ST. LAWRENCE HIGH SCHOOL

A JESUIT CHRISTIAN MINORITY INSTITUTION

- **Subject :Chemistry Worksheet-5 Class IX**
- **Date 15.05.2020**
- **Chapter: Acid, bases and salts**
- **Answer the following questions (MCQ) : (1×15)**

1). Water is liquid at room temperature, the most important reason for this is the:

a. High boiling point of water
b. High melting point of water
c. High heat of vaporization of water
d. Cohesive forces due to hydrogen bonds in water

(2). Water is a ____

a. Polar solvent
b. Non polar solvent
c. An amphipathic solvent
d. Non polar uncharged solvent

(3). Polar molecules can readily dissolve in water. This is because:

a. Polar molecules can form hydrogen bonds with water
b. Polar molecules can replace water-water interaction with more energetically favourable water-solute interactions
c. Polar charged water can interact with the charge of polar molecules
d. All polar molecules are amphipathic in nature

(4). Most important reason for the unusual properties of water is:

a. The covalent bonding pattern in water molecule
b. The bond angle between the two hydrogen atoms in water
c. Hydrogen bonding between water molecules
d. Water can be immediately ionized at room temperature

(5). The H – O – H bond angle in water molecule is:

a.104.0^{o}
b.104.5^{o}
c.105.0^{o}
d. 105.5^{o}

(6). Which of the following statement is true regarding the electronegativity of atoms in water molecule?

AHydrogen is more electronegative than oxygen
b.Hydrogen is less electronegative than oxygen
c. Electronegativity of hydrogen and oxygen is same
d. Oxygen and hydrogen do not have significant electronegativity in water

(7). Which of the following represent the current melting point, boiling point and heat of vaporization of water?

a. 0^{o}C;100^{o}C ; 2260J/g
b.100^{o}C; 0^{o}C ; 2260J/g
c. 0^{o}C ; 100^{o}C ; 1260J/g
d. 100^{o}C ; 0^{o}C ; 1260 J/g

(8). The oxygen atom in the water molecule due to its high electronegativity bears _____

a. 1δ^{+} charge
b. 2δ^{+} charges
c. 1δ^{-} charge
d. 2 δ^{-} charges

(9). Hydrogen bond is best represented as the electrostatic attraction between:

a. A hydrogen covalently bounded to an electronegative atom and another hydrogen atom
b. A hydrogen covalently bounded to an electronegative atom and another electronegative atom
c. Two electronegative atoms and a hydrogen atom
d. Two hydrogen atoms

(10). The bond dissociation energy of hydrogen bonds in water molecule is

a. 10kJ/mol
b. 23kJ/mol

c. 470kJ/mol
d. 348 kJ/mol

11. Which of the following statement is correct regarding the hydrogen bonds in water?

a. Hydrogen bond is 10 % covalent and 90 % electrostatic
b. Hydrogen bond is 25% covalent and 75 % electrostatic
c. Hydrogen bond is 50% covalent and 50% electrostatic
d. Hydrogen bond is 100 % electrostatic

12. A single water molecule can form how many hydrogen bonds at a time? (theoretically possible value)

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

13. The life span of a hydrogen bond between two water molecule in liquid water is:

a. 1–20seconds
b. 1–20microseconds
c. 1–20nano-seconds
d. 1 – 20 pico-seconds

14. The bond dissociation energy of O – H bond in water is:

a. 470kJ/mol
b. 348kJ/mol
c. 23kJ/mol
d. 10 kJ/mol

15. What is the bond length of hydrogen bond between two water molecules in liquid water?

a. 0.0177nm
b. 0.177nm
c. 1.177nm
d. 17.70 nm