in;
  for (int i=0; i < szV; i++)
     arr[i] = i + inV;
}
template <class T>
void arrC<T>::ot() const {
  for (int i=0; i < szV; i++)
     cout << arr[i] << " ";
}
void main() {
  arrC<double> dArr(5);
  arrC<int> iArr(6);
  dArr.fl(0.7);
  dArr.ot();
  cout << endl;
  iArr.fl(90);
  iArr.ot();
}
```

0.7 1.7 2.7 3.7 4.7 ⟶
90 91 92 93 94 95

1 for 5
1 for 90 ...

correct answer
1.5
1.5

5. **What is the output of the following program when it is executed? (_ Points)**

```
#include <iostream.h>
class anml {
 private:
  int wt;
  double ht;
 public:
  anml(int w=0, double h=0.0) {
     wt = w >0 ? w : 0;
     ht = h > 0.0 ? h : 0.0;
  }
  virtual void a2b() {
     cout << "Run or Fly from A to B\n";
  }
  virtual void sng() {
     cout << "I cannot\n";
  }
  virtual void inf(){
     cout << wt << " " << ht << endl;
  }
};
```

```
class dg : public anml {
 public:
  dg(int a, int w, double h) : anml(w,h) {
     ag = a;
  }
  void a2b() {
     cout << "I Run from A to B\n";
  }
  void inf(){
     anml::inf();
     cout << ag << endl;
  }
 private:
  int ag;
};
class brd : public anml {
 public:
  brd(bool f, int w, double h) : anml(w,h) {
     fl = f;
  }
  void a2b() {
     if (fl > 0)
        cout << "I walk from A to B\n";
     else
        cout << "I Fly from A to B\n";
  }
  void sng() {
     cout << "Skweek\n";
  }

 private:
  int fl;
};
void main() {
  brd tt(1, 5, 10.4);
  dg mx(7, 20, 20.3);
  anml *aP, &aR=mx;

  mx.sng();
  tt.a2b();
  aP = &tt;
  aP->inf();
  aP->a2b();
  aP->sng();

  aR.inf();
  aR.a2b();
  aR.sng();
}
```

- 0.5 incorrect answer

```
I cannot
I walk from A to B
5 10.4
I walk from A to B
Skweek
20 20.3
7
I Run from A to B
I cannot
```