

Chapter 1 Introduction to Pathophysiology

1. The nucleus _____, which is essential for function and survival of the cell.
 - A) is the site of protein synthesis
 - B) contains the genetic code
 - C) transforms cellular energy
 - D) initiates aerobic metabolism
2. Although energy is not made in mitochondria, they are known as the power plants of the cell because they:
 - A) contain RNA for protein synthesis.
 - B) utilize glycolysis for oxidative energy.
 - C) extract energy from organic compounds.
 - D) store calcium bonds for muscle contractions.
3. Although the basic structure of the cell plasma membrane is formed by a lipid bilayer, most of the specific membrane functions are carried out by:
 - A) bound and transmembrane proteins.
 - B) complex, long carbohydrate chains.
 - C) surface antigens and hormone receptors.
 - D) a gating system of selective ion channels.
4. To effectively relay signals, cell-to-cell communication utilizes chemical messenger systems that:
 - A) displace surface receptor proteins.
 - B) accumulate within cell gap junctions.
 - C) bind to contractile microfilaments.
 - D) release secretions into extracellular fluid.
5. Aerobic metabolism, also known as oxidative metabolism, provides energy by:

- A) removing the phosphate bonds from ATP.
 - B) combining hydrogen and oxygen to form water.
 - C) activating pyruvate stored in the cytoplasm.
 - D) breaking down glucose to form lactic acid.
6. Exocytosis, the reverse of endocytosis, is important in _____ into the extracellular fluid.
- A) Engulfing and ingesting fluid and proteins for transport
 - B) Killing, degrading, and dissolving harmful microorganisms
 - C) Removing cellular debris and releasing synthesized substances
 - D) Destruction of particles by lysosomal enzymes for secretion
7. The process responsible for generating and conducting membrane potentials is:
- A) diffusion of current-carrying ions.
 - B) millivoltage of electrical potential.
 - C) polarization of charged particles.
 - D) ion channel neurotransmission.
8. Epithelial tissues are classified according to the shape of the cells and the number of layers. Which of the following is a correctly matched description and type of epithelial tissue?
- A) Simple epithelium: cells in contact with intercellular matrix; some do not extend to surface
 - B) Stratified epithelium: single layer of cells; all cells rest on basement membrane
 - C) Glandular epithelium: arise from surface epithelia and underlying connective tissue
 - D) Pseudostratified epithelium: multiple layers of cells; deepest layer rests on basement membrane
9. Connective tissue contains fibroblasts that are responsible for:
- A) providing a fibrous framework for capillaries.
 - B) synthesis of collagen, elastin, and reticular fibers.