

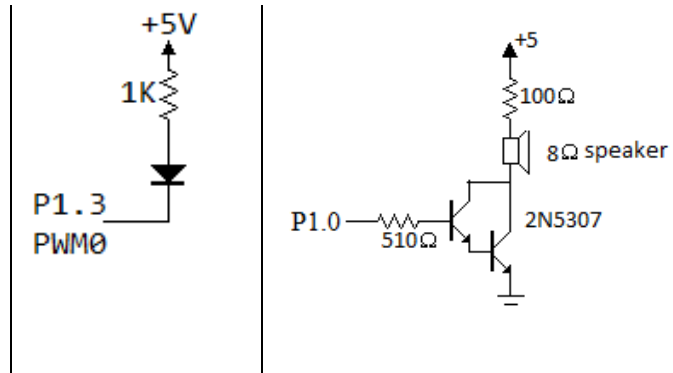
1. Write a single C statement that will set the odd numbered bits of port 1 to 1 and leave the even numbered bits unchanged.
2. Write a single C statement that will clear the odd numbered bits of port 1 to 0 and leave the even numbered bits unchanged.
3. Write a single C statement that will complement the odd numbered bits of port 1 and leave the even numbered bits unchanged.
4. In 8051 assembly language there is no shift instruction – only a rotate. In C there is no rotate – only a shift. Show how to do a 16-bit rotate in C.
5. The following lines of code often appear in C programs that use the serial port. What do they do?

```
TI = 0;
SBUF = 0x0D;
while (TI == 0);
TI = 0;
SBUF = 0x0A;
while (TI == 0);
```
6. Explain the difference between the following two declarations in C:

```
code char myChar[] = "abcdef";
char myChar[] = "abcdef";
```
7. How many bytes of program memory is required to store the constant ASCII declared below:

```
code unsigned char ASCII[] = "0123456789";
```

8. In previous assignments we were able to drive an LED from P1.3 as shown in the figure. But when we attached a speaker to P1.0 we needed a Darlington transistor. Why could we not drive the speaker from the port without the transistor but we could drive the LED?



9. The A/D converter for the AT89C51CC03 has a 10-bit resolution. A) How does it provide the result in 8-bit registers? B) Show how to load the result into a 16-bit integer.

10. Assume that the AT89C51CC03 is double clocked with a crystal frequency of 28.2076 MHz. A) How fast can Timer 0 count in  $\mu$ Seconds. B) What is the maximum time that can be counted using Timer 0 and no additional loops?