Cell Structure and Function

1. Which of the following can form an almost impermeable seal between two adjacent epithelial cells?
   a. Desmosomes
   b. Gap junctions
   c. Integral reductive proteins
   d. Tight junctions
   e. Collagen

Use the lettered items in the following diagram for questions 2-5.

2. Which structure is a fatty acid?

3. Which structure is a protein that must be mostly hydrophilic?

4. Which structure is an integral protein?

5. Which structure is a protein that must be mostly hydrophobic?

6. ATP production primarily occurs in which of the following organelles?
   a. Nucleus
   b. Endoplasmic reticulum
   c. Microvilli
   d. Mitochondria
   e. Cilia
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7. Which of the following types of chemical molecules often functions as enzymes?
   a. Proteins
   b. Carbohydrates
   c. Fats
   d. Nucleic acids
   e. Adenosine triphosphate

8. Which of the following is an organelle that carries high concentration of digestive enzymes?
   a. Endoplasmic reticulum
   b. Mitochondrion
   c. Lysosome
   d. Nucleus

9. The normal volume of intracellular fluid in the body is _________________ the normal volume of extracellular fluid in the body.
   a. Greater than
   b. Less than
   c. The same as

10. Phospholipids contain a hydrophilic portion and a hydrophobic portion.
    a. True
    b. False

11. Which of the following structures can link adjacent cells in such a way that ions can flow directly from the interior of one cell to the interior of the other cell?
    a. Desmosomes
    b. Tight junctions
    c. Gap junctions
    d. Micelles
    e. Cholesterol

12. The “sugar coat” on the cell surface is known as the:
    a. Lipopolysaccharide capsule
    b. Cholesterol sheath
    c. Glycocalyx membrane
    d. Desmosomes
    e. None of the above

13. Which of the following is NOT TRUE?
    a. Tight junctions are found linking intestinal cells
    b. Desmosomes are found linking cells in the cervix
    c. Gap junctions are found linking cells in the heart.
    d. Integral proteins can function as cell adhesion molecules.
    e. Phospholipids cannot diffuse laterally within the cell membrane.