

**TEST BANK**

A graphic of a spiral-bound notebook. The cover is black with the text 'IMAGE COMING SOON' in white, bold, sans-serif font. The spiral binding is on the left side.

**IMAGE  
COMING  
SOON**

**MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.**

- 1) The simplest chemical units of matter are 1) \_\_\_\_\_  
A) molecules. B) protons. C) atoms. D) electrons. E) neutrons.  
Answer: C

- 2) Isotopes of an element differ in the number of 2) \_\_\_\_\_  
A) electrons in the nucleus.  
B) neutrons in the nucleus.  
C) electrons in energy shells.  
D) electron clouds.  
E) protons in the nucleus.  
Answer: B

- 3) The atomic number represents the number of 3) \_\_\_\_\_  
A) protons and neutrons.  
B) electrons in an ion.  
C) neutrons in an atom.  
D) protons in an atom.  
E) neutrons and electrons.  
Answer: D

- 4) All atoms with the same atomic number are grouped into 4) \_\_\_\_\_  
A) isotopes.  
B) cells.  
C) elements.  
D) compounds.  
E) molecules.  
Answer: C

- 5) The mass number of an atom indicates the number of 5) \_\_\_\_\_  
A) protons in the nucleus.  
B) electrons in the outer shells.  
C) protons and neutrons in the nucleus.  
D) neutrons in the nucleus.  
E) protons and electrons in an atom.  
Answer: C

- 6) Radioisotopes have unstable 6) \_\_\_\_\_  
A) protons.  
B) isotopes.  
C) ions.  
D) nuclei.  
E) electron clouds.  
Answer: D

- 7) The chemical behavior of an atom is determined by 7) \_\_\_\_\_  
A) the number of protons.  
B) the number and arrangement of electrons.  
C) the mass of the atom.  
D) the number of neutrons.  
E) the size of the atom.

Answer: B

- 8) A substance containing atoms of different elements that are bonded together is called a(n) 8) \_\_\_\_\_
- A) molecule.
  - B) isotope.
  - C) mixture.
  - D) compound.
  - E) solution.

Answer: D

- 9) Ions with a positive charge are called 9) \_\_\_\_\_
- A) anions.
  - B) isotopes.
  - C) cations.
  - D) radicals.
  - E) polyatomic ions.

Answer: C

- 10) In living cells, the weakest bond between two or more atoms is the \_\_\_\_\_ bond. 10) \_\_\_\_\_
- A) ionic                      B) covalent                      C) polar                      D) hydrogen                      E) nonpolar

Answer: D

- 11) Ionic bonds are formed when 11) \_\_\_\_\_
- A) a pair of electrons is shared unequally by two atoms.
  - B) two or more atoms lose electrons at the same time.
  - C) atoms share electrons.
  - D) hydrogen forms bonds with negatively charged atoms in the same or different molecule.
  - E) electrons are completely transferred from one atom to another.

Answer: E

- 12) In a molecule of nitrogen, three pairs of electrons are shared by two nitrogen atoms. The type of bond that is formed would be an example of a(n) 12) \_\_\_\_\_
- A) triple covalent bond.
  - B) single covalent bond.
  - C) hydrogen bond.
  - D) double covalent bond.
  - E) polar covalent bond.

Answer: A

- 13) If a pair of electrons is unequally shared between two atoms, a(n) \_\_\_\_\_ occurs. 13) \_\_\_\_\_
- A) single covalent bond
  - B) hydrogen bond
  - C) triple covalent bond
  - D) double covalent bond
  - E) polar covalent bond

Answer: E

- 14) Elements that have atoms with full outer shells of electrons 14) \_\_\_\_\_
- A) will normally form anions.
  - B) will normally form cations.
  - C) will form many compounds.
  - D) are inert.

E) frequently form hydrogen bonds.

Answer: D

- 15) Inorganic compounds that are soluble and whose ions will conduct an electrical current are called 15) \_\_\_\_\_
- A) hydration spheres.
  - B) electrolytes.
  - C) covalent bonds.
  - D) hydrophobic.
  - E) polar covalent molecules.

Answer: B

- 16) Which of the following is the largest in size? 16) \_\_\_\_\_
- A) a neutron
  - B) an atom
  - C) a proton
  - D) a molecule
  - E) an electron

Answer: D

- 17) Which one of the following statements is not correct about the reaction  $\text{H}_2 + \text{Cl}_2 \rightarrow 2 \text{HCl}$ ? 17) \_\_\_\_\_
- A) This reaction is an example of a decomposition reaction.
  - B)  $\text{H}_2$  and  $\text{Cl}_2$  are the reactants.
  - C) One molecule of hydrogen contains 2 atoms.
  - D)  $\text{HCl}$  is the product.
  - E) Two molecules of  $\text{HCl}$  are formed in the reaction.

Answer: A

- 18)  $\text{AB} \rightarrow \text{A} + \text{B}$  is to decomposition as  $\text{A} + \text{B} \rightarrow \text{AB}$  is to 18) \_\_\_\_\_
- A) synthesis.
  - B) combustion.
  - C) replacement.
  - D) metabolism.
  - E) exchange.

Answer: A

- 19) The reaction  $\text{N}_2 + 3 \text{H}_2 \rightarrow 2 \text{NH}_3$  is an example of a(n) 19) \_\_\_\_\_
- A) exchange reaction.
  - B) metabolic reaction.
  - C) decomposition reaction.
  - D) enzyme reaction.
  - E) synthesis reaction.

Answer: E

- 20) The reaction  $\text{A} + \text{B} \rightarrow \text{AB} + \text{energy}$  is an example of a(n) 20) \_\_\_\_\_
- A) equilibrium reaction.
  - B) decomposition reaction.
  - C) exchange reaction.
  - D) endergonic reaction.
  - E) exergonic reaction.

Answer: E

21) Chemical reactions that require an input of energy, such as heat, are said to be 21) \_\_\_\_\_  
A) activated.  
B) at equilibrium.  
C) neutral.  
D) endergonic.  
E) exergonic.  
Answer: D

22) Chemical reactions in the human body are controlled by special catalytic molecules called 22) \_\_\_\_\_  
A) activators.  
B) cofactors.  
C) cytozymes.  
D) enzymes.  
E) cytochromes.  
Answer: D

23) All of the following are true concerning enzymes, except: 23) \_\_\_\_\_  
A) affect only the rate of a chemical reaction.  
B) are proteins.  
C) function as biological catalysts.  
D) lower the activation energy required for a reaction.  
E) become a part of the reaction's product.  
Answer: E

24) Substrate molecules bind to enzymes at the \_\_\_\_\_ sites. 24) \_\_\_\_\_  
A) carboxyl group  
B) amino group  
C) active  
D) neutral zone  
E) reactant  
Answer: C

25) All of the compounds that can be synthesized or broken down by chemical reactions inside the 25) \_\_\_\_\_  
body are called  
A) organic compounds.  
B) inorganic compounds.  
C) metabolites.  
D) nutrients.  
E) enzymes.  
Answer: C

26) Each of the following is an example of an inorganic compound, except 26) \_\_\_\_\_  
A) acids.                      B) salts.                      C) water.                      D) glucose.                      E) bases.  
Answer: D

27) All organic compounds in the human body contain all of the following except 27) \_\_\_\_\_  
A) carbon.  
B) calcium.  
C) oxygen.  
D) hydrogen.  
E) both A and D  
Answer: B

- 28) Which of the following statements about water is not correct? 28) \_\_\_\_\_  
A) has a relatively low heat capacity  
B) is responsible for about 2/3 of the mass of the human body  
C) contains hydrogen bonds  
D) can be considered a 'universal solvent'  
E) is composed of polar molecules  
Answer: A
- 29) During ionization, water molecules disrupt the ionic bonds of a solute and a mixture of ions is produced. These ions are called 29) \_\_\_\_\_  
A) electrolytes.  
B) anti-ions.  
C) anions.  
D) dissociates.  
E) cations.  
Answer: A
- 30) Oppositely charged ions in solution are prevented from combining by 30) \_\_\_\_\_  
A) hydration spheres.  
B) water's nonpolar nature.  
C) the high heat capacity of water.  
D) radicals.  
E) hydrogen bonding.  
Answer: A
- 31) A solution containing equal numbers of hydrogen ions and hydroxide ions is 31) \_\_\_\_\_  
A) alkaline.      B) acidic.      C) basic.      D) neutral.      E) ionated.  
Answer: D
- 32) Which of the following substances would be least acidic? 32) \_\_\_\_\_  
A) stomach secretions, pH = 1  
B) urine, pH = 6  
C) tomato juice, pH = 4  
D) white wine, pH = 3  
E) lemon juice, pH = 2  
Answer: B
- 33) If a substance has a pH that is greater than 7, it is 33) \_\_\_\_\_  
A) a salt.      B) alkaline.      C) a buffer.      D) acidic.      E) neutral.  
Answer: B
- 34) An important buffer in body fluids is 34) \_\_\_\_\_  
A) HCl.      B) H<sub>2</sub>O.      C) NaOH.      D) NaCl.      E) NaHCO<sub>3</sub>.  
Answer: E
- 35) In the body, inorganic compounds 35) \_\_\_\_\_  
A) are structural components of cells.  
B) can serve as buffers.  
C) can make up proteins.  
D) are important nutrients.  
E) both A and D

Answer: B

- 36) Carbohydrate molecules 36) \_\_\_\_\_
- A) are integral molecules of the cell membrane.
  - B) are composed of C, H, O and N atoms.
  - C) are the body's most readily available source of energy.
  - D) contain the genetic information found in cells.
  - E) form the regulatory molecules known as enzymes.

Answer: C

- 37) The most important metabolic fuel molecule in the body is 37) \_\_\_\_\_
- A) starch.
  - B) protein.
  - C) glucose.
  - D) vitamins.
  - E) sucrose.

Answer: C

- 38) Molecules that have the same molecular formula but different structural formulas are called 38) \_\_\_\_\_
- A) isozymes.
  - B) isotypes.
  - C) isomers.
  - D) isotopes.
  - E) isomonomers.

Answer: C

- 39) A polysaccharide that is formed in liver and muscle cells to store glucose is 39) \_\_\_\_\_
- A) cellulose.
  - B) fructose.
  - C) starch.
  - D) glycogen.
  - E) sucrose.

Answer: D

- 40) The group of organic compounds containing carbon, hydrogen, and oxygen in a near 1:2:1 ratio is defined as a 40) \_\_\_\_\_
- A) lipid.
  - B) protein.
  - C) nucleic acid.
  - D) carbohydrate.
  - E) both C and D

Answer: D

- 41) Lipids 41) \_\_\_\_\_
- A) form essential structural components of cells.
  - B) provide roughly twice the energy as carbohydrates.
  - C) help to maintain body temperature.
  - D) all of the above
  - E) B and C only

Answer: E

- 42) A fatty acid that contains three double covalent bonds in its carbon chain is said to be 42) \_\_\_\_\_
- A) hydrogenated.
  - B) polyunsaturated.
  - C) monounsaturated.
  - D) saturated.
  - E) carboxylated.

Answer: B

- 43) Most of the fat found in the human body is in the form of 43) \_\_\_\_\_

- A) phospholipids.
- B) monoglycerides.
- C) prostaglandins.
- D) triglycerides.
- E) steroids.

Answer: D

- 44) A type of lipid that is produced by nearly every tissue in the body and that acts as a local regulator of metabolism are the 44) \_\_\_\_\_
- A) prostaglandins.
  - B) monoglycerides.
  - C) glycolipids.
  - D) steroids.
  - E) phospholipids.

Answer: A

- 45) Cholesterol, phospholipids, and glycolipids are examples of 45) \_\_\_\_\_
- A) lipid drugs.
  - B) dietary fats.
  - C) steroids.
  - D) prostaglandins.
  - E) structural lipids.

Answer: E

- 46) Which of the following is not a function of protein? 46) \_\_\_\_\_
- A) storage of genetic information
  - B) movement
  - C) transport
  - D) support
  - E) metabolic regulation

Answer: A

- 47) You would expect a peptide bond to link 47) \_\_\_\_\_
- A) two simple sugars.
  - B) a cholesterol molecule and a fatty acid molecule.
  - C) a fatty acid and a glycerol molecule.
  - D) two amino acids.
  - E) two nucleotides.

Answer: D

- 48) Each amino acid differs from another in the 48) \_\_\_\_\_
- A) size of the amino group.
  - B) number of peptide bonds in the molecule.
  - C) nature of the R group.
  - D) number of carboxyl groups.
  - E) number of central carbon atoms.

Answer: C

- 49) In proteins the alpha-helix and pleated sheet are examples of a \_\_\_\_\_ structure of a protein. 49) \_\_\_\_\_
- A) quaternary
  - B) primary
  - C) pentanary



D) secondary

E) tertiary

Answer: D

50) Proteins have very complex shapes. Interactions between globular or fibrous polypeptide chains result in which type of structure? 50) \_\_\_\_\_

A) secondary

B) quaternary

C) primary

D) pentagonal

E) tertiary

Answer: B

51) Glycoproteins and proteoglycans are combinations of proteins and 51) \_\_\_\_\_

A) carbohydrates.

B) lipids.

C) nucleic acids.

D) fatty acids.

E) none of the above

Answer: A

52) Molecules that store and process genetic information are the 52) \_\_\_\_\_

A) nucleic acids.

B) carbohydrates.

C) lipids.

D) proteins.

E) steroids.

Answer: A

53) Nucleic acids are composed of units called 53) \_\_\_\_\_

A) nucleotides.

B) purines.

C) fatty acids.

D) pyrimidines.

E) amino acids.

Answer: A

54) A nucleotide consists of 54) \_\_\_\_\_

A) a five-carbon sugar and a nitrogenous base.

B) a five-carbon sugar and phosphate group.

C) a phosphate group and a nitrogenous base.

D) a five-carbon sugar and an amino acid.

E) a five-carbon sugar, a nitrogenous base, and a phosphate group.

Answer: E

55) According to the rules of complementary base pairing, a nucleotide containing the base cytosine would pair with a nucleotide containing the base 55) \_\_\_\_\_

A) uracil.

B) guanine.

C) adenine.

D) thymine.

E) cytosine.

Answer: B

56) The most important high energy compound in cells is 56) \_\_\_\_\_

A) adenosine triphosphate.

- B) deoxyribonucleic acid.
- C) ribonucleic acid.
- D) adenosine-monophosphate.
- E) adenosine-diphosphate.

Answer: A

- 57) A nanometer is \_\_\_\_\_ 57) \_\_\_\_\_
- A)  $10^{-9}$  meter.
  - B)  $10^{-10}$  meter.
  - C)  $10^{-12}$  meter.
  - D)  $10^{-8}$  meter.
  - E)  $10^{-6}$  meter.

Answer: A

- 58) A thyroid scan utilizes radioactive isotopes of the element \_\_\_\_\_ to help diagnose thyroid disorders. 58) \_\_\_\_\_
- A) calcium      B) sodium      C) cobalt      D) iodine      E) chromium

Answer: D

- 59) An excess of hydrogen ions in the body fluids can have disastrous results because 59) \_\_\_\_\_
- A) excess hydrogen ions can change the shape of large complex molecules, rendering them nonfunctional.
  - B) excess hydrogen ions can disrupt tissue functions.
  - C) excess hydrogen ions can break chemical bonds.
  - D) all of the above
  - E) A and B only

Answer: D

- 60) Artificial sweeteners 60) \_\_\_\_\_
- A) are naturally similar to sugars.
  - B) produce the same number of calories as the equivalent amount of sucrose.
  - C) are inorganic sugar substitutes.
  - D) are always some form of carbohydrate.
  - E) are generally 100 or more times sweeter than sucrose.

Answer: E

- 61) Alaska Natives have a lower incidence of heart disease even though their diets are high in fat and cholesterol. This may be due to the large amount of \_\_\_\_\_ in their diets. 61) \_\_\_\_\_
- A) oleic acid
  - B) triglycerides
  - C) omega-3 fatty acids
  - D) steroids
  - E) prostaglandins

Answer: C

- 62) A dehydration synthesis reaction between glycerol and a single fatty acid would yield a(n) 62) \_\_\_\_\_
- A) diglyceride.
  - B) micelle.
  - C) triglyceride.
  - D) omega-3 fatty acid.
  - E) monoglyceride.

Answer: E

- 63) If an element is composed of atoms with an atomic number of 6 and a mass number of 14, then a neutral atom of this element contains 63) \_\_\_\_\_
- A) 8 electrons.
  - B) 6 protons.
  - C) 14 electrons.
  - D) 6 neutrons.
  - E) 14 protons.

Answer: B

- 64) One mole of any element 64) \_\_\_\_\_
- A) has the same number of electrons.
  - B) has the same mass.
  - C) has the same weight.
  - D) has the same number of atoms.
  - E) all of the above

Answer: D

- 65) When electrons are transferred from one atom to another, and the two atoms unite as a result of the electrostatic attraction, 65) \_\_\_\_\_
- A) an ionic bond is formed.
  - B) a molecule is formed.
  - C) a covalent bond is formed.
  - D) an ion is formed.
  - E) a hydrogen bond is formed.

Answer: A

- 66) Calcium atoms have two electrons in the outermost shell. As a result, you would expect calcium to form ions with a charge of 66) \_\_\_\_\_
- A) -1.
  - B) 0.
  - C) +2.
  - D) +1.
  - E) -2.

Answer: C

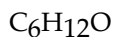
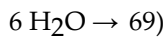
- 67) Magnesium atoms have two electrons in the outermost shell and chlorine atoms have seven. The compound magnesium chloride would contain 67) \_\_\_\_\_
- A) 1 magnesium and 2 chlorine.
  - B) 2 magnesium and 7 chlorine.
  - C) 1 magnesium and 1 chlorine.
  - D) 2 magnesium and 1 chlorine.
  - E) impossible to tell without more information

Answer: A

- 68) Each of the following statements concerning hydrogen bonds is true, except one. Identify the exception. 68) \_\_\_\_\_
- A) Hydrogen bonds are strong attractive forces between hydrogen atoms and negatively charged atoms.
  - B) Hydrogen bonds can occur within a single molecule.
  - C) Hydrogen bonds are important forces for holding large molecules together.
  - D) Hydrogen bonds are responsible for many of the unique properties of water.
  - E) Hydrogen bonds can form between neighboring molecules.

Answer: A

- 69) In the reaction listed below, what coefficient needs to be added to balance the equation? 6 CO<sub>2</sub> +



6 +

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O<sub>2</sub>

A) 6

B) 10

C) 4

D) 8

E) 2

Answer: A

70) In an exergonic reaction

- A) small molecules are assembled into larger ones.
- B) large molecules are broken down into smaller ones.
- C) molecules are rearranged to form new molecules.
- D) molecules move from reactants to products and back.
- E) energy is released during the reaction.

Answer: E

71) In an equilibrium reaction

- A) the rate of formation of products equals the rate of formation of reactants.
- B) decreasing the amount of one of the reactants will increase the amount of product formed.
- C) increasing the amount of one of the products will increase the amount of reactants available.
- D) all of the above
- E) A and C only

Answer: E

72) The hydrogen bonding that occurs in water is responsible for all of the following, except

- A) the high boiling point of water.
- B) the surface tension of water.
- C) the ability of water to dissolve inorganic salts.
- D) the ability of water to dissolve nonpolar substances.
- E) the low freezing point of water.

Answer: D

73) Nonpolar organic molecules are good examples of

- A) solutes.
- B) molecules that will dissociate when placed into water.
- C) electrolytes.
- D) hydrophobic compounds.
- E) hydrophilic compounds.

Answer: D

74) An inorganic compound, when placed in water, dissociates 99% forming hydrogen ions and anions. This substance would be

- A) a strong base.
- B) a weak acid.
- C) a weak base.
- D) a salt.
- E) a strong acid.

Answer: E

75) When a small amount of hydrochloric acid is added to a solution of Na<sub>2</sub>HPO<sub>4</sub>, the pH of the solution does not change. The pH does not change when a small amount of NaOH is added

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70) \_\_\_\_\_

71) \_\_\_\_\_

72) \_\_\_\_\_

73) \_\_\_\_\_

74) \_\_\_\_\_

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4, except:

- A) Na<sub>2</sub>HPO<sub>4</sub> adsorbs excess H<sup>+</sup> and -OH directly onto the surface of its crystalline structure.
- B) Na<sub>2</sub>HPO<sub>4</sub> is a salt formed from reacting a strong base with a weak acid.
- C) Na<sub>2</sub>HPO<sub>4</sub> acts as a buffer.
- D) Na<sub>2</sub>HPO<sub>4</sub> is able to accept extra hydrogen ions from the HCl.
- E) Na<sub>2</sub>HPO<sub>4</sub> is able to donate hydrogen ions to the OH<sup>-</sup> from NaOH.

Answer: A

76) Fructose

76) \_\_\_\_\_

- A) is an isomer of glucose.
- B) is a hexose.
- C) is found in male reproductive fluids.
- D) all of the above
- E) A and B only

Answer: E

77) A shortage of cholesterol in the body would interfere with the formation of

77) \_\_\_\_\_

- A) nucleic acids.
- B) sex hormones.
- C) proteins.
- D) glycogen.
- E) both A and C

Answer: B

78) How would the lack of a cofactor for an enzyme affect that enzyme's function?

78) \_\_\_\_\_

- A) The enzyme would not be able to function.
- B) The enzyme's function would not be altered.
- C) The enzyme would cease to function after reaching a maximum rate.
- D) The enzyme would function more slowly.
- E) The enzyme would function more quickly.

Answer: A

79) The nucleic acid RNA

79) \_\_\_\_\_

- A) is restricted to the nucleus.
- B) contains the cell's genetic information.
- C) contains the pyrimidine uracil in place of thymine.
- D) is double stranded.
- E) contains the pentose deoxyribose.

Answer: C

- 80) When two monosaccharides undergo a dehydration synthesis 80) \_\_\_\_\_  
A) a new monosaccharide is formed.  
B) a disaccharide is formed.  
C) a polysaccharide is formed.  
D) hydrolysis occurs.  
E) a starch is formed.

Answer: B

- 81) If a polypeptide contains 10 peptide bonds, how many amino acids does it contain? 81) \_\_\_\_\_  
A) 11                      B) 0                      C) 5                      D) 10                      E) 12

Answer: A

- 82) You would expect to find proteoglycan molecules 82) \_\_\_\_\_  
A) functioning as hormones from the pancreas.  
B) functioning as enzymes in the stomach.  
C) acting as receptors on the surface of cell membranes.  
D) in the secretions coating the respiratory tract.  
E) acting as antibodies to viruses.

Answer: D

**SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.**

- 83) An \_\_\_\_\_ is a substance that consists entirely of atoms with the same atomic number. 83) \_\_\_\_\_  
Answer: element

- 84) The center of an atom is called the \_\_\_\_\_. 84) \_\_\_\_\_  
Answer: nucleus

- 85) Electrons whirl around the center of the atom at high speed forming a(n) \_\_\_\_\_. 85) \_\_\_\_\_  
Answer: electron cloud

- 86) Electrons in an atom occupy an orderly series of electron shells or \_\_\_\_\_. 86) \_\_\_\_\_  
Answer: energy levels

- 87) A \_\_\_\_\_ is a combination of two or more atoms and has different physical and chemical properties than its individual atoms. 87) \_\_\_\_\_  
Answer: compound

- 88) Ions with a positive charge are called \_\_\_\_\_. 88) \_\_\_\_\_  
Answer: cations

- 89) Ions with a negative charge are called \_\_\_\_\_. 89) \_\_\_\_\_  
Answer: anions

- 90) In a \_\_\_\_\_ chemical bonds between atoms are broken as atoms are rearranged in new combinations to form different chemical substances. 90) \_\_\_\_\_  
Answer: chemical reaction

- 91) Chemical reactions that release energy are called \_\_\_\_\_. 91) \_\_\_\_\_  
Answer: exergonic

- 92) Chemical reactions that require energy are called \_\_\_\_\_. 92) \_\_\_\_\_

Answer: endergonic

- 93) \_\_\_\_\_ control the rate of chemical reactions that occur in the human body. 93) \_\_\_\_\_  
Answer: Enzymes
- 94) In living cells, complex reactions proceed in a series of interlocking steps called a \_\_\_\_\_ 94) \_\_\_\_\_  
Answer: pathway
- 95) \_\_\_\_\_ molecules are compounds that contain carbon as the primary structural atom. 95) \_\_\_\_\_  
Answer: Organic
- 96) \_\_\_\_\_ compounds do not contain carbon as the primary structural atom. 96) \_\_\_\_\_  
Answer: Inorganic
- 97) A(n) \_\_\_\_\_ is a homogeneous mixture containing a solvent and a solute. 97) \_\_\_\_\_  
Answer: solution
- 98) \_\_\_\_\_ are soluble inorganic compounds whose ions will conduct an electric current in solutions. 98) \_\_\_\_\_  
Answer: Electrolytes
- 99) Molecules that readily dissolve in water are called \_\_\_\_\_. 99) \_\_\_\_\_  
Answer: hydrophilic
- 100) Molecules that do not dissolve in water are called \_\_\_\_\_. 100) \_\_\_\_\_  
Answer: hydrophobic
- 101) The \_\_\_\_\_ of a solution is the negative logarithm of the hydrogen ion concentration expressed in moles per liter in the solution. 101) \_\_\_\_\_  
Answer: pH
- 102) \_\_\_\_\_ are compounds that in solution maintain pH within given limits. 102) \_\_\_\_\_  
Answer: Buffers
- 103) All fatty acids contain an arrangement of atoms called the \_\_\_\_\_ at one end of the chain. 103) \_\_\_\_\_  
Answer: carboxylic acid group
- 104) In water, large numbers of fatty acids tend to form droplets called \_\_\_\_\_. 104) \_\_\_\_\_  
Answer: micelles
- 105) \_\_\_\_\_ are lipid molecules that form biological membranes. 105) \_\_\_\_\_  
Answer: Structural lipids (or phospholipids)
- 106) The molecule DNA contains a five-carbon sugar called \_\_\_\_\_. 106) \_\_\_\_\_  
Answer: deoxyribose
- 107) The molecule RNA contains a five-carbon sugar called \_\_\_\_\_. 107) \_\_\_\_\_  
Answer: ribose
- 108) The purines found in DNA are \_\_\_\_\_ and \_\_\_\_\_. 108) \_\_\_\_\_

Answer: adenine; guanine

- 109) The pyrimidine bases found in DNA are \_\_\_\_\_ and \_\_\_\_\_. 109) \_\_\_\_\_  
Answer: thymine; cytosine
- 110) When a nitrogen base is added to a pentose sugar, a \_\_\_\_\_ is formed. 110) \_\_\_\_\_  
Answer: nucleoside
- 111) A(n) \_\_\_\_\_ is a covalent bond that stores an unusually large amount of energy. 111) \_\_\_\_\_  
Answer: high energy bond
- 112) In the process of \_\_\_\_\_ a phosphate group is attached to a molecule. 112) \_\_\_\_\_  
Answer: phosphorylation
- 113) The hydrolysis of ATP yields the molecule \_\_\_\_\_. 113) \_\_\_\_\_  
Answer: ADP
- 114) The \_\_\_\_\_ of a radioactive substance is the time required for a 50% reduction in the 114) \_\_\_\_\_  
rate of radiation emission.  
Answer: half-life
- 115) \_\_\_\_\_ are radioactively labeled compounds that are used in diagnosis and research. 115) \_\_\_\_\_  
Answer: Tracers
- 116) In \_\_\_\_\_, the radiation emitted by injected radioisotopes creates an image on a special 116) \_\_\_\_\_  
photographic plate.  
Answer: nuclear imaging (or radioautography)
- 117) The technique known as \_\_\_\_\_ uses computers to reconstruct sections through the 117) \_\_\_\_\_  
body that permit extremely precise localization of blood flow and metabolic activity in  
specific organs.  
Answer: PET, positron emission tomography
- 118) Radioactive particles that consist of a helium nucleus are called \_\_\_\_\_. 118) \_\_\_\_\_  
Answer: alpha particles
- 119) Radioactive particles that consist of electrons are called \_\_\_\_\_. 119) \_\_\_\_\_  
Answer: beta particles
- 120) High energy waves emitted by radioactive nuclei are called \_\_\_\_\_. 120) \_\_\_\_\_  
Answer: gamma rays

**ESSAY. Write your answer in the space provided or on a separate sheet of paper.**

- 121) Why is it life-threatening to have a high fever?  
Answer: A high body temperature can be life-threatening because the heat can cause certain proteins, such as vital enzymes to become denatured. When this occurs, the proteins become nonfunctional and if they catalyze reactions that are necessary for life, life will cease.
- 122) A certain reaction pathway consists of 4 steps. How would decreasing the amount of enzyme that catalyzes the second step affect the amount of product produced at the end of the pathway?  
Answer: Decreasing the amount of enzyme at the second step would slow down the remaining steps of the pathway because less substrate would be available for the next two steps. The net result would be a



decrease in the amount of product.

- 1) C
- 2) B
- 3) D
- 4) C
- 5) C
- 6) D
- 7) B
- 8) D
- 9) C
- 10) D
- 11) E
- 12) A
- 13) E
- 14) D
- 15) B
- 16) D
- 17) A
- 18) A
- 19) E
- 20) E
- 21) D
- 22) D
- 23) E
- 24) C
- 25) C
- 26) D
- 27) B
- 28) A
- 29) A
- 30) A
- 31) D
- 32) B
- 33) B
- 34) E
- 35) B
- 36) C
- 37) C
- 38) C
- 39) D
- 40) D
- 41) E
- 42) B
- 43) D
- 44) A
- 45) E
- 46) A
- 47) D
- 48) C
- 49) D
- 50) B
- 51) A

- 52) A
- 53) A
- 54) E
- 55) B
- 56) A
- 57) A
- 58) D
- 59) D
- 60) E
- 61) C
- 62) E
- 63) B
- 64) D
- 65) A
- 66) C
- 67) A
- 68) A
- 69) A
- 70) E
- 71) E
- 72) D
- 73) D
- 74) E
- 75) A
- 76) E
- 77) B
- 78) A
- 79) C
- 80) B
- 81) A
- 82) D
- 83) element
- 84) nucleus
- 85) electron cloud
- 86) energy levels
- 87) compound
- 88) cations
- 89) anions
- 90) chemical reaction
- 91) exergonic
- 92) endergonic
- 93) Enzymes
- 94) pathway
- 95) Organic
- 96) Inorganic
- 97) solution
- 98) Electrolytes
- 99) hydrophilic
- 100) hydrophobic
- 101) pH
- 102) Buffers
- 103) carboxylic acid group

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- 107) ribose
- 108) adenine; guanine
- 109) thymine; cytosine
- 110) nucleoside
- 111) high energy bond
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