Millikan's Experiment

Base your answers to the following questions on the videotape you viewed in lab:

1. What is the reason for doing this experiment?

2. Why is the experiment done on charges placed between oppositely-charged parallel plates?

3. Why is the magnitude of the plastic sphere's velocity proportional to the charge on the plastic sphere?

4. Record the sphere's velocities in the experiment as the measurements are made in the table below.

5. Organize the velocities into groups of similar (very close) values in the table below. Put average velocity for each column in the row above.

6. On the average velocity line, the bottom line in the table of the previous page, record the average velocity for each similar group of velocities in the table above the line.

7. What is the approximate difference between the average velocities for each successive group?

8. Remembering that the magnitude of the charge on the sphere is proportional to the velocity of the sphere:
   (a) *Could charge come in any possible value no matter how small with no lower limit* to the size of a charge on an object?

   (b) Or is it possible that charge comes in groups of small indivisible units of charge (called elementary charge units), so that all charges on all objects are combinations of whole numbers of these indivisible elementary charge units?

   Justify your answers to (a) and (b) on the data collected from the film on Millikan's experiment.