

# Grade Twelve Take Home Quiz

*Answer all questions*

*Due Date October 6, 2006.*

## ***1. Which sub-atomic particle has no electrical charge?***

- They all have electrical charges
- Anti-matter
- The neutron

## ***2. Why does the electric field flow from (+) to (-)?***

- Because (+) is bigger than (-)
- It is just a convention that scientists agreed upon
- It's just there

## ***3. Why do things stick together in static electricity?***

- They only stick if one is made of matter and the other is made of anti-matter
- The (+) charges on one material attract the (-) charges on the other object
- Like charges attract

## ***4. What happens to an atom if something pulls an electron from it?***

- It explodes
- The atom then has a positive (+) charge
- The atom then has a negative (-) charge

**5. Which of the following will usually create static electricity?**

- Rub a wet rag on a plastic comb
- Rub a coin with a plastic comb
- Rub a plastic comb with some rabbit fur

**6. What can cause electrons to jump across a gap and cause a spark?**

- The force from a large positive charge
- Lightning
- Heat

**7. What happens to an atom that loses some electrons?**

- It has a positive charge
- It has a negative charge
- It shoots off sparks

**8. How does friction cause electrons to go from one material to another?**

- It scrapes them off and deposits them on the other material
- It doesn't move the electrons; adhesive forces pull off the electrons
- Electrons are attracted to another material because of the Periodic Table

**9. If you pressed your hand on some Teflon and then pulled them apart, what would happen?**

- Nothing, because you must rub them together to create enough friction
- Electrons would be pulled from your hand and collected on the Teflon surface
- Teflon is a conductor of electricity, so you would get a shock

**10. What happens to a material that collects electrons on its surface?**

- It has a negative charge
- It has a positive charge
- It shoots off sparks

**11. Rubbing which materials together would produce the most static electricity?**

- Leather and Teflon
- Dry skin and cat fur
- Wood and paper

**12. If you combed your hair with a plastic comb, which would give up its electrons?**

- Your hair
- The comb
- Your skin, if it was dry

**13. What is a spark made of??**

- Radiation from atomic reactions
- Electrons and Protons colliding
- A stream of electrons jumping an air gap

**14. What causes the noise of thunder?**

- Air clapping together after it suddenly cools
- Friction on the raindrops
- The noise caused by the bright flash

**15. What is the difference between a spark and lightning?**

- Lightning occurs in summer; sparks in winter
- Lightning is just a big spark
- Lightning makes noise but sparks don't

**16. How does the special spray prevent static cling?**

- It creates an opposite charge
- It makes the clothes stiff so they don't cling
- It discourages the collection of charges

**17. How can you minimize getting static electricity shocks?**

- Never wear shoes
- Use something to drain off the excess charges
- Always wear a metal hat on a dry day

**18. What is a reason a lightning rod works?**

- The lightning rod is closer to the clouds and uses metal to conduct the electricity
- The lightning rod has a sharp point to repel the lightning
- The lightning rod needed Ben Franklin to work

**19. What can be used to store static electricity?**

- High voltage
- Type AA batteries
- A Leyden jar or similar capacitor

**20. When can high voltages be relatively safe?**

- If you wear rubber soled shoes
- If the amount of current (amperes) is very small
- If you stay more than 15 inches away

**21. What factor helps the Van de Graaff generator to create more static electricit?**

- The large discharge electrode
- The size of the plastic discs
- If it is in a lightning storm

**22. How can static electricity help control pollution?**

- By preventing lightning from starting fires
- By cleaning particles from smoke stacks
- By cleaning electrons from the air

**23. How can static electricity clean out cigarette smoke?**

- By giving smokers an electric shock
- By attracting cigarettes to a non-conductor
- By charging and collecting smoke particles

**24. What is an advantage of using static electricity to paint a car?**

- The paint goes on evenly
- The paint will attract cigarette smoke

- The paint collects at sharp points

***25. Why are some people more prone to static electric shocks?***

- They often have dry skin, which creates more static electricity
- They slide their feet when they walk on synthetic carpets
- They enjoy the sensation