Bangladesh University of Engineering and Technology (BUET)
Department of Computer Science and Engineering (CSE)

CSE 210 Digital Electronics and Pulse Techniques Sessional

Experiment# 1: Study of a transistorised NOT gate

CKT diagram

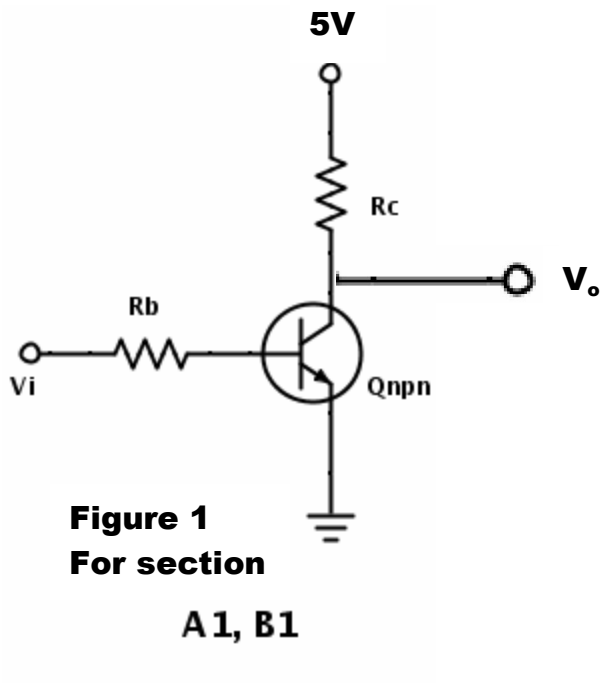

Figure 1
For section
A1, B1

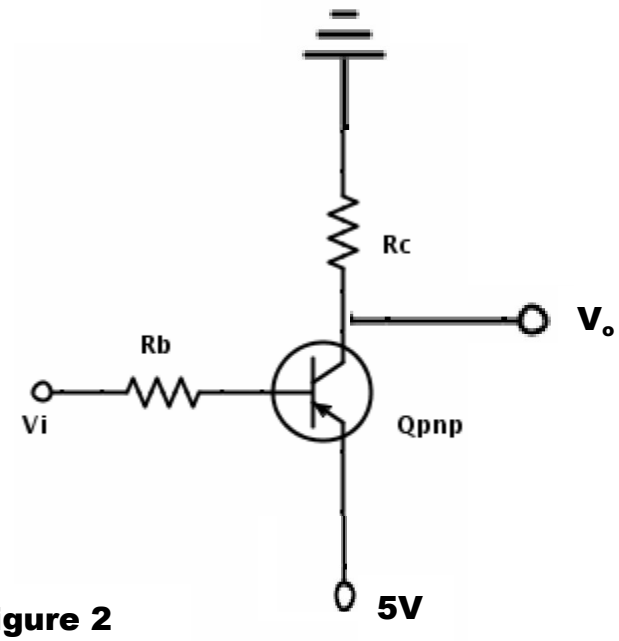

Figure 2
For section A2, B2

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Components Required

For Figure 1:

1. Transistor BD135	1pc
2. Resistor 100k	4 pcs
3. Resistor 10k	4 pcs

For Figure 2:

1. Transistor BD136	1pc
2. Resistor 100k	4 pcs
3. Resistor 10k	4 pcs

Procedure:

1. Implement your ckt with R_b as 100k and R_c as 10k.
2. Observe the output in the oscilloscope with V_i as a 10v peak-to-peak sine wave.
3. Measure magnitude of V_o and also the transition points.
4. Repeat steps 1 to 3 with R_b as 100k and varying R_c as 5k and 2.5k.
5. Repeat steps 1 to 3 with R_c as 10k and varying R_b as 50k and 25k.

Questions:

1. Does in all the cases for procedure 1 to 5 above ckt function as a NOT gate? Justify your answer with the experimental data.
2. Calculate the minimum h_{FE} required to function the above ckt as NOT gate.
3. From the web search the datasheet of the given transistor and find the h_{FE} of the transistor.

Report:

Report should cover the following points:

1. Objective
2. Circuit Diagram
3. Experimental Data
4. Calculations if any.
5. Answer to the questions
6. Discussion of the findings