Plus Two Chemistry Answer Key PART 1

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1. $molL^{-1}s^{-1}$.

2. Ag

3. ethylenediamine (en), OR the oxalate ion

4. The Finkelstein reaction

5. Benzaldehyde

6. Henry's law states that the partial pressure of a gas in the vapor phase is proportional to a mole fraction of the gas in the solution.
$P=K_HC$

where C= concentration or mole fraction of dissolved gas, KH= Henry's law constant and P= partial pressure of dissolved gas.

Important applications of Henry's law:
a) In packing of soda cans: Soda water bottles are always packed under higher pressure to increase the solubility of CO2 gas.

b) In deep-sea diving: Nitrogen is more soluble than Helium in our blood. In the deep sea, the pressure is higher than at the surface of the water. When diver tries to come rapidly towards the surface of the water, pressure decreases and dissolved nitrogen comes back from blood and makes bubbles in veins. Hence, divers use oxygen diluted with helium.

7. An ideal solution is the solution which obeys Raoult's law exactly over entire range of concentration. Such solutions are formed by mixing the two components which are identical in molecular size, in structure and have almost identical intermolecualr forces.

The characteristics of ideal solutions:

(a) It must obey Raoult's law.

(b) The enthalpy of mixing should be zero.

(c) The volume of mixing should be zero.

Some examples include;

Toluene and Benzene. Bromobenzene and Chlorobenzene. N-heptane and n-hexane.

8. Kohlrausch law: It states that the molar conductivity of an electrolyte at infinite dilution can be expressed as the sum of the contributions from its individual ions.

$\Lambda_{Na}+=x$ $\Lambda_{H}+=y$ $\Lambda_{Cl}-=z$ $\Lambda_{CH3COO}-=w$

x+z=126.4

y+z=425.9

w+x=91

from the above equation, value of

w+y=390.5

9. A Pseudo first-order reaction can be defined as a second-order or bimolecular reaction that is made to behave like a first-order reaction. This reaction occurs when one reacting material is present in great excess or is maintained at a constant concentration compared with the other substance.

hydrolysis of ester/ hydrolysis of sucrose/ The hydrolysis of acetic anhydride

10. a. Transition elements show variable state oxidation in their compounds because there is a very small energy difference in between (n-1)d and ns orbitals. As a result, electrons of (n-1)d orbitals as well as ns-orbitals take part in bond formation.

b. manganese