1.

1. E.
2. 1.False

2. False

3. False

4.

A n=10 e=10 p=9 Negative

B n=12 e=11 p=11 Neutral

C n=20 e=18 p =20 Positive

5.

a. It needs to gain an electron

b. It needs to lose an electron

6. Positive with **+5.8 x 10^-7 Coulombs**

**9. Wrong it has an excess of positively charged particles not electrons, they are negatively charged sub atomic particles. So the average amount of protons is higher than the average amount of electrons.**

c) 1. C. can cause objects to attract or repel each other

2. Situation 1 A is positive or neutral while C is negative. Situation 2 A is positive and C or positive

3. d. both ballons are charged with the same type of charge because they repel each other and like charges repel while like attract

4. A is -. B is =. C is -.D is -.E is +.F is +.

6. Object X will repel object Y because they have the same charges.

7. a,b,c

d)

1.Sphere A is rubber while Sphere B is copper because conductors have a uniform distribution of excess electrons along a material while insulators have a scattered distribution of excess electrons

2.b aluminum is a metal and conducts electricity c. silver is one of the best conductors and is a metal and e. wet skin contains water which is a good conductor as well as human skin.

3. F none of these applies

4. C because the electrons attract to positive particles and since there are empty protons with no electrons the electrons move towards these protons.

5. Oil is flammable and charges can build up through frictions throughout the process of draining the tanker so the metal wire prevents a build up of electrons so the oil does not light from electric sparks. So the metal wire moves these charges away from the tanker.

e)

1. a. the door is electrically neutral because neutral charge do not attract so the uncharged balloon will not attract to a neutral object which is true for one while having a positively charged balloon will attract to a neutral object or a negative object and we already made the assumption that it was a neutrally charged object in the first statement.

2. d. because the electrons want to attract towards the positively charged objects and move towards the area with missing electrons.

3. B and D because if you imagine O as negative and H as positive the H attracts to the O and the O or H repel the same atom. Thus B has a hydrogen atom beside an oxygen atom and D has the same.

4. No polarization does not involve charging it simply involves the movement of electrons inside.

5.A and D because the same charges repel each other and unlike charges attract however you could also assume E works however charged particles require at least one proton and electron.

6.b and c because the number of protons equal the number of electrons so it is neutral and it is polarized because the charged object moves the electrons.

2.

a)

1. d. The plastic strip lost electrons to the cotton

2. Saran Wrap because the electron affinity means that the Saran Wrap will want the electrons more and the Nylons electrons will transfer over to the Saran Wrap.

3. b,d,g

4. c. Molecules in the rubber rod have a stronger attraction for electrons than the molecules in the fur.

b) 1. C) neutral

2. G)

3.False

4. A. Into the sphere from ground because the electrons are moved towards the balloon so the electrons want to go towards the sphere

6. c.

7.b.

c)

1) b and b

2) c

3)e protons can’t move

4)b,c,d

d)

1) b.

2) f.

3) False.

3.

a)

b)

1. E

2. G

c)

1. 0.16N

2. 0.32N

3. 0.02N

4. 0.0089N

5. 0.005N

6. 0.32N

7. 0.04N

8. 0.08N

9. 0.08N

10. 0.026

d)

1. C,D,E C because positive partrices repel not attracts, E because particles have an equal amount of fields