Chapter 22: Electrostatics

3) Why are objects with vast numbers of electrons normally not electrically charged?

4) Why do clothes often cling together after tumbling in a clothes dryer?

14) Strictly speaking, when an object acquires a positive charge by the transfer of electrons, what happens to its mass? What happens to it mass when it acquires a negative charge? (Think small!)

17) How can you charge an object negatively with only the help of a positively charged object?

19) When one material is rubbed against another, electrons jump readily from one to the other but protons do not. Why is this? (Think in atomic terms.)

24) How does the magnitude of electric force compare between a pair of charged particles when they are brought to half their original distance of separation? To one-quarter their original distance? To four times their original distance? (What law guides your answers?)

27) When you double the charge on both particles in a pair, what effect does this have on the force between them? Does the answer depend on the sign of the charges?

38) If you rub an inflated balloon against your hair and place it against a door, by what mechanism does it stick? Explain.

60) A friend says that the reason one's hair stands out while touching a charged Van de Graaff generator is simply that the hair strands become charged and are light enough so that the repulsion between strands is visible. Do you agree or disagree?