

Revised August 2006



AP WORKED ANSWERS

1992, 8

Points 2, 2, 2, 2

(a) Potassium is a metal that conducts electricity due to metallic bonding where a "sea" of free moving electrons can conduct.

KNO_3 is an ionic solid that does not conduct electricity because in the solid state the ions are not free to move.

(b) SbCl_3 is polar (has a measurable dipole moment) because it has polar bonds that do not cancel via symmetry.

SbCl_5 is not polar (has no dipole moment) because its dipoles cancel because of symmetry.

(c) CBr_4 has stronger intermolecular forces (London dispersion) than CCl_4 because CBr_4 is larger, has more surface area and has more electrons than CCl_4 .

(d) NaI is ionic, so polar water molecules are attracted to, and surround and hydrate the ions present.

I_2 is a non-polar molecule and forms no such interaction with water so does not dissolve to any degree.