

**Sample programs you should know**

1. Suppose I want to set up the serial port to transmit at 4800 baud using a single clocked 8051. The crystal is running a 28.2076 MHz. What values should be loaded into RCAP0L and RCAP0H.

2. The A/D converter has a reference voltage of 2.5 volts. If the input voltage is 1.0 volts what 10-bit binary number will this convert to?

3. The A/D converter has a reference voltage of 2.5 volts. It does an input and gets the number 0xAA. What was the input voltage on the A/D port.

4. An interrupt routine for timer 0 has been written to complement the bit at P3.2. The listing below shows both the C-code and the corresponding assembly code created by the compiler. What is the instruction RETI in the assembly code? Why isn't this just RET?

```
***** C - Code *****
//Timer 0 comes in on Interrupt 1.
void SqWave() interrupt 1 using 1
{P3 = P3 ^ 4; //Exclusive or with 00000100 for bit 3.2
}
```

```
***** Assembly Code *****
C:0x0003    63B004    XRL        P3(0xB0),#0x04x01
C:0x0006    32          RETI
```

5. Suppose that a PWM channel has been set up for 8-bit PWM and I send it the number 0xAA. What will be the duty cycle of the PWM signal?

6. What does the following code send to P1?

```
int i = 0x1234;
unsigned char j;
j = i;
P1 = j;
```

7. Add a line to the code below to output the *value* of the variable *n* to P1.

```
float n = 125.0;
```

8. Explain how the arguments *w*, *x*, *y*, and *z* are passed to the function named *Myfunction*.

```
int w, x, y, z;
w = 1;
x = 2;
y = 3;
z = 4;
Myfunction(w, x, y, z);
```

9. Write a function called *Combine* which inputs a byte from P1 and P2 and combines them into a single int and returns that int. Make P1 the least significant.

10. What number will be sent to P1 as a result of the following operation.

```
int n, j;
unsigned char c;
n = 10;
j = 32;
c = n * j;
P1 = c;
```