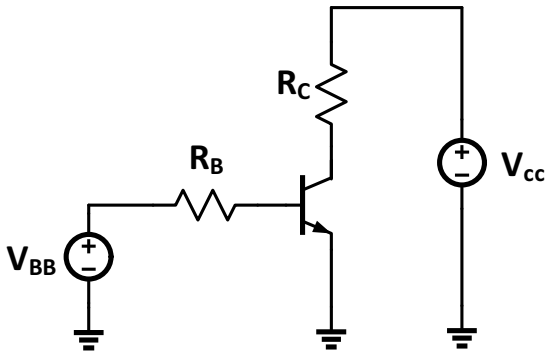
ECE 205 - WS7

Name: **UIN:**

1. In the circuit shown below, $\mathbf{V_{CC} = 5\ V}$, $\mathbf{R_B = 10\ k\Omega}$, $\mathbf{R_C = 1\ k\Omega}$, $\mathbf{V_{BE}(on) = 0.7\ V}$, $\mathbf{V_{CE}(sat) = 0.2\ V}$, and $\beta = \mathbf{100}$. Find the region of operation of the transistor for each value of $\mathbf{V_{BB}}$ below.

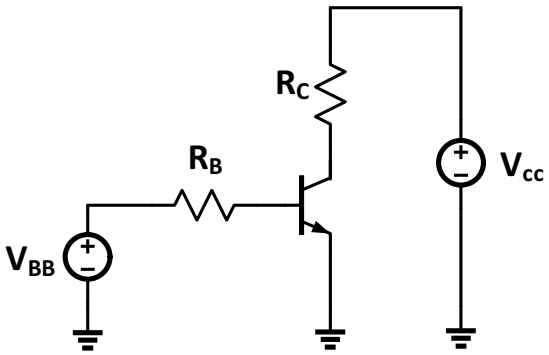


(a) $\mathbf{V_{BB} = 0\ V}$

(b) $\mathbf{V_{BB} = 1\ V}$

(c) $\mathbf{V_{BB} = 4\ V}$

2. In the circuit shown below, $\mathbf{V_{BB} = 1.2\ V}$, $\mathbf{V_{CC} = 10\ V}$, $\mathbf{R_B = 10\ k\Omega}$, $\mathbf{V_{BE}(on) = 0.7\ V}$, $\mathbf{V_{CE}(sat) = 0.2\ V}$, and $\beta = \mathbf{100}$. Find the region of operation of the transistor for each value of $\mathbf{R_C}$ below.



(a) $\mathbf{R_C = 1.4\ k\Omega}$

(b) $\mathbf{V_{BB} = 0.5\ k\Omega}$