

THE CELL

Questions 1–25: Select the one best answer to each question.

1. The structure that surrounds the cytoplasm in a bacterial cell is the
 - A. nucleoid.
 - B. ribosome.
 - C. plasma membrane.
 - D. cell wall.
2. Which one of the following oils contains the *largest* amount of saturated fat?
 - A. Canola
 - B. Safflower
 - C. Olive oil
 - D. Coconut oil
3. The following atoms are all variations of the element carbon: ^{12}C , ^{13}C , and ^{14}C due to differing numbers of neutrons. What are these variations called?
 - A. Isomers
 - B. Isotopes
 - C. Molecules
 - D. Polymers
4. Any energy transformation involves the loss of some energy as
 - A. heat.
 - B. electric charge.
 - C. light.
 - D. motion.
5. Petunias belong to the kingdom
 - A. Animalia.
 - B. Fungi.
 - C. Plantae.
 - D. Protista.
6. Which one of these occurs during the light reactions of photosynthesis?
 - A. Carbon dioxide fixation
 - B. G3P production
 - C. NADPH production
 - D. Reduction of carbon dioxide
7. In a eukaryotic cell, protein synthesis occurs in the
 - A. nuclear envelope.
 - B. ribosomes.
 - C. chromosomes.
 - D. smooth endoplasmic reticulum.

8. The two major sets of reactions involved in photosynthesis are
- A.** light reactions and Calvin cycle reactions.
 - B.** glycolysis and the citric acid cycle.
 - C.** Calvin cycle reactions and citric acid cycles.
 - D.** light reactions and the electron transport chain.
9. As an enzyme fits into a substrate at the active site, it undergoes a slight change in order to fit into the substrate. This process is defined by a concept called the
- A.** active enzyme inhibition scheme.
 - B.** induced fit model.
 - C.** feedback inhibition model.
 - D.** facilitated diffusion process.
10. An important property of water is that
- A.** it's a good solvent.
 - B.** its temperature rises and falls quickly.
 - C.** it easily changes from liquid to gas.
 - D.** it lacks cohesive properties.
11. Which of these statements *most accurately* describes how carbon dioxide enters a leaf?
- A.** CO₂ is carried by water in leaf veins.
 - B.** CO₂ enters a leaf through osmosis.
 - C.** CO₂ is pulled in by leaf veins.
 - D.** CO₂ diffuses by way of the stomata.
12. A helix refers to a protein's _____ structure.
- A.** tertiary
 - B.** primary
 - C.** quaternary
 - D.** secondary
13. Select the largest, most inclusive biological level among the following choices.
- A.** Cell
 - B.** Organ
 - C.** Tissue
 - D.** Molecule
14. What happens as a result of fermentation?
- A.** Glycolysis only
 - B.** Glycolysis and the reduction of pyruvate
 - C.** Glycolysis and the citric acid cycle
 - D.** The reduction of pyruvate only

15. In the enzymatically controlled chemical reaction $A \rightarrow B + C$, the letter A stands for a
- A.** substrate.
 - B.** enzyme.
 - C.** cofactor.
 - D.** product.
16. Which one of the following molecules is a product of cellular respiration?
- A.** Water
 - B.** Pyruvate
 - C.** Glucose
 - D.** Oxygen
17. Which of these is the *smallest* structure?
- A.** Dipeptide
 - B.** Amino acid
 - C.** Polypeptide
 - D.** Protein
18. Which of the following is *true* about bases?
- A.** They tend to decrease the pH of a solution.
 - B.** They release hydroxide ions in solution.
 - C.** They have a sharp or sour taste.
 - D.** They help to build up cells.
19. Which one of the following reactions occurs in the cristae of the mitochondria?
- A.** The citric acid cycle
 - B.** The prep reaction
 - C.** The electron transport chain
 - D.** Glycolysis
20. An insect is able to walk across the surface of a pond without sinking because of the
- A.** polarity of the water molecules.
 - B.** process of evaporation.
 - C.** cohesion between the water molecules.
 - D.** adhesion of the insect's feet to the surface of the water.
21. A grassy meadow that's home to rabbits, deer, and several species of birds is considered as a/an
- A.** population.
 - B.** community.
 - C.** biosphere.
 - D.** ecosystem.
22. Which one of the following is an example of a monosaccharide?
- A.** Sucrose
 - B.** Glucose
 - C.** Starch
 - D.** Cellulose

23. An element has an atomic number of 11 and an atomic weight of 23. How many neutrons does each atom contain?

- A.** 11
- B.** 12
- C.** 23
- D.** 24

24. The Calvin cycle of photosynthesis begins when

- A.** carbon dioxide is attached to RuBP.
- B.** light becomes available.
- C.** electrons leave a photosystem.
- D.** the reduction of carbon dioxide occurs.

25. If you immerse a living cell in a hypertonic solution, water will

- A.** move into the cell.
- B.** remain constant.
- C.** move out of the cell.
- D.** fluctuate in and out.