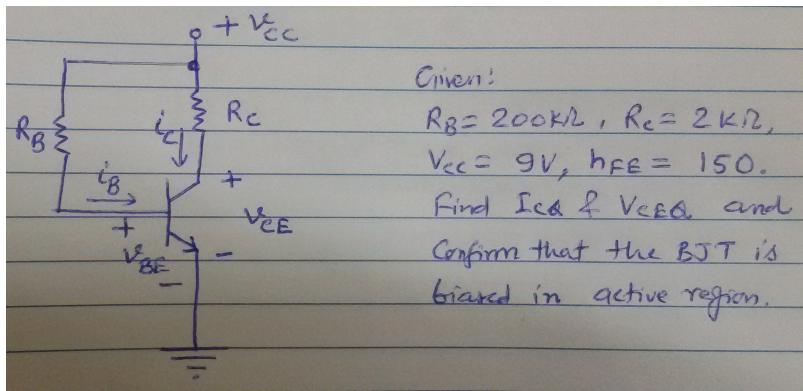


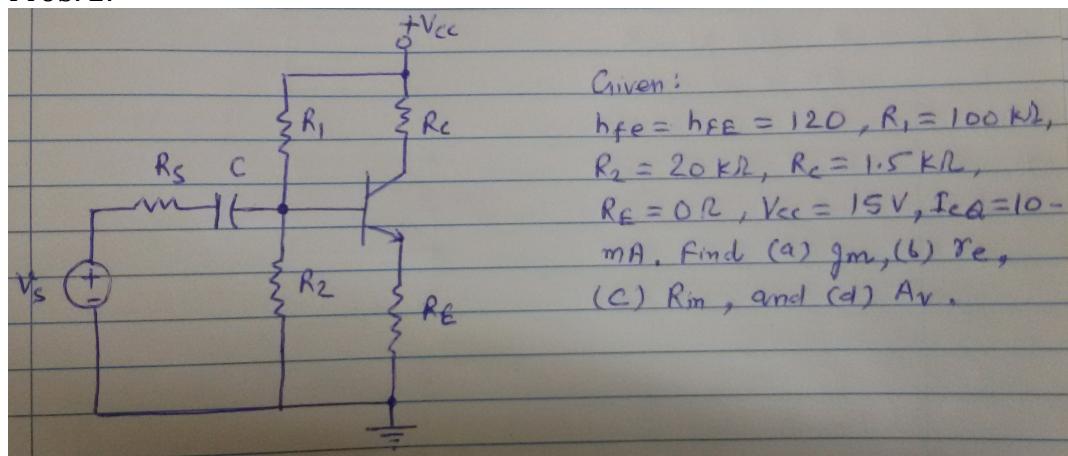
## Unsolved Practice Problems for ELL100 (BJT and Digital Electronics)

**Disclaimer:** This set of unsolved problems is meant for practicing and by no means this is bounding for questions to be asked in examinations. Symbols have their usual meanings.

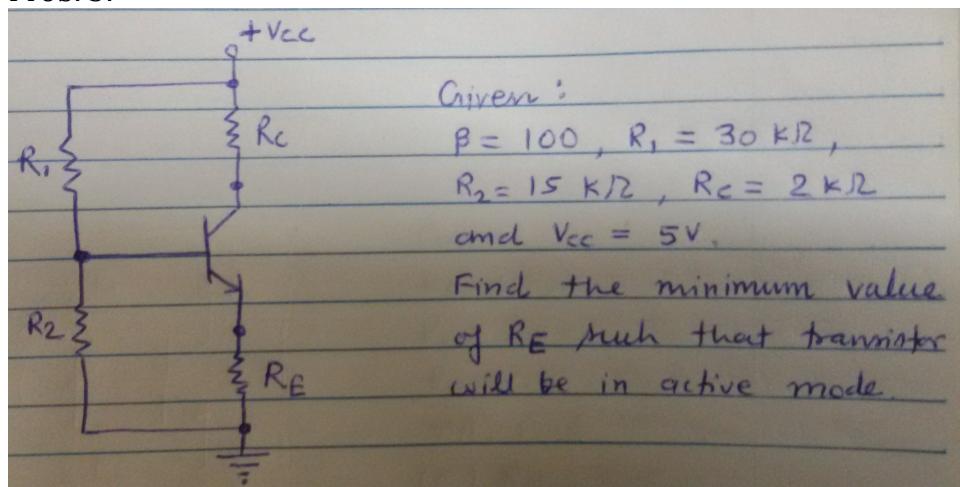
Prob. 1:



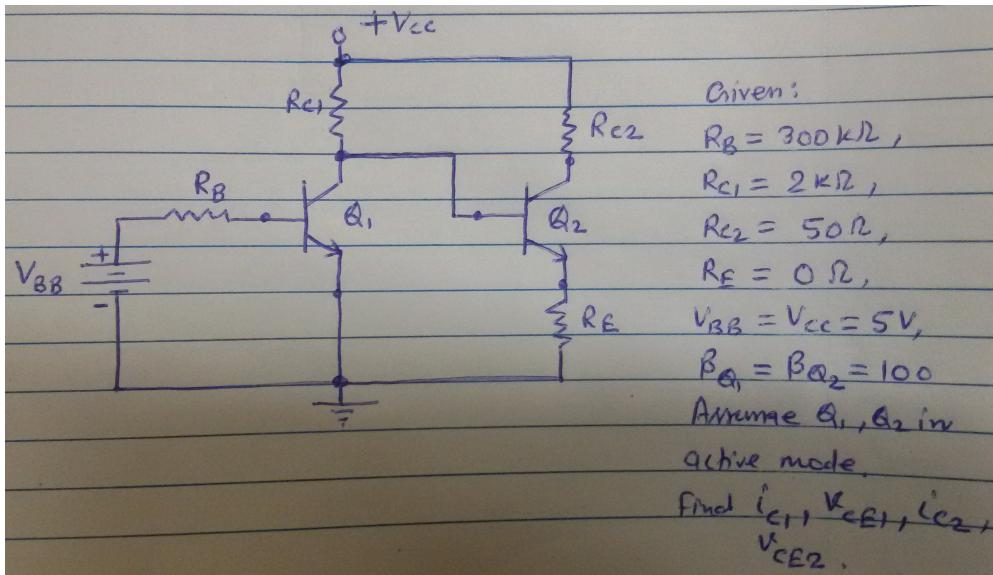
Prob. 2:



Prob. 3:



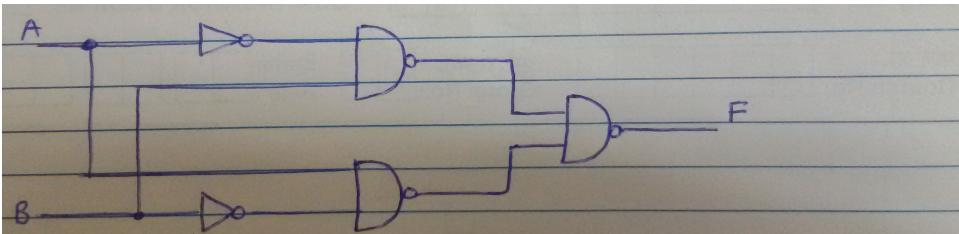
Prob. 4:



Prob. 5:

Realize an XOR gate using only NAND gates.

Prob. 6:



Determine the function  $F$  that characterizes the logic circuit shown above. Construct the corresponding truth table.

Prob. 7:

Use algebraic manipulations to simplify  $F$ ,

$$F = \overline{(A\bar{B} + \bar{A}B)}(\bar{A}B)$$

Prob. 8:

Find the simplified sum-of-products form of the Boolean function that corresponds to the Karnaugh map given below:

AB	CD	00	01	11	10
00					
01		1	1	1	1
11			1	1	
10					1