

COP 2210
Introduction to Programming

Examination 2

Name: _____

November 16, 1998

This exam has 3 additional pages. Please answer each question on the page on which it is asked. You may write on the back of a page if you need to.

1. **[60 pts]** A string is a palindrome if its characters are the same forwards and backwards. Examples of palindromes are “anna” and “tarat”. Write a function that takes an `apstring` as a parameter and returns `true` if it is a palindrome, and `false` otherwise.

2. [70 pts] Two `apvector`s are equal if they have the same length and the same elements in the same order. Complete function `IsEqual` below that returns `true` if two `apvector`s are equal, and `false` otherwise:

```
bool IsEqual( const apvector<int> & v1, const apvector<int> & v2 )
{
```

3. [70 pts] Function `WithoutDuplicates` returns an `apvector` that contains the same elements as its parameter, in sorted order, but with duplicates removed. *HINT*: Sort the copy, and then scan to remove duplicates, which must then be adjacent. Complete function `WithoutDuplicates` below; you may assume the existence of the function `Sort` declared. (For 25 points extra credit, implement `Sort`, too).

```
void Sort( apvector<int> & v );    // Sort function declaration

apvector<int> WithoutDuplicates( const apvector<int> & v )
{
    apvector<int> copy = v;
    apvector<int> answer;
```