CHOOSE THE ONE BEST ANSWER TO EACH OF THE FOLLOWING.

Which of these terms best describes the tails of a membrane bilayer phospholipid? a. isotonic b. hydroponic c. hydrophillic d. hydrophobic e. hydroscopic.

2. All of the following are reasons why the lipid bilayer is said to be fluid except that they a. diffuse sideways b. spin about on their axis c. flip their tails to face outward d. flex their tails back and forth (up and down).

3. In the lipid bilayer, the hydrophobic tails of the phospholipids will always point a. inwards b. outwards c. parallel to the membrane proteins d. a or b.

4. The membrane that will allow some substances to pass but not others through it is called a. passive b. porous c. permeable d. differentially permeable e. diffusable.

5. Osmosis the movement of ____ across a differentially permeable membrane in response to solute concentration. a. solute b. ions c. small molecules d. water e. any nutrient.

6. Which of the following is not a function of membrane proteins? a. e transport b. recognition c. open or gated channels d. pumps using ATP e. engulfing bacteria and viruses.

7. The primary walls of plant cells are composed of a. glycoprotein b. glycolipids c. cutin d. phospho-lipids e. cellulose.

8. Membrane proteins are mostly a. glycoproteins and glycolipids b. glycoproteins and phospholipids c. glycolipids and phospholipids d. glycolipids and steroids.

9. During the interconversion of energy from one form to another, some energy is lost. This lost energy is usually in the form of a. electricity b. mechanical c. light energy d. static e. heat.

10. Which of the following does not effect the rate of diffusion? a. temperature b. steepness c. molecular size d. molecular electrical charge.

11. A solution that has less solute than a solution on the other side of a membrane is called a. tonic b. isotonic c. hypotonic d. hypertonic e. either hypo- or hypertonic.

12. Which of the terms in question #11 refers to the solution that water would flow into?

13. Which of these molecules may diffuse freely across the plasma membrane? a. proteins b. glucose c. H⁺ d. Ca²⁺ e. O₂.
14. Which of these materials is not found in the plant cell wall?  
   a. suberin  
   b. cellulose  
   c. waxes  
   d. cutin  
   e. keratin

15. The short, numerous microtubular projections on the surface of a Paramecium are called  
   a. flagella  
   b. papillae  
   c. papillae  
   d. pseudopods  
   e. none of these

16. The energy boost that is required for active transport to occur comes from  
   a. sunlight  
   b. ATP  
   c. oxygen  
   d. amino acids  
   e. enzymes

17. The controlled capacity to acquire and use energy for stockpiling, breaking apart, building, and eliminating substances in ways that contribute to cell survival and reproduction is called  
   a. digestion  
   b. energy transformation  
   c. polymerization  
   d. metabolism

18. The fact that in the universe more energy cannot be created and existing energy cannot be destroyed is a part of the  
   a. First Law of Thermodynamics  
   b. Second Law of Thermodynamics  
   c. both a and b  
   d. Law of Energy Transformations  
   e. Law of System Dynamics

19. Which of the Laws in question #18 concerns the quality of energy available?

20. All matter in a specified region is called  
   a. cycle  
   b. food chain  
   c. system  
   d. metabolic pathway  
   e. biosystem

21. The fact that energy can be converted from one form to another is based on the fact that all energy forms are  
   a. transitory  
   b. permanent  
   c. interconvertible  
   d. transient  
   e. identical

22. Which of the following is not a form of energy?  
   a. mechanical  
   b. nuclear  
   c. electrical  
   d. chemical  
   e. static

23. A measure of the degree of disorder of a system is called  
   a. degradation  
   b. entropy  
   c. metabolism  
   d. catalysis  
   e. enthalpy

24. Reactions that show a net gain of energy are called  
   a. endergonic  
   b. exergonic  
   c. reversible  
   d. hyperenergetic  
   e. entropic

25. The greater the concentration of reactants, the  
   a. slower  
   b. faster  
   c. Reactant concentration has no effect on reaction rate.

26. The ratio of reactant and product concentration when the forward and reverse reaction rates are equal is called  
   a. isotonicity  
   b. osmotic equilibrium  
   c. equilibrium constant  
   d. dynamic equilibrium  
   e. facilitated equilibrium

27. Which of the terms in question #26 refers to a state where the rates of a forward and reverse reaction are equal?

28. Which of the following is not true about metabolic pathways?  
   a. each individual step is sped up by the same enzyme  
   b. some sequences are linear  
   c. some sequences are circular  
   d. some sequences branch off into other pathways.

29. Metabolic pathways where small molecules are assembled into larger molecules are called  
   a. productive  
   b. biosynthetic  
   c. degenerative  
   d. degredative  
   e. constructive
30. A substance that speeds up a chemical reaction is called a(n) a. mole. of ATP b. catalyst
c. inducer d. activator e. energizer

31. Which of the following is not true about enzymes? They a. are always proteins or lipids
b. can only speed up reactions that are possible to begin with c. can be used over and over
d. are very specific about what reactions they catalyze e. act on other molecules called substrates

32. The portion of an enzyme where a substrate molecule attaches is called the a. globular region
b. crevice c. reaction site d. active site e. metabolic site

33. The minimum amount of energy needed to bring reactants to the transition state is called
a. transition equivalent b. catalytic minimum c. activation energy
b. d. transition energy e. energy of reactivity.

34. Most enzymes function best at a pH that is a. very broad b. very narrow c. very acidic
d. very basic e. acidic or basic

35. As the temperature gets higher and higher, it will eventually get to a point where enzyme activity a. increases indefinitely b. peaks and stays high c. decreases sharply
d. decreases and then remains constant e. alternatingly increases and decreases

36. Inhibitors that bind permanently with an essential group on the enzyme's surface are called
a. permanent b. reversible c. nontoxic d. static e. irreversible.

37. Allosteric control is a form of enzyme regulation where an enzyme has an active site and a
alimentary site. a. coenzyme b. regulatory c. channel protein d. passive e. alternative.

38. In allosteric control, often the "signal" to change an enzyme's activity is a molecule of
a. coenzyme b. lipid c. end product d. reactant e. substrate

39. An increase of a substance inhibiting the very process leading to the increase is a type of
inhibition called a. allosteric b. coenzymatic c. product mediated
d. pathway terminating e. feedback

40. Because of the permanence of irreversible inhibitors they are sometimes referred to as
a. cofactors b. poisons c. catalysts d. deactivators e. degredators

41. When a molecule is phosphorylated with a phosphate group from ATP, that molecule's store of energy is a. increased b. decreased c. unaffected
d. increased or decreased depending on whether it is exergonic or endergonic

42. In the ATP/ADP cycle, the energy released when ATP dissociates into ADP and a phosphate group is used for a. degradative reactions b. feedback inhibition
c. heat production d. passive transport e. cellular work

43. Enzymes function by lowering the ___________ required to get to the transition state. a. concentration gradient b. osmotic pressure c. tonicity
d. activation energy e. entropy

44. Which of the following is not a function of energy from ATP? a. biosynthesis
b. molecular displacements c. active transport d. linking major biosynthetic and degradative pathways e. osmosis and diffusion