6. Salts are made of elements found on opposite ends of the periodic table because elements on

(a) opposite ends of the periodic table have similar arrangements of electrons.
(b) the far left tend to form negative ions while those on the right tend to form positive ions.
(c) the far left tend to form positive ions while those on the right tend to form negative ions.
(d) Not true! Salts are generally made of elements found on the same side of the periodic table.

7. The atoms of materials that conduct electricity best tend to be held together by

(a) metallic bonds.
(b) covalent bonds.
(c) ionic bonds.
(d) polar covalent bonds.

8. When you set a pot of tap water on the stove to boil, you'll often see bubbles start to form well before boiling temperature is ever reached. Explain this observation.

(a) These are dissolved salts heating up and escaping from the water.
(b) These initial bubbles are the gases that were dissolved in the water coming out of solution. The solubility of gases in water decreases with increasing temperature.
(c) These bubbles are formed as the surrounding gases from the air dissolve into the water as it is heated.
(d) They are very minute pockets of water in the gaseous phase. When they get large enough, the water will boil as this gas escapes.

9. How are ion-dipole attractions able to break apart the relatively strong ionic bond?

(a) The dipoles nullify the charges of the ions, which allows the ionic bond to fall apart.
(b) Dipoles can change polarity thus "fooling" the ions to be attracted to them instead of each other.
(c) Ion-dipole attractions cannot break the ionic bond.
(d) Many weaker ion-dipole attractions work together to pull apart the stronger ionic bond.

10. How many electrons are used to draw the electron-dot structure for acetylene (a covalent compound with the formula, HCCH)?

(a) 8
(b) 5
(c) 12
(d) 10

11. At room temperature, chlorine is a gas and bromine is a liquid because

(a) in contrast to chlorine, the electrons of bromine are distributed over a larger volume making it easier for them to congregate to one side. Bromine, therefore, has stronger induced dipole-induced dipole attractions.
(b) the chlorine molecule contains more atoms making it larger than bromine and thus having more induced dipole-induced dipole attractions to hold it in a gaseous phase.
(c) the bromine molecule contains more atoms making it larger than chlorine and thus having more induced dipole-induced dipole attractions to hold it in a liquid phase.
(d) chlorine is lighter than bromine and has more of a tendency to behave as a gas.

12. What is the mass of a single molecule of ammonia, NH

43. [10 MARKS] How many molecules of aspirin, $C_9H_8O_4$, are there in a 0.250 gram sample? How many atoms?

44. [4 MARKS] Identify each of the substances in the following reactions as acting as an acid or base

(a) $PH_3 + H_2S \varnothing PH_2^- + H_3S^+$

(b) $HSO_4^- + H_2O \varnothing OH^- + H_2SO_4$

(c) $HSO_4^- + H_2O \varnothing H_3O^+ + SO_4^{2-}$

(d) $PH_3 + H_2S \varnothing PH_4^+ + SH^-$

P

PERIODIC TABLE OF THE ELEMENTS

1 1.0079 **H** hydrogen hydrogène							2 4.003 **He** helium hélium
3 6.941 **Li** lithium lithium	4 9.012 **Be** beryllium béryllium				5 10.811 **B** boron bore	6 12.011 **C** carbon carbone	7 14.007 **N** nitrogen azote	8 15.9994 **O** oxygen oxygène	9 18.998 **F** fluorine fluor	10 20.18 **Ne** neon néon
11 22.99 **Na** sodium sodium	12 24.31 **Mg** magnesium magnésium				13 26.98 **Al** aluminum aluminium	14 28.086 **Si** silicon silicium	15 30.974 **P** phosphorus phosphore	16 32.07 **S** sulfur soufre	17 35.453 **Cl** chlorine chlore	18 39.95 **Ar** argon argon

atomic number
atomic mass
Symbol
English name
French name*

*all are masculine