Understanding Pathophysiology 8th edition Huether Test Bank

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Test Bank - Chapter 01

Q: A student observes a cell under the microscope. The cell has supercoiled DNA with histones. Which of the following would also be observed by the student?

A. A single circular chromosome
B. A nucleus (Correct)
C. Free-floating nuclear material
D. No organelles

Q: A nurse is instructing the staff about cellular functions. Which cellular function is the nurse describing when a cell absorbs oxygen and uses it to transform nutrients to energy?

A. Metabolic absorption
B. Communication
C. Secretion
D. Respiration (Correct)

Q: A eukaryotic cell is undergoing DNA replication. In which region of the cell would most of the genetic information be contained?

A. Mitochondria
B. Ribosome
C. Nucleolus (Correct)
D. Nucleus cytoplasm

Q: Which of the following can remove proteins attached to the cell's bilayer by dissolving the bilayer itself?

A. Peripheral membrane proteins
B. Integral membrane proteins (Correct)
C. Glycoproteins
D. Cell adhesion molecules

Q: Which of the following can bind to plasma membrane receptors?

A. Oxygen
B. Ribosomes
C. Amphipathic lipids
D. Ligands (Correct)

Q: A nurse is reviewing a report from a patient with metastatic cancer. What alteration in the extracellular matrix would support the diagnosis of metastatic cancer?

A. Decreased fibronectin (Correct)
B. Increased collagen
C. Decreased elastin
D. Increased glycoproteins

Q: Which form of cell communication is used to relate to other cells in direct physical contact?

A. Cell junction (Correct)

B. Gap junction
C. Desmosome
D. Tight junction

Q: Pancreatic beta cells secrete insulin, which inhibits the secretion of glucagon from neighboring alpha cells. Which signaling type is this action an example of?

A. Paracrine (Correct)
B. Autocrine
C. Neurohormonal
D. Hormonal

Q: In cellular metabolism, each enzyme has a high affinity for a:

A. solute.
B. substrate. (Correct)
C. receptor.
D. ribosome.

Q: An athlete runs a marathon, after which their muscles feel fatigued and unable to contract. The athlete asks the nurse why this happened. The nurse's response is based on the knowledge that the problem is the result of a deficiency of:

A. GTP.
B. AMP.
C. ATP. (Correct)
D. GMP.

Q: Which phase of catabolism produces the most ATP?

A. Digestion
B. Glycolysis
C. Oxidation
D. Citric acid cycle (Correct)

Q: A nurse is teaching the staff about the phases of cellular catabolism. Which phases should the nurse include?

A. Digestion, glycolysis, oxidation, and the citric acid cycle (Correct)
B. Diffusion, osmosis, and mediated transport
C. S phase, G phase, and M phase
D. Metabolic absorption, respiration, and excretion

Q: A runner has depleted all the oxygen available for muscle energy. Which of the following will facilitate their continued muscle performance?

A. Electron-transport chain
B. Aerobic glycolysis
C. Anaerobic glycolysis (Correct)
D. Oxidative phosphorylation

Q: A faculty member asks a student to identify the appropriate term for the movement of a solute from an area of greater to lesser concentration through a permeable membrane. Which answer

indicates the nursing student understood the teaching?

A. Osmosis
B. Diffusion (Correct)
C. Hydrostatic pressure
D. Active transport

Q: Which description accurately describes electrolytes?

A. Small lipid-soluble molecules
B. Large protein molecules
C. Micronutrients used to produce ATP
D. Electrically charged molecules (Correct)

Q: A nurse is reading a patient chart and sees the term “oncotic pressure”. The nurse recalls that oncotic pressure (aka, colloid osmotic pressure) is determined by:

A. the concentration of sodium.
B. plasma proteins. (Correct)
C. hydrostatic pressure.
D. the availability of membrane transporter proteins.

Q: A patient has a body fluid of 300 mOsm/kg. This lab result measures:

A. osmolality. (Correct)
B. osmolarity.
C. osmotic pressure.
D. oncotic pressure.

Q: A nurse is discussing the movement of fluid across the arterial end of capillary membranes into the interstitial fluid surrounding the capillary. Which process of fluid movement is the nurse describing?

A. Hydrostatic pressure (Correct)
B. Osmosis
C. Diffusion
D. Active transport

Q: Potassium and sodium are transported across plasma membranes by:

A. passive electrolyte channels.
B. coupled channels.
C. adenosine triphosphate enzyme (ATPase). (Correct)
D. diffusion.

Q: The ion transporter that moves Na^+ and Ca^{2+} simultaneously in the same direction is an example of which of the following types of transport?

A. Biport
B. Uniport
C. Antiport
D. Symport (Correct)

Q: During which process are bacteria engulfed for ingestion and destruction?

A. Endocytosis
B. Pinocytosis
C. Phagocytosis (Correct)
D. Exocytosis

Q: Some cancer drugs work during the cell cycle phase where nuclear and cytoplasmic divisions occur. What is this cell cycle phase called?

A. G_1
B. S
C. M (Correct)
D. G_2

Q: Which causes the rapid change in the resting membrane potential that initiates an action potential?

A. Potassium gates open, and potassium rushes into the cell, changing the membrane potential from negative to positive.
B. Sodium gates open, and sodium rushes into the cell, changing the membrane potential from negative to positive. (Correct)
C. Sodium gates close, allowing potassium into the cell to change the membrane potential from positive to negative.
D. Potassium gates close, allowing sodium into the cell to change the membrane potential from positive to negative.

Q: Which of the following occurs during the final stages of repolarization to re-establish resting membrane potential?

A. K^+ moves into the cell, making the inside of the cell more negative. (Correct)
B. Na^+ moves into the cell, making the inside of the cell more positive.
C. Na^+ -K+ pump stops functioning to maintain a positive membrane charge.
D. Na+ and K^+ both move into the cell to maintain a neutral membrane charge.

Q: A nurse teaching the staff about the actions of growth factors includes information that platelet-derived growth factor (PDGF) stimulates the production of:

A. platelets.
B. epidermal cells.
C. connective tissue cells. (Correct)
D. fibroblast cells.

Q: The phase of the cell cycle during which centromeres split and sister chromatids are pulled apart is referred to as:

A. anaphase. (Correct)
B. telophase.
C. prophase.
D. metaphase.

Q: What is the role of cytokines in cell reproduction?

A. Provide growth factor for tissue growth and development. (Correct)

B. Block the progress of cell reproduction through the cell cycle.
C. Restrain cell growth and development.
D. Provide nutrients for cell growth and development.

Q: A student is reviewing cell functions. The student would be correct in identifying a chief function of the nerve cell as:

A. sensory interpretation.
B. conductivity. (Correct)
C. maintenance of homeostasis.
D. communication.

Q: A nurse recalls that the basic types of tissues include: *(Select all that apply.)*
(Select all that apply.)

A. neural. (Correct)
B. epithelial. (Correct)
C. mucosal.
D. connective. (Correct)
E. skeletal.
F. muscle. (Correct)

Q: Characteristics of prokaryotes include which of the following? *(Select all that apply.)*
(Select all that apply.)

A. They contain no organelles. (Correct)
B. Their nuclear material is not encased by a nuclear membrane. (Correct)
C. They contain a distinct nucleus.
D. They contain histones.
E. They contain a cellular membrane.

Review Questions - Chapter 01

Q: Which is a characteristic of a eukaryote cell? They:

A. are smaller than prokaryotes.
B. contain organelles. (Correct)
C. lack a nucleus.
D. are deficient in histones.

Q: The function of the histone in a eukaryotic cell is best described as:

A. cell division.
B. cell movement.
C. adenosine triphosphate (ATP) formation.
D. deoxyribonucleic acid (DNA) supercoiling. (Correct)

Q: The outer membrane of the eukaryotic cell is also referred to as the:

A. nucleolus.
B. plasmalemma. (Correct)
C. cytoplasm.
D. cytosol.

Q: In which structure of the cell does oxidative phosphorylation occur?

A. Golgi complex
B. Mitochondria (Correct)
C. Endoplasmic reticulum
D. Nucleolus

Q: The nature of an amphipathic lipid molecule is **best** described as:

A. hydrophobic.
B. hydrophilic.
C. both hydrophobic and hydrophilic. (Correct)
D. nonpolar.

Q: Which is a characteristic of a “cellular receptor”? It:

A. is found only in the nucleus.
B. can bind with only large molecules.
C. delivers protein to the cell’s surface.
D. can bind with molecules called ligands. (Correct)

Q: Which process involves the neurotransmitters diffusing across the synaptic cleft?

A. Chemical synapsing (Correct)
B. Paracrine signaling
C. Autocrine signaling
D. Autostimulation

Q: Which is correct with regard to cellular energy?

A. Glycolysis is the building of sugar molecules.
B. Oxidative cellular metabolism is a single reaction making ATP.
C. Oxidative phosphorylation occurs in the mitochondria. (Correct)
D. Anaerobic glycolysis occurs in the presence of oxygen.

Q: The term “diffusion” is best described as:

A. movement of a solute molecule from high to low concentration. (Correct)
B. movement of water down a concentration gradient.
C. transference of both water and a solute down a concentration gradient.
D. mechanical pressure of water pushing against the cellular membrane.

Q: The appropriate term for an “energy-releasing process” is:

A. anabolism.
B. catabolism. (Correct)
C. substrate.
D. second messenger.

Q: The simultaneous movement of two molecules in one direction is best described as:

A. symport. (Correct)
B. antiport.
C. uniport.
D. passive transport.

Q: Which is the result of the force exerted by plasma proteins?

A. Filtration pressure
B. Hydrostatic pressure
C. Oncotic pressure (Correct)
D. Hyperbaric pressure

Q: The process by which cells “drink” is referred to as:

A. pinocytosis. (Correct)
B. phagocytosis.
C. exocytosis.
D. potocytosis.

Q: The process by which nerve and muscle cells become more positive than negative is referred to as:

A. repolarization.
B. hyperpolarization.
C. depolarization. (Correct)
D. action potentialization.

Q: Which phase represents the period in which RNA and protein synthesis occurs?

A. G_1 phase
B. G_2 phase (Correct)
C. M phase

D. S phase

Q: Which of the following are in the category of prokaryotes? *(Select all that apply.)*
(Select all that apply.)

A. Fungi
B. Bacteria (Correct)
C. *Rickettsiae* (Correct)
D. Cyanobacteria (Correct)
E. Protozoa

Q: Proteins have the ability to function as: *(Select all that apply.)*
(Select all that apply.)

A. transport channels. (Correct)
B. enzymes that drive pumps. (Correct)
C. cell surface markers. (Correct)
D. cellular synapses.
E. cell adhesion molecules. (Correct)

Q: The extracellular matrix is composed of: *(Select all that apply.)*
(Select all that apply.)

A. collagen. (Correct)
B. elastin. (Correct)
C. fibronectin. (Correct)
D. desmosomes.
E. polypeptides.

Q: A desmosome is described as a: *(Select all that apply.)*
(Select all that apply.)

A. barrier to diffusion.
B. system of braces. (Correct)
C. communicating tunnel.
D. band of epithelial sheets. (Correct)
E. joining protein.

Q: A function of signaling cascades includes message: *(Select all that apply.)*
(Select all that apply.)

A. transfer. (Correct)
B. distribution. (Correct)
C. deletion.
D. amplification. (Correct)
E. modulation. (Correct)