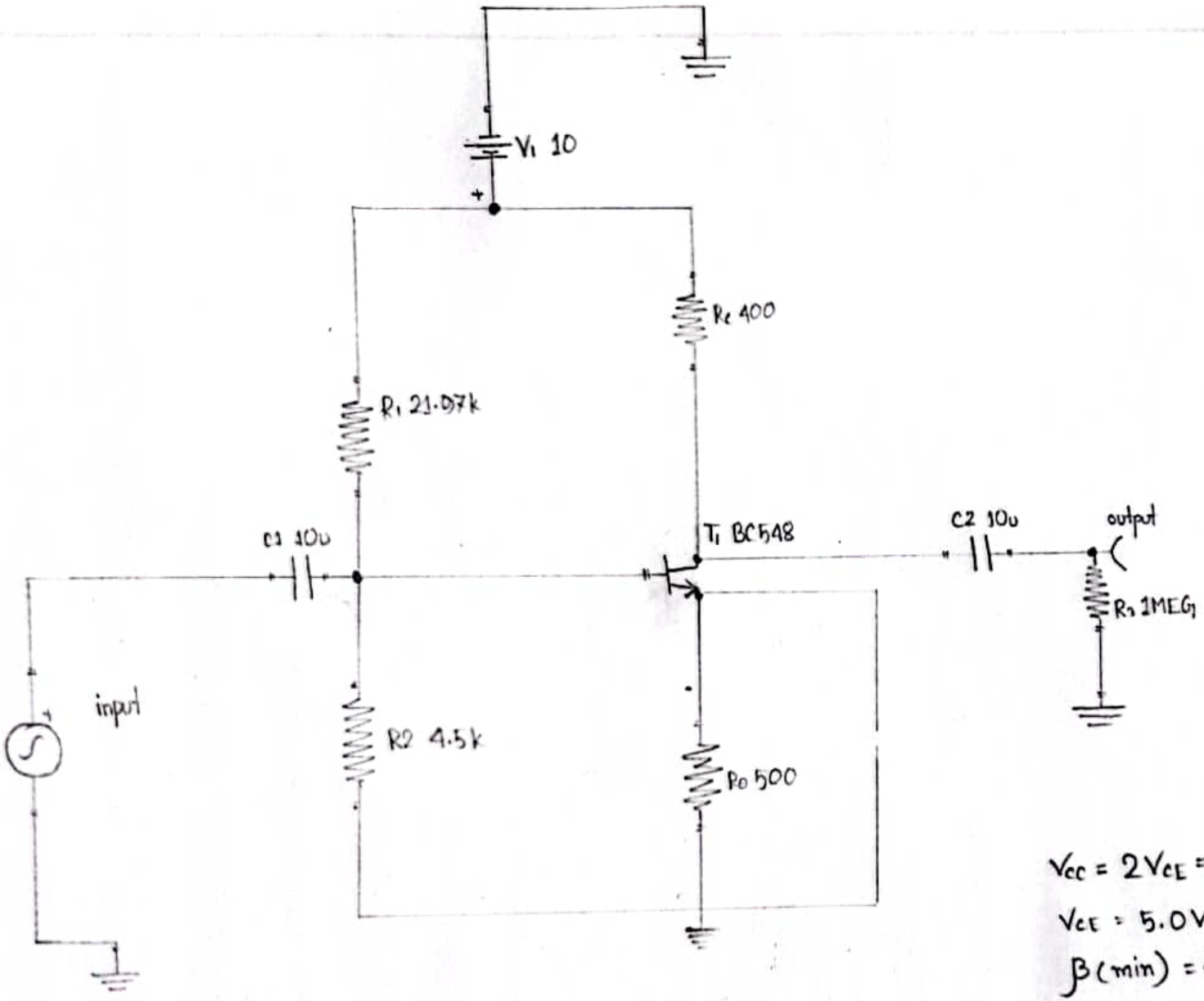

$V_{CC} = 2V_{CE} = 10V$

$V_{CE} = 5.0V$

$\beta(min) = 420$

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Problem: 02 Design a relay module –

The sum of the last 3 digit of my ID = 4+4+9 = 17 (odd)

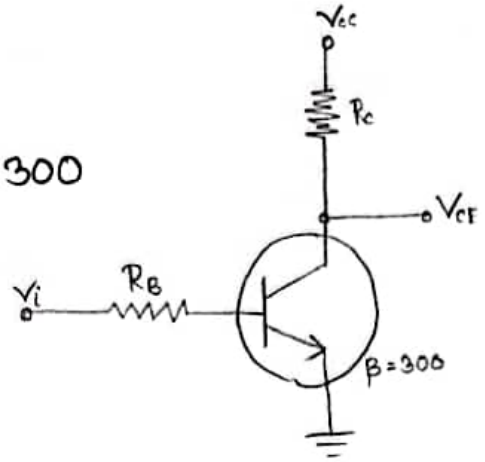
So, My relay module Circuit Voltage = 5V

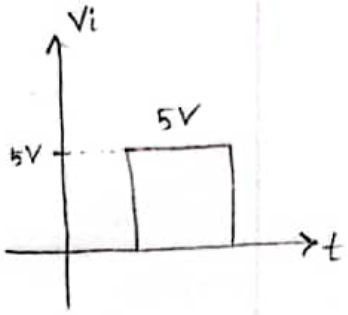
Model no – SRD-05VDC-SL-C

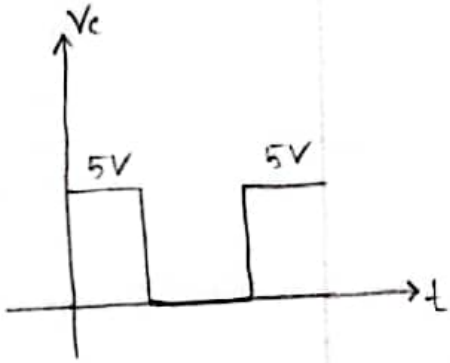
Here, I_{csat} = 89.3 mA

using BC548 BJT,

for 89.3 mA & β = 300







$$I_B > \frac{I_{csat}}{\beta}$$

$$\Rightarrow I_B > \frac{89.3}{300}$$

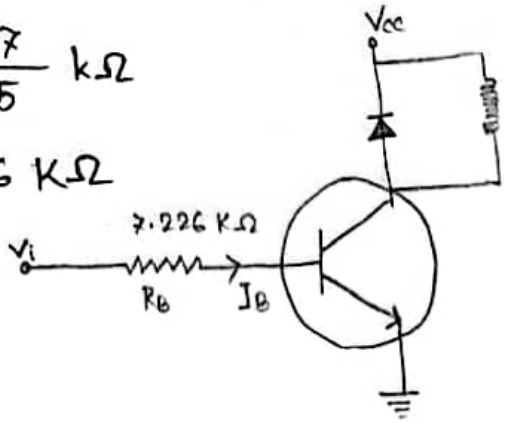
$$\Rightarrow I_B > 0.2976 \text{ mA}$$

$$\therefore I_B = 0.595 \text{ mA}$$

$$R_B = \frac{V_i - 0.7}{I_B}$$

$$= \frac{5 - 0.7}{0.595} \text{ k}\Omega$$

$$= 7.226 \text{ K}\Omega$$



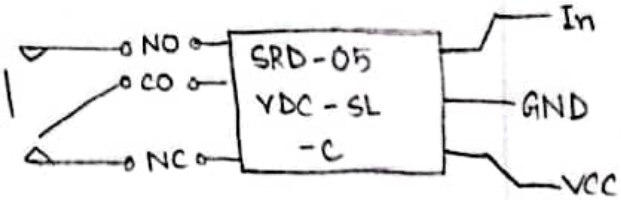


fig: Relay driver.