

EE100 Summer 2006 Project

Waveform Generator

Part I: Introduction and Op-amp Subsections

SOLUTIONS

4. Briefly (≤ 3 sentences) explain why changing the potentiometer resistance changes the frequency of the waveforms.

Solution: Varying the potentiometer resistance changes the time constant of the integrator. Hence if the potentiometer resistance *decreases*, the capacitor charges (or discharges) *faster*. This leads to an *increase* in frequency and vice-versa.

Of course, RC also affects the amplitude of the output waveform (this is optional, if the students do not write this they still get full credit for this question).

5. Briefly (≤ 3 sentences) explain why the waveforms have a DC offset of 4.5 V.

Solution: The DC offset is because of the voltage divider at the non-inverting terminal of the op-amps.