

Practica

DE CIRCUITOS ELECTRÓNICOS I - 01L

Apellidos y Nombres:.....

Fecha:.....

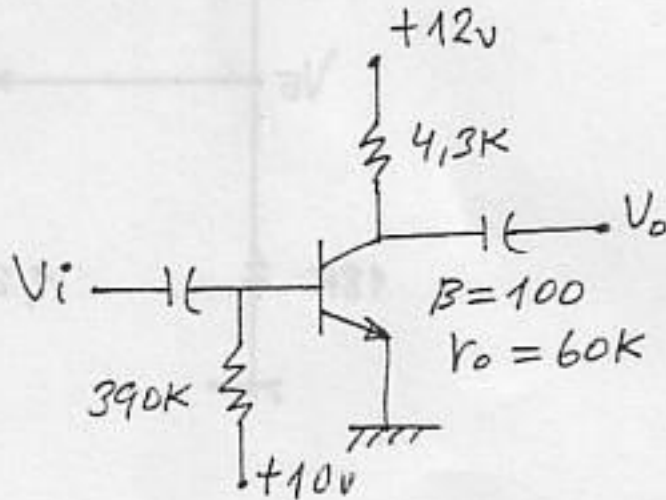
Código:.....

Observación:

Encerrar en un rectángulo su respuesta.
 Desarrollar solo 4 preguntas.

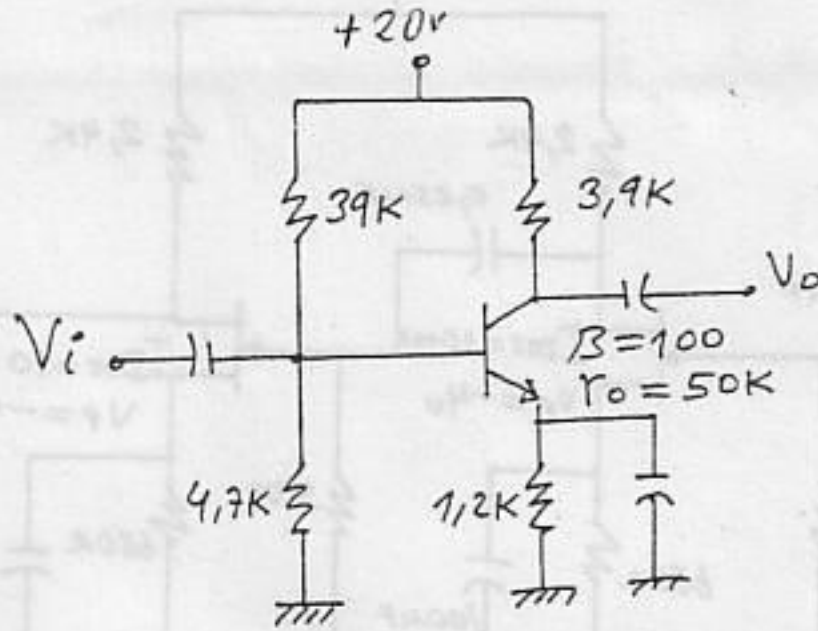
1. Determinar:

- a). I_c
- b). I_e
- c). Z_i
- d). Z_o
- e). A_v



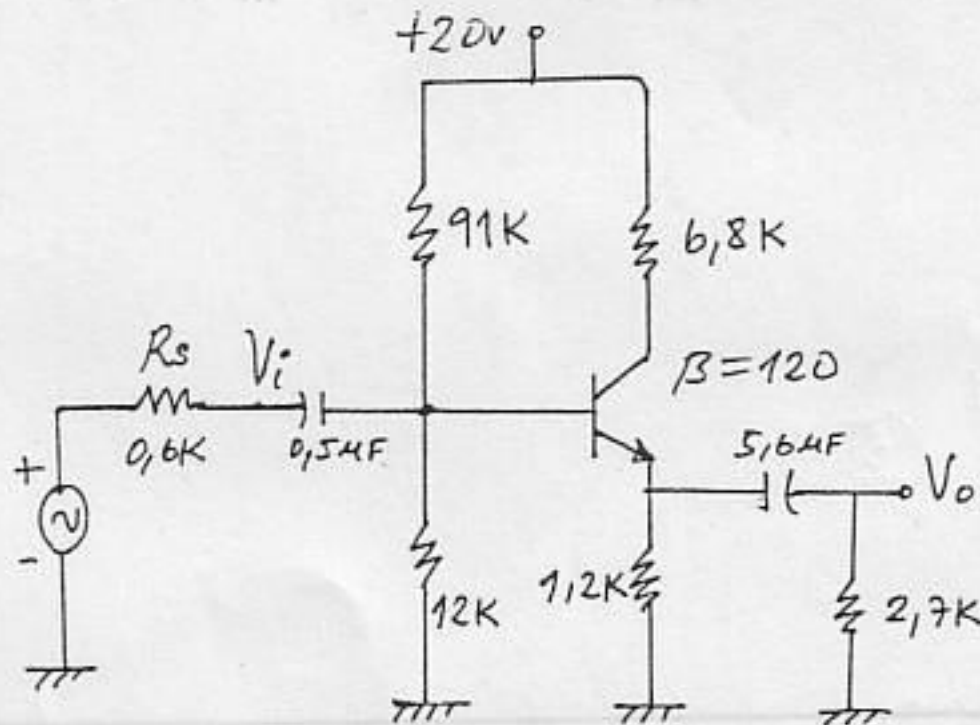
2. Determinar:

- a). I_c
- b). I_e
- c). Z_i
- d). Z_o
- e). A_v



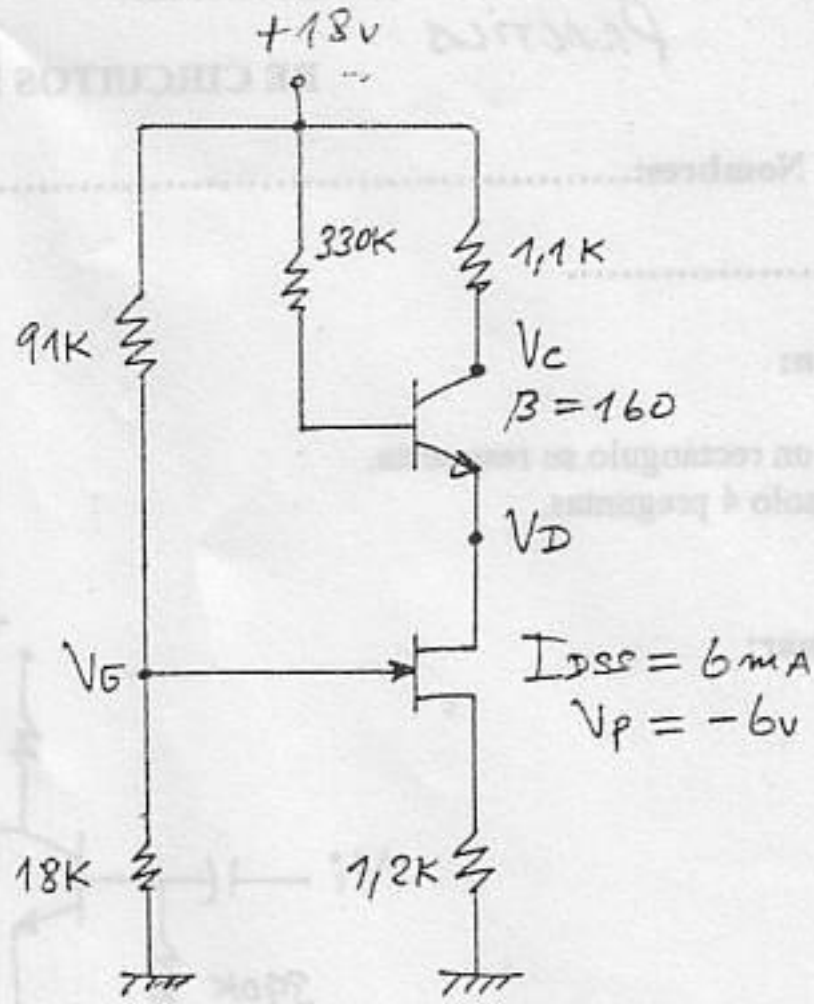
3. Determinar:

- a). I_e
- b). Z_i
- c). Z_o
- d). A_{VL}
- e). A_L



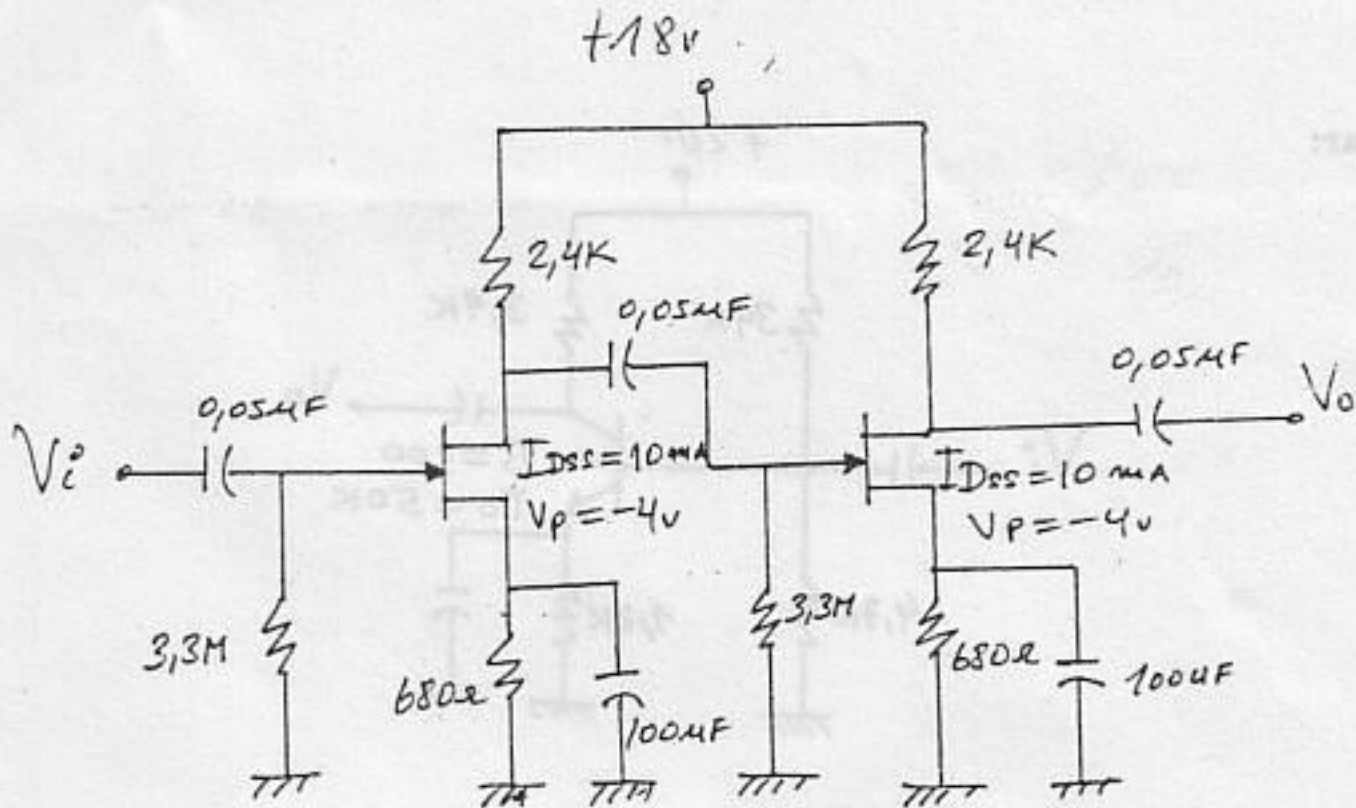
4. Determinar:

- a). V_{GSQ}
- b). I_{DQ}
- c). I_E
- d). V_D
- e). V_C



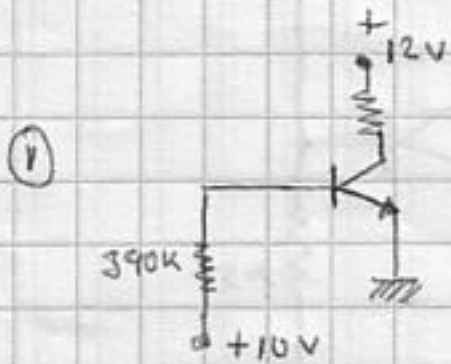
5. Determinar:

- a). V_{GSQ}
- b). I_{DQ}
- c). Z_i
- d). Z_o
- e). A_v



7/6/2011

PRÁCTICA ELECTRONICOS I



$\beta = 100$
 $r_b = 60k$

(a) $10 = I_o (390) + 0,7$

$\frac{10+0,7}{390} = I_o$

$I_o = 0,024 \text{ mA}$

$I_E = (101)(0,024)$

$I_E = 2,424 \text{ mA}$

$r_e = \frac{26 \text{ mV}}{I_E} = \frac{26 \text{ mV}}{2,424} = 10,726 \times 10^{-3}$

(b) $r_e = 10,726 \times 10^{-3} \text{ k}\Omega$

(a) $I_C = \beta I_B = (100)(0,024)$

$I_C = 2,4 \text{ mA}$

(c) $Z_i = R_B \parallel Z_p$

$Z_i = R_B \parallel (\beta (r_e + R_E))$

$Z_i = (390) \parallel (100)(10,726 \times 10^{-3} + 0)$

$Z_i = 1,069 \text{ k}\Omega$

(d) $Z_o =$

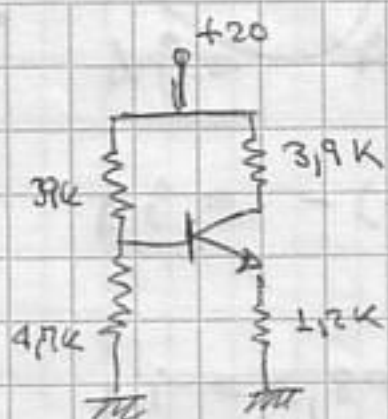
$Z_o = r_c = 10,726 \times 10^{-3} \text{ k}\Omega$

(e) $A_v = ??$

$A_v \approx 1$

11/02/17

②



$$\beta = 100$$

$$r_o = 50k$$

$$I_E = 1,212 \text{ mA}$$

$$\text{a) } z_{iB} = I_B (4,195) + 0,7 + I_E (1,2)$$

$$z_{iB} = I_B (4,195) + I_E (1,2)$$

$$I_B = 0,022 \text{ mA}$$

$$I_E = (100)(0,022) = 1,222 \text{ mA}$$

$$\text{b) } r_e = \frac{26 \text{ mV}}{I_E} = \frac{26 \text{ mV}}{1,222 \text{ mA}} = 21,452 \times 10^{-3} \text{ k}\Omega$$

$$I_e = \beta I_B = (100)(0,012 \text{ mA}) = 1,2 \text{ mA}$$

$$\text{c) } z_i = R_1 \parallel R_2 \parallel \beta r_e$$

$$z_i = (4,195) \parallel 100 (21,452)$$

$$z_i = 1,419 \text{ k}\Omega$$

$$\text{d) } z_o = ??$$

$$r_o \gg 10 R_c$$

$$50k \gg 10(3,9k)$$

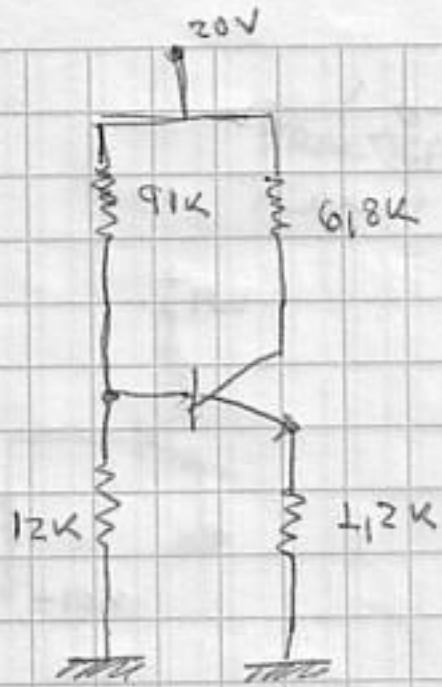
$$\Rightarrow$$

$$z_o = 3,9k$$

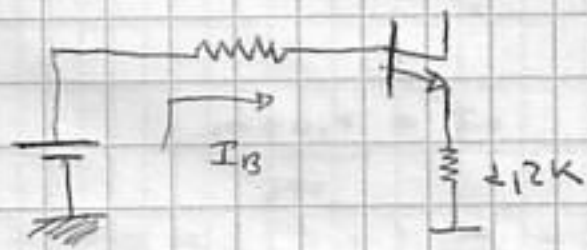
$$\text{e) } A_v = \frac{-3,9k}{21,452 \times 10^{-3}}$$

$$A_v = -181,806$$

3



$\beta = 120$



$$\frac{V_C R_2}{R_1 + R_2}$$

2,33V

$$2,33 = I_B (100,602) + 0,17 + I_E (0,2)$$

$$I_B = 0,010 \text{ mA}$$

$$I_E = (122) (0,010) = 1,21 \text{ mA}$$

$$a) r_c = \frac{26 \text{ mV}}{I_E} = \frac{26 \text{ mV}}{1,2 \text{ mA}} = 21,45 \times 10^{-3} \text{ k}\Omega$$

$$b) Z_i = R_1 \parallel R_2 \parallel \beta (r_e + r_e) -$$

$$Z_i = 10,002 \parallel 146,579$$

$$Z_i = 9,857 \text{ k}\Omega$$

$$c) Z_i = Z_i$$

$$Z_o \approx R_c = 6,8 \text{ k}\Omega$$

$$d) A_v = \frac{(R_1 \parallel R_c)}{R_c} = \frac{(2,7 \parallel 6,8)}{1,2} = \frac{1,9333}{(1,2)} = -1,611$$