WORKSHEET 2

CHAPTER 2 – CHEMICAL BONDING

A. Tick (✓) the correct option.

Compound X consists of molecules.

1. The type of bonding in X will be

   a. ionic. b. electrovalent.

   c. covalent. d. molecular.

2. X is likely to have a

   a. low melting point and high boiling point. b. high melting point and low boiling point.

   c. low melting point and low boiling point. d. high melting point and high boiling point.

3. In the liquid state, X will

   a. become ionic. b. be an electrolyte.

   c. conduct electricity. d. not conduct electricity.

4. A covalent bond formed by sharing of one pair of electrons is called

   a. single covalent bond. b. double covalent bond.

   c. triple covalent bond. d. none of these

5. The covalent compounds possessing non-polar covalent bonds are called

   a. polar covalent compounds. b. non-polar covalent compounds.

   c. coordinate bond. d. none of these.

B. Fill in the blanks from the choices given within the brackets.

1. When the participating atoms in a chemical reaction are two _____ (metals/non-metals) a covalent bond is formed.
2. The _____ (ionic/covalent) compounds in fused state or aqueous solution are good conductors of electricity.
3. If participating atoms in a chemical reaction are a metal and a non-metal, the compound so formed has _____ (higher/lower) boiling point.
4. When an atom or an ion loses an electron, it is said to be _____ (oxidised/reduced).
5. A covalent compound in which a shared pair of electrons are _____ (equally/unequally) distributed between the atoms is called polar covalent compound.

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C. Give one word/words for the statements given below.

1. A compound formed by the actual exchange of electrons from the valence shell of a metal to the valence shell of a non-metal.
2. An electrostatic bond between a metallic and a non-metallic ion.
3. A bond formed between two non-metallic elements by mutual sharing of electrons.
4. A compound in which shared pair of electrons are unequally distributed between the reacting atoms.
5. A compound in which shared pair of electrons are equally distributed between the reacting atoms.

D. An element P has electronic configuration (2, 8, 18, 8, 1). Without identifying P,

1. predict the sign and charge on simple ion of P.
2. state whether you would expect the element P to be a metal or a non-metal.
3. write the probable formula and appearance of chloride of P.
4. write the probable formula and solubility of hydroxide of P.

E. Answer the following.

1. Name one compound which is covalent, but on dissolving in water conducts electricity.
2. Which one property of above compound, agrees with its being a covalent compound?
3. State four periodic properties which are responsible for the formation of covalent compounds.
4. Why are non-polar covalent compounds insoluble in water?
5. Why are non-polar covalent compounds bad conductor of electricity?

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ANSWERS

WORKSHEET 2

A. Tick (✓) the correct option.

1. c
2. c
3. d
4. a
5. b

B. Fill in the blanks from the choices given within the brackets.

1. non-metals
2. ionic
3. higher
4. oxidized
5. unequally

C. Give one word/words for the statements given below.

1. Ionic compound
2. Ionic bond
3. Covalent bond
4. Polar covalent compound
5. Non-polar covalent compound

D. An element P has electronic configuration (2, 8, 18, 8, 1). Without identifying P

1. P^+. It has a unit positive charge.
2. Element P is a metal.
3. The formula of chloride of P is P^+Cl^-. It is likely to be white crystalline solid.
4. The formula of hydroxide of P is P^+OH^-. It is likely to be very soluble in water.

E. Answer the following.

1. Hydrogen chloride.
2. Hydrogen chloride is a gas. In dry state, it is a bad conductor of electricity. Hence, it is a covalent compound.
3. i. Small difference between the values of electronegativity of the combining atoms.
   ii. Small difference between the values of ionisation potential of the combining atoms.

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iii. Small difference between the values of electron affinity of the combining atoms.

iv. The combining atoms should be non-metals.

4. Non-polar covalent compounds do not have free ions. Thus, water molecules cannot tear apart these molecules and hence they are insoluble in water.

5. Non-polar covalent compounds do not have free ions. Thus, they do not dissolve in polar covalent water. As no free ions are produced, therefore non-polar covalent compounds are bad conductor of electricity.

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