1. Which of the following correctly pairs smaller molecules with the biological micromolecules they make up?
   1. Amino acids and proteins; nucleotides and nucleic acids
   2. Amino acids and lipids; nucleotides and nucleic acids
   3. Fatty acids and carbohydrates; amino acids and proteins
   4. Simple sugars and carbohydrates; amino acids and lipids
2. Which of the following does a cell use to regulate pH in order to maintain homeostasis?
   1. Enzymes
   2. Water
   3. Buffers
   4. RNA
3. What is the correct order of mitosis
   1. Prophase, Telophase, Metaphase, Anaphase
   2. Metaphase, Anaphase, Telophase, Prophase
   3. Anaphase, Prophase, Telophase, Metaphase
   4. Prophase, Metaphase, Anaphase, Telophase
4. Which of the following structures would indicate you are looking at a plant cell?
   1. Chloroplasts and cell wall
   2. Ribosomes and cytoplasm
   3. Nuclei and vacuoles
   4. Chromosomes and mitochondria
5. Enzymes have a 3-D shape that is related to their function. The reactants that bind to specific enzymes are called
   1. Products
   2. Catalysts
   3. Substrates
   4. Active Sites
6. Which of the following is a carbohydrate that is the main component of plant cell walls
   1. Starch
   2. Glucose
   3. Cellulose
   4. Glycogen
7. Within a cell, DNA provides the information needed for the cell to make proteins. Which of the following are the organelles most involved in protein synthesis?
   1. Chloroplasts and vacuoles
   2. Plasma membrane and plasmid
   3. Nucleus ribosomes
   4. Chloroplasts and mitochondria
8. Why are aerobic reactions more efficient for cellular metabolism than anaerobic reactions?
   1. Aerobic reactions build up lactic acid
   2. Aerobic reactions are faster
   3. Aerobic reactions do not require oxygen
   4. Aerobic reactions break down sugars more completely
9. Which of these is a possible disadvantage of biotechnology?
   1. It could produce hardier crops.
   2. It could be used to help endangered species
   3. It could be used to develop medicines
   4. It could reduce genetic variation in crops
10. Which of the following is not a source of genetic variation in organisms that reproduce sexually?
    1. Mutation
    2. Independent assortment
    3. Mitosis
    4. Crossing-over
11. Which of the following can result from exposure to too much ultraviolet radiation
    1. Lung cancer
    2. PKU
    3. Heart disease
    4. Skin cancer
12. Which of the following is an indication that meiosis has occurred?
    1. Two daughter cells
    2. Four daughter cells
    3. Two unique cells
    4. Four unique cells
13. Which of the following is a characteristic of mitosis
    1. 23 pairs of chromosomes
    2. 46 pairs of chromosomes
    3. 23chromosomes in each cell
14. Protein synthesis usually involves information moving in a specific direction. Which of the following best represent this flow?
    1. DNA🡪protein🡪RNA
    2. Protein🡪RNA🡪DNA
    3. RNA🡪protein🡪DNA
    4. DNA🡪RNA🡪protein
15. What type of macromolecules does the sequence of nucleotides in DNA code for?
    1. Carbohydrates
    2. Proteins
    3. Lipids
    4. Buffers
16. For which of the following diseases are scientists exploring treatment with gene therapy?
    1. Cystic fibrosis
    2. Common cold
    3. Influenza (flu)
    4. Dutch elm disease
17. A strand of DNA has the following sequence: TGAAC. Which is the right sequence of the complementary strand of DNA?
    1. TGAAC
    2. ACTTG
    3. TGUUC
    4. UCTTG
18. A strand of DNA has the following sequence: TGAAC. Which is the right sequence of the complementary strand of RNA?
    1. ACUUG
    2. TGAAC
    3. TGUUC
    4. UCTTG
19. The sequence of nucleotides in DNA codes for specific amino acids. What do the amino acids form when they bond?
    1. Carbohydrates
    2. Phosphate groups
    3. Genes
    4. Proteins
20. Which of these words describes diseases that are passed from parents to offspring?
    1. Mutation
    2. Infectious
    3. Inherited
    4. Autosomal
21. Which of the following statements about sex-linked traits is true?
    1. The X chromosome has very few traits
    2. Recessive sex-linked traits appear more often in males
    3. Individuals with a sex-linked disease pass the disease to offspring
    4. Sex-linked traits are received from the maternal Y chromosome
22. The location where reactants bind to an enzyme during a biochemical reaction is called
    1. A catalyst
    2. A Product
    3. A substrate
    4. An active site
23. How do enzymes speed up biochemical reactions?
    1. They provide energy to the reactions
    2. They absorb energy from the products
    3. The lower the activation energy of the reaction
    4. The increase the number of available reactant particles
24. Which kind of molecule provides building blocks for tissues, transports other molecules, and helps regulate some reactions in body?
    1. Lipid
    2. Carbohydrate
    3. Protein
    4. Amino Acid
25. Which term describes the movement of water through a cell membrane?
    1. Osmosis
    2. Metabolism
    3. Homeostasis
    4. Active transport
26. Which type of cellular transport requires a cell to use energy?
    1. Facilitated transport
    2. Active transport
    3. Osmosis
    4. Passive Transport
27. How do eukaryotes differ from prokaryotes?
    1. Prokaryotes are not made up of cells
    2. Prokaryotes do not contain genetic information
    3. All eukaryotes have many cells, and prokaryotes have only one
    4. Prokaryotes do not have nuclei
28. What structure is least likely to appear in a prokaryote
    1. Cytoplasm
    2. DNA or RNA
    3. Cell wall
    4. Mitochondrion
29. Which of the following are the reactants of photosynthesis
    1. Water and glucose
    2. Glucose and carbon dioxide
    3. Carbon dioxide and water
    4. Oxygen and water
30. What is the main source of energy for photosynthesis
    1. Sunlight
    2. Carbon dioxide
    3. Glucose
    4. Water
31. In what part of the cells is glucose broken down to form pyruvic acid?
    1. The nucleus
    2. The Cytoplasm
    3. The Mitochondria
    4. The Plasma membrane
32. A whale travels from the cold Northern Atlantic to the Gulf of Mexico to give birth. Which term describes this behavior?
    1. Hibernation
    2. Classical conditioning
    3. Estivation
    4. Migration
33. Which of the following happens when an animal hibernates?
    1. The animal travels in search of food
    2. The animals metabolism slows down
    3. The animal eats more food for energy
    4. The animal learns to ignore harmless stimuli
34. Which of the following is a pair of complementary bases?
    1. Cytosine and cytosine
    2. Thymine and adenine
    3. Adenine and guanine
    4. Thymine and cytosine
35. Which of the following statements is true?
    1. The sugar molecules in each nucleotide contain genetic information
    2. Chromosomes are contained within genes, which are contained in DNA
    3. When DNA replicates, enzymes break the bonds between the sugar and phosphate molecules
    4. The complementary bases of a DNA molecule are held together by weak hydrogen bonds.
36. Transcription creates an mRNA molecule by using DNA as a template. Where does this occur?
    1. Outside the cell
    2. In the cytoplasm
    3. In the nucleus
    4. In the ribosomes