COP 4530 Term Exam 1	Name:	
Fall 2001	SSN:	
Professor Chris Lacher	CS Username:	
	Score: /100	

This test contains 10 questions on 2 pages. Each question is worth 10 points.

1. Given a class x and a pointer declared as x* xptr; how does one dynamically allocate an x object? (Circle *all* correct answers.)

```
A. Xptr = new X;
B. new Xptr = X;
C. new X = Xptr;
D. Xptr = X new;
E. X = new Xptr;
F. None of the above.
```

2. How would you de-allocate the object allocated in the previous question?

```
A. Xptr delete;
B. delete Xptr;
C. delete [] Xptr;
D. Xptr [] delete;
E. X delete;
F. delete X;
H. None of the above.
```

3. Given a class x and a pointer declared as x* xptr; how does one dynamically allocate an array of 10 x objects? (Circle *all* correct answers.)

```
A. Xptr = X new [10]; B. new Xptr = X [10]; C. Xptr = new X [10]; D. new X [10] = Xptr; E. X = new Xptr [10]; F. None of the above.
```

4. How would you de-allocate the object allocated in the previous question?

```
A. X delete;
B. delete X;
C. delete [] Xptr;
D. Xptr [] delete;
E. Xptr delete;
F. delete Xptr;
G. Xptr delete [];
H. None of the above.
```

For the next two questions, assume you are implementing a BitVector class based on a private data member declared as

```
private:
   TVector < unsigned char > ByteVector;
```

5. Write a function that will return a mask for any given index in BitVector.

```
unsigned int Mask (unsigned int index)
{
}
```

6. Write implementation code for the member function Unset that makes the index k bit have value 0:

```
void Unset (unsigned int k)
{
}
```

For the next two questions, assume you are creating a client program of TVector ...

- 7. Write a code fragment that declares and correctly sizes a vector v1 of 20 integers:
- 8. Write a code fragment that declares another vector v2 of integers and then makes v2 into a copy of v1:

For the next two questions, assume you are implementing a TVector<T> template class based on private data members declared as

```
private:
   unsigned int rawdatasize;
   T* rawdata;
```

9. Write code implementing the Size() method:

```
unsigned int Size() const
// returns the number of elements stored by the vector
{
```

10. Write code implementing SetSize() from "scratch", i.e., without calling any other methods.

```
void SetSize (unsigned int sz)
// sets the size of the vector to sz
{
```

}