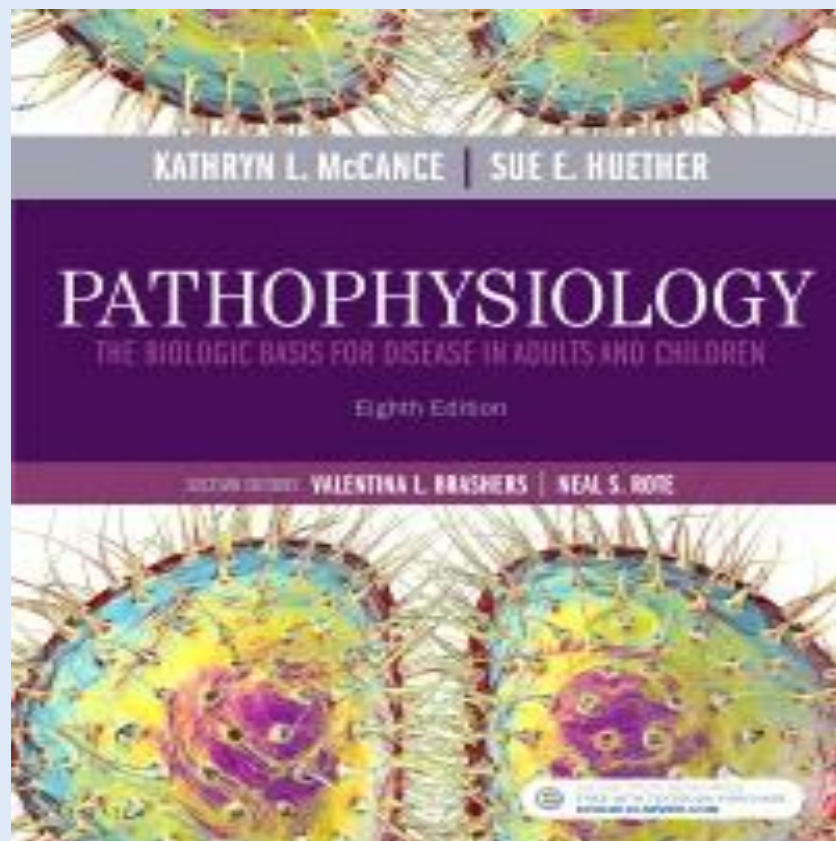


TEST BANK

PATHOPHYSIOLOGY

*The Biologic Basis For Disease In
Adults And Children*

**8TH EDITION BY KATHRYN L.
MCCANCE**



McCance: Pathophysiology: The Biologic Basis for Disease in Adults and Children (8th Edition) TEST BANK

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Part 1: CENTRAL CONCEPTS OF PATHOPHYSIOLOGY: CELLS AND TISSUES
Unit I: THE CELL

CHAPTER 01: CELLULAR BIOLOGY

MULTIPLE CHOICE

1. Which statement best describes the cellular function of metabolic absorption?
 - a. Cells can produce proteins.
 - b. Cells can secrete digestive enzymes.
 - c. Cells can take in and use nutrients.
 - d. Cells can synthesize fats.

ANS: C

In metabolic absorption, all cells take in and use nutrients and other substances from their surroundings. The remaining options are not inclusive in their descriptions of cellular metabolic absorption.

PTS: 1 DIF: Cognitive Level: Remembering

2. Where is most of a cell's genetic information, including RNA and DNA, contained?
 - a. Mitochondria
 - b. Ribosome
 - c. Nucleolus
 - d. Lysosome

ANS: C

The nucleus contains the *nucleolus*, a small dense structure composed largely of RNA, most of the cellular DNA, and the DNA-binding proteins, such as the histones, which regulate its activity. The mitochondria are responsible for cellular respiration and energy production. Ribosomes' chief function is to provide sites for cellular protein synthesis. Lysosomes function as the intracellular digestive system.

PTS: 1 DIF: Cognitive Level: Remembering

3. Which component of the cell produces hydrogen peroxide (H₂O₂) by using oxygen to remove hydrogen atoms from specific substrates in an oxidative reaction?
 - a. Lysosomes
 - b. Peroxisomes
 - c. Ribosomes
 - d. Endosome

ANS: B

Peroxisomes are so named because they usually contain enzymes that use oxygen to remove hydrogen atoms from specific substrates in an oxidative reaction that produces H₂O₂, which is a powerful oxidant and potentially destructive if it accumulates or escapes from peroxisomes. Ribosomes are RNA-protein complexes (nucleoproteins) that are synthesized in the nucleolus and secreted into the cytoplasm through pores in the nuclear envelope called *nuclear pore complexes*. Lysosomes are saclike structures that originate from the Golgi complex and contain more than 40 digestive enzymes called *hydrolases*, which catalyze bonds in proteins, lipids, nucleic acids, and carbohydrates. An endosome is a vesical that has been pinched off from the cellular membrane.

PTS: 1 DIF: Cognitive Level: Remembering

4. Which cell component is capable of cellular autodigestion when it is released during cell injury?
- Ribosome
 - Golgi complex
 - Smooth endoplasmic reticulum
 - Lysosomes

ANS: D

The lysosomal membrane acts as a protective shield between the powerful digestive enzymes within the lysosome and the cytoplasm, preventing their leakage into the cytoplasmic matrix. Disruption of the membrane by various treatments or cellular injury leads to a release of the lysosomal enzymes, which can then react with their specific substrates, causing *cellular self-digestion*. The chief function of a ribosome is to provide sites for cellular protein synthesis. The Golgi complex is a network of flattened, smooth vesicles and membranes often located near the cell nucleus. The smooth endoplasmic reticulum is involved in steroid hormone production and removing toxic substances from the cell.

PTS: 1 DIF: Cognitive Level: Remembering

5. Which cAMP-mediated response is related to antidiuretic hormone?
- Increased heart rate and force of contraction
 - Secretion of cortisol
 - Increased retention of water
 - Breakdown of fat

ANS: C

Antidiuretic hormone leads to increased retention of water in the body. Epinephrine causes increases in heart rate and force of contraction. Increased cortisol secretion is due to ACTH. Breakdown of fat is due to glucagon.

PTS: 1 DIF: Cognitive Level: Remembering

6. During which phase of the cell cycle is DNA synthesized?
- G₁
 - S
 - G₂
 - M