

Chapter 2
Short answer question

A light dependent resistor (LDR) has a resistance in bright light of 100Ω , and in darkness of $10\,000 \Omega$.

The LDR is connected into the circuit shown (Fig. 1).

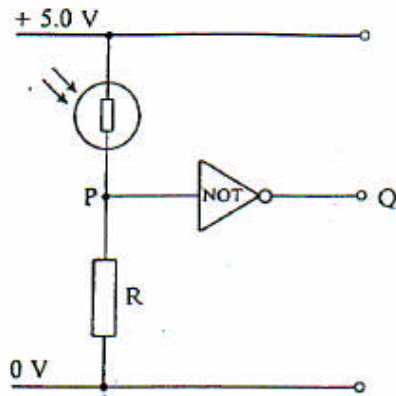


Fig. 1

The characteristic of the NOT gate is shown in Fig. 2.

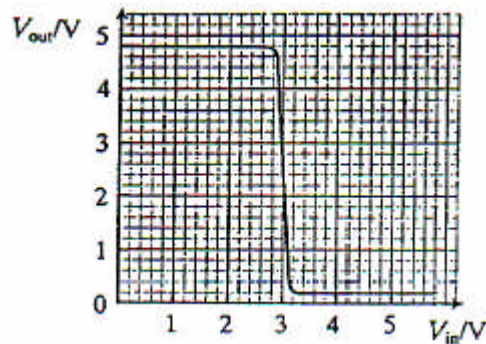


Fig. 2

(a) When the LDR is in the dark the voltage at P is 1.0 V.

- (i) Calculate the value of the resistance of R.

$V \propto R$, I constant

$$\frac{4}{10,000} = \frac{1}{R} \Rightarrow R = 2,500 \Omega$$

- (ii) Write down the value of the output voltage at Q. 4.8 V (from graph)