**Water and Life (15.09.2020)**

**Multiple choice questions**

**(1) Dissolving agent is the**

A. Solution B. Solvent C. Solute D. Buffers

**(2) The QUANTITY of heat a liquid must absorb for 1g of it to be converted from liquid to gas**

A. Specific Heat B. Ocean Acidification

C. Heat of Vaporization D. Aqueous Solution

**(3) Which of the following solutions has the greatest concentration of hydrogen ions [H+]**

A. gastric juice at pH 2 B. vinegar at pH 3 C. tomato juice at pH 4

D. black coffee at pH 5 E. household bleach at pH 12

**(4) A relatively weak bond between a polar molecule and the weak positive charge on a hydrogen atom is called**

A. a covalent bond B. an ionic bond C. hydrogen bond

D. a compound bod

**(5) What do cohesion, adhesion, and surface tension have in common with reference to water?**

A. all are produced by covalent bonding B. all are properties related to hydrogen bonding

C. all are aspects of a crystalline structure D. all have to do with ionic interactions

E. all are the results of the structure of the hydrogen atom

**(6) Some substances, such as oil and gasoline, will not dissolve in water because**

A. oil and gasoline are organic compounds

B. their electrons are so stable that they don't exchange atoms with other molecules

C. their molecules have no charge or partial charges to which water molecules can adhere

D. they are so large

E. none of the above

**(7) When excreting in warm temperatures, the human body relies on \_\_\_ to absorb excess calories of heat and maintain normal body temperature**

A. evaporation B. condensation C. respiration D. transpiration

**(8) All of the following are non-polar except**

A. oils B. fats C. CH4 D. H2O E. gasoline

**(9) Which of the following statements is true about buffer solutions?**A) They maintain a relatively constant pH when either acids or bases are added to them
B) They maintain a constant pH when acids are added to them but not when bases are added to them
C) They maintain a constant pH when bases are added to them but not when acids are added to them
D) They fluctuate in pH when either acids or bases are added to them

**(10) The element present in all organic molecules is\_\_\_\_\_.**A) Hydrogen B) Nitrogen C) Carbon D) Oxygen

**(11) Why does ice float in liquid water?**A) The high surface tension of liquid water keeps the ice on top
B) The crystalline lattice of ice causes it to be denser than liquid water
C) Stable hydrogen bonds keep water molecules of ice farther apart than water molecules of liquid water
D) The ionic bonds between the molecules in ice prevent the ice from sinking

**(12) Which type of bond must be broken for water to vaporize?**A) Hydrogen bonds B) Both polar covalent bonds and hydrogen bonds
C) Polar covalent bonds D) Ionic bonds

**(13) If the cytoplasm of a cell is at pH 7, and the mitochondrial matrix is at pH 8, then the concentration of H+ ions\_\_\_\_\_\_\_.**A) In the cytoplasm is 8/7 the concentration in the mitochondrial matrix
B) Is 10 times higher in the cytoplasm than in the mitochondrial matrix
C) In the cytoplasm is 7/8 the concentration in the mitochondrial matrix
D) Is 10 times higher in the mitochondrial matrix than in the cytoplasm

**(14) Hydrophobic substance such as vegetable oil are\_\_\_\_\_.**A) Nonpolar substance that have attraction for water molecules
B) Polar substances that repel water molecules
C) Polar substances that have an affinity for water
D) Nonpolar substance that repel water molecules