

CS 12 - Quiz 2

January 29, 1997

1. (12 pts) Define pass-by-value and pass-by-reference.

Answer: pass-by-value means passing an actual value, disregarding the variable (if there is one) that holds that value, as a parameter. pass-by-reference means passing an address of a variable as a parameter.

2. (8 pts) Define string.

Answer: A string is a sequence of variables of type `char` in memory. It begins with the first `char` that the string points to and ends with the NULL character.

3. (12 pts) Show the contents of A after the following code has been run.

```
int x = 2;
int A[4] = {6, 13, 34, 19};
int *ip = A;
```

```
(*ip)++;
ip++;
*(ip+x) += 4;
*ip = *A;
```

Answer: 7 7 34 23

4. (8 pts) Give two good examples of when pointers are useful.

Answer: For dynamic arrays and for linked lists.

5. (10 pts) Fill in the blanks for the following code. The function `TranslateTime` should calculate the number of hours that are in the specified number of days and then calculate the number of minutes that are in the specified number of days. You are not allowed to use C++ reference parameters.

Answer:

```
int *TranslateTime(int days)
{
    int *time = new int[2];
    time[0] = days * 24;
    time[1] = days * 1440;
    return time;
}

void main()
{
    int days;
    int hours;
    int minutes;

    cout << "Enter the number of days: ";
    cin >> days;

    int *time = TranslateTime(days);
    hours = time[0];
    minutes = time[1];

    cout << hours << " hours are in " << days << " day(s)." << endl;
    cout << minutes << " minutes are in " << days << " day(s)." << endl;
}
```