Laboratory 23: Schmitt Trigger Oscillator

Using the LF356 op-amp the pinout of which is shown below,

1. Design, build and test a square wave generator oscillating at a frequency of 1kHz and a duty cycle of ~50%

With what voltage(s) would you power the op-amp?

Calculate the list the values you would use for the following components:

R1:
R2:
RF:
C:
Use the scope to observe $V_o$ and $V_-$ and draw the signals below.

2. What is the highest frequency square wave that you can generate with this circuit? (Try changing $C$ in decades and observe the result.) What would the signal $V_o$ look like at high frequencies? Can you explain the reason for this behavior?

3. Modify the circuit so that the square wave can have variable duty cycle. (Hint: use your 20kΩ variable resistor to change the voltage level that powers your op-amp) What is the basic idea here?

Show your circuit schematic below.
Vary the potentiometer and observe the signals $V_o$ and $V_-$. 