

Question #1 (40 points)

In Arduino write a computer program that clearly demonstrates the differences and properties of the different properties of variables: constant, volatile, static and automatic variable.

- Make sure your comments are top-notch and describe exactly what is happening with each variable.
- Provide a printout (screenshots are fine) of your program in action.

Question #2 (10 points)

Is the following function reentrant?

```
int cErrors;
void vCountErrors (int cNewErrors)
{
    cErrors += cNewErrors;
}
```

Question #3 (25 points)

Is the following function reentrant?

```
int strlen (char *p_sz)
{
    int iLength;

    iLength = 0;

    while (*p_sz != '\0')
    {
        ++iLength;
        ++p_sz;
    }

    return iLength;
}
```

Question #4 (25 points)

Which of the numbered lines in the following function would lead you to suspect we are dealing with a non-reentrant function?

```
static int iCount;

void vNotReentrant (int x, int *p)
{
    int y;

    /* Line 1 */  y = x * 2;
    /* Line 2 */  ++p;
    /* Line 3 */  *p = 123;

    /* Line 4 */  iCount += 234;

    /* Line 5 */  printf ("\nNew count: %d", x);
}
```