**1) The cholesterol associated with animal cell membranes**

A) is attached to membrane proteins and extends into the watery environment surrounding the cell.

B) helps to stabilize the cell membrane at body temperature.

C) makes the cell membrane fluid at room temperature.

D) is an abnormality resulting from a diet high in cholesterol.

E) helps solidify the membranes when the room temperature is below freezing

Answer: B

**2) Most of the functions of a cell membrane are performed by**

A) glycolipids.

B) proteins.

C) phospholipids.

D) cholesterol.

E) nucleotides.

Answer: B

**3) Plasma membranes are selectively permeable. This means that**

A) anything can pass into or out of a cell as long as the membrane is intact and the cell is healthy.

B) the plasma membrane allows some substances to enter or leave a cell more easily than others.

C) glucose cannot enter the cell.

D) cholesterol cannot enter the cell.

E) plasma membranes must be very thick.

Answer: B

**4) Which of the following substances would have the most trouble crossing a biological membrane by diffusing through the lipid bilayer?**

A) H2O

B) O2

C) CO2

D) Na+

E) a small, nonpolar molecule such as butane (C4H10)

Answer: D

**5) Oxygen crosses a plasma membrane by**

A) osmosis.

B) phagocytosis.

C) active transport.

D) pinocytosis.

E) passive transport.

Answer: E

**6) Osmosis can be defined as**

A) the diffusion of water.

B) the diffusion of nonpolar molecules.

C) active transport.

D) the diffusion of a solute.

E) endocytosis.

Answer: A

**7) A cell that neither gains nor loses water when it is immersed in a solution is**

A) isotonic to its environment.

B) hypertonic to its environment.

C) hypotonic to its environment.

D) metabolically inactive.

E) dead.

Answer: A

**8) In a hypotonic solution, an animal cell will**

A) lyse.

B) experience turgor.

C) neither gain nor lose water.

D) shrivel.

E) lose water.

Answer: A

**9) A plant cell in a hypotonic solution**

A) is turgid.

B) lyses.

C) shrivels.

D) wilts.

E) is flaccid.

Answer: A

**10) Facilitated diffusion across a biological membrane requires \_\_\_\_\_\_\_\_ and moves a substance \_\_\_\_\_\_\_\_ its concentration gradient.**

A) energy and transport proteins . . . down

B) energy . . . down

C) transport proteins . . . down

D) energy and transport proteins . . . against

E) transport proteins . . . against

Answer: C

**11) The process of a white blood cell engulfing a bacterium is**

A) osmosis.

B) diffusion.

C) receptor-mediated endocytosis.

D) pinocytosis.

E) phagocytosis.

Answer: E

**12) Kinetic energy differs from chemical energy in that**

A) kinetic energy is stored energy that has the potential to do work, and chemical energy is the energy of movement.

B) kinetic energy depends on the movement of atoms, whereas chemical energy depends on the movement of molecules.

C) kinetic energy can be converted into various forms of energy, whereas chemical energy can only be converted into heat.

D) kinetic energy is the energy of a moving object, whereas chemical energy is the potential energy of molecules.

E) chemical energy is a particular form of kinetic energy.

Answer: D

**13) Which of the following examples is classified as a metabolic pathway?**

A) protein synthesis

B) osmosis

C) cell lysis

D) spontaneous combustions

E) passive diffusion

Answer: A

**14) When a cell uses chemical energy to perform work, it couples a(n) \_\_\_\_\_\_\_\_ reaction with a(n) \_\_\_\_\_\_\_\_ reaction.**

A) exergonic . . . endergonic

B) endergonic . . . exergonic

C) exergonic . . . spontaneous

D) spontaneous . . . exergonic

E) endergonic . . . spontaneous

Answer: A

**15) Which of the following statements about the ATP molecule is true?**

A) It contains two phosphate groups.

B) Extremely stable bonds link the second and third phosphate groups.

C) It contains the six-carbon sugar hexose.

D) It contains a nitrogenous base molecule called adenine.

E) It can be coupled with an exergonic reaction.

Answer: D

**16) The transfer of a phosphate group to a molecule or compound is called**

A) carboxylation.

B) ionization.

C) phosphorylation.

D) hydrogen bonding.

E) hydrogenation.

Answer: C

**17) Most of a cell's enzymes are**

A) lipids.

B) proteins.

C) amino acids.

D) nucleic acids.

E) carbohydrates.

Answer: B

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**18) Substrates bind to an enzyme's \_\_\_\_\_\_\_\_ site.**

A) reactant

B) allosteric

C) regulatory

D) phosphate

E) active

Answer: E

**19) The active site of an enzyme is**

A) the region of a substrate that is changed by an enzyme.

B) the highly changeable portion of an enzyme that adapts to fit the substrates of various reactions.

C) the region of an enzyme that attaches to a substrate.

D) the region of a product that detaches from the enzyme.

E) the region of the enzyme composed of only a few specific nucleic acids.

Answer: C

**20) Respiration \_\_\_\_\_\_\_\_, and cellular respiration \_\_\_\_\_\_\_\_.**

A) produces ATP . . . is gas exchange

B) is gas exchange . . . produces ATP

C) produces glucose . . . produces oxygen

D) uses glucose . . . produces glucose

E) produces glucose . . . is gas exchange

Answer: B

**21) Which of the following are products of cellular respiration?**

A) oxygen and carbon dioxide

B) energy to make ATP and carbon dioxide

C) oxygen and glucose

D) oxygen and energy to make ATP

E) glucose and carbon dioxide

Answer: B

**22) Humans use the calories they obtain from \_\_\_\_\_\_\_\_ as their source of energy**.

A) food

B) water

C) sunlight

D) minerals

E) carbon dioxide

Answer: A

**23) Oxidation is the \_\_\_\_\_\_\_\_, and reduction is the \_\_\_\_\_\_\_\_.**

A) gain of electrons . . . loss of electrons

B) loss of electrons . . . gain of electrons

C) loss of oxygen . . . gain of oxygen

D) gain of oxygen . . . loss of oxygen

E) gain of protons . . . loss of protons

Answer: B

**24) As a result of glycolysis there is a net gain of \_\_\_\_\_\_\_\_ ATPs.**

A) 0

B) 1

C) 2

D) 4

E) 36

Answer: C

**25) How many molecules of NADH are produced during glycolysis**?

A) 2

B) 3

C) 4

D) 6

E) 8

Answer: A