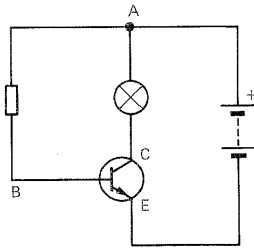


Questions on Drivers

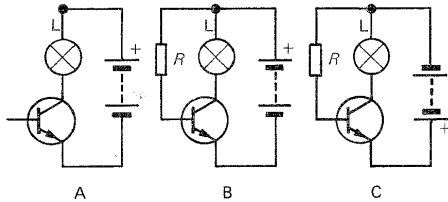
Q1

In the labeled circuit which path through the transistor is taken by (a) the base current, (b) the collector current?



Q2

In which circuit(s) in the figure will L light up (if R is not too large)?



Q3

(a) What is the approximate value in volts of the turn-on voltage of a silicon transistor?
 (b) What happens at the turn-on voltage?

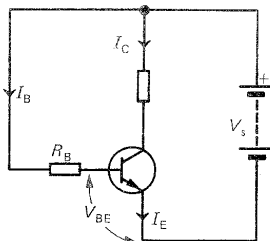
Q4

What is the current gain of a transistor in which a base current of 1 mA causes a collector current of 200 mA?

Q5

In the circuit shown, if $I_B = 0.3 \text{ mA}$ and h_{FE} for the transistor is 50, calculate

(a) I_C ,
 (b) R_B if $V_{BE} = 0.6 \text{ V}$ and $V_C = 6 \text{ V}$.



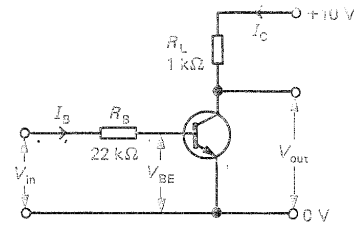
Q6

(a) What are the names of the leads on a FET?
 (b) How does the input resistance of a FET compare with that of a bipolar transistor?

Q7

In the switching circuit below, what is

(a) the value of V_{BE} needed to turn on the (silicon) transistor
 (b) the voltage across R_B if $V_{in} = 5 \text{ V}$
 (c) I_B
 (d) the voltage across R_L if the transistor is just saturated
 (e) I_C
 (f) h_{FE} for the transistor
 (g) V_{out} ?



Q8

In the circuit below

(a) When Tr is off, what is (i) the p.d. across R_L and (ii) V_{out} ?
 (b) When R_1 is decreased what change occurs to V_{in} ?
 (c) When Tr is saturated, what is (i) the p.d. across R_L and (ii) V_{out} ?
 (d) Why is (i) R_B and (ii) R_L necessary?

