

WORKSHEET 5: Midterm Review

SI LEADER: Stephen Iota (siota001@ucr.edu)

COURSE: Physics 40C (Fall 2018), Dr. Laura Sales

DATE: 1 November 2018

1 Charged Rod

A plastic rod is rubbed to a piece of wool until it has a charge of -5 nC .

- (a) Were protons removed to the rod or were electrons added to the rod?
- (b) How many protons/electrons were removed/added?

2 Parallel Plate Capacitor

A parallel plate capacitor with a spacing of $d = .6 \text{ mm}$ has an Electric field strength of $|\vec{E}| = 50 \text{ N/C}$. An electron is placed on the positive end of the capacitor.

- (a) How much work W is required to bring the electron to the negative end of the capacitor?
(HINT: $E = T + U$)
- (b) Once the electron is brought to the negative end, it is released and is immediately attracted to the positive end. What will its final velocity be when it reaches the positive end?