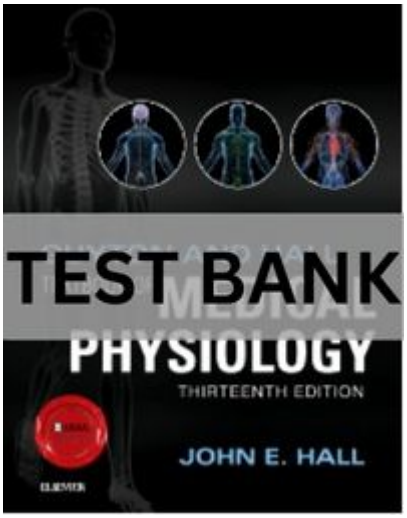
Guyton and Hall Textbook of Medical Physiology 13th Edition Test Bank

Hall: Guyton and Hall Textbook of Medical Physiology, 13th Edition

Chapter 01: Functional Organization of the Human Body and Control of the "Internal Environment"



1. What is the most abundant type of cell in the human body?

A. Neuron
B. Epithelial cell
C. Red blood cell
D. White blood cell
E. Vascular smooth muscle cell
F. Skeletal muscle cell

ANS C

2. The most abundant substance in the human body and the approximate percentage of that substance in the body is which of the following?

A. Protein, 30%
B. Protein, 60%
C. Water, 30%
D. Water, 60%
E. Carbohydrate, 30%
F. Carbohydrate, 60%

ANS: D

3. A large volume of blood is transfused to a person whose baroreceptor blood pressure control system is not functioning. Arterial blood pressure rises from the normal level of 100 to 160 mm Hg. If the same volume of blood is infused into the same person when the baroreceptor system is functioning, and this time the arterial pressure increases from the normal level of 100 mm Hg up to 120 mm Hg, what is the gain of the baroreceptor system?

A. –3
B. –2
C. –1
D. 0
E. +1
F. +2
G. +3

ANS: B

4. Which of the following substances has the highest extracellular fluid to intracellular fluid concentration ratio for most mammalian cells?

A. Sodium ions
B. Potassium ions
C. Carbon dioxide
D. Glucose
E. Protein

ANS: A

5. Exchange of substances between the cardiovascular system and the interstitial fluid occurs mainly in which of the following?

A. Arteries
B. Arterioles
C. Capillaries
D. Venules
E. Veins

ANS: C

6. What is the approximate distance from the capillaries to most cells of the body?

A. Less than 50 angstroms
B. Less than 50 microns
C. Less than 50 millimeters
D. Less than 100 angstroms
E. Less than 100 microns
F. Less than 100 millimeters

ANS: A

7. When a person is at rest, how much time is required for the blood in the circulation to traverse the entire circulatory circuit?

A. 1 second
B. 1 minute
C. 3 minutes
D. 4 minutes
E. 5 minutes

ANS: B

8. _____ feedback is often referred to as a "vicious cycle" because it leads to _____ instability and sometimes death.

A. Positive, progressive
B. Positive, diminished
C. Negative, progressive
D. Negative, diminished
E. Adaptive, progressive

ANS: A

9. Which of the following is an example of positive feedback in the body?

A. Clotting of blood
B. Return of blood pressure toward normal after a hemorrhage
C. Increased respiration rate caused by accumulation of carbon dioxide in the blood
D. Decreased sympathetic nervous system activity that occurs in response to increased blood pressure

ANS: A

10. Which of the following is an example of a “feed forward” control system?

A. The arterial baroreceptor system
B. The progressive nature of uterine contractions during childbirth
C. Control of skeletal muscle movements by the brain
D. Generation of an action potential

ANS: C

11. Which of the following statements about homeostasis is incorrect?

A. It refers to the maintenance of a stable internal environment for the body
B. Homeostatic mechanisms do not operate in diseases
C. Homeostasis requires integrated actions of the cells, tissues, organs, and multiple nervous, hormonal, and local control systems
D. Homeostatic compensations that begin after a major environmental challenge may contribute to abnormalities of body function

ANS: B

12. Which of the following is an example of negative feedback?
    A. Arterial baroreceptor control of blood pressure
    B. Excitation of the respiratory center by increased blood carbon dioxide concentration
    C. Hemorrhagic shock cause by severe blood loss
    D. A and B
    E. A, B, and C

ANS: D

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Chapter 02: The Cell and Its Functions

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Use the terms in the following list to identify the cellular location for the steps involved in the synthesis and packaging of a secreted protein in questions 1–-3.

A. Nucleolus
B. Nucleus
C. Agranular endoplasmic reticulum
D. Granular endoplasmic reticulum
E. Golgi apparatus
F. Endosomes
G. Peroxisomes
H. Lysosomes
I. Cytosol

1. Initiation of translation

ANS: I

2. Protein sorting and packaging

ANS: E

3. Gene transcription

ANS: B

4. Which of the following is true for both pinocytosis and phagocytosis?

   A. Involves recruitment of actin filaments
   B. Occurs spontaneously and nonselectively
   C. Permits uptake of bacterium into cytosol
   D. Is only observed in macrophages and neutrophils
   E. Does not require adenosine triphosphate

ANS: A

5. The cell membrane is **least** permeable to which of the following substances?

   A. Sodium
   B. Oxygen
   C. Ethanol
   D. Carbon dioxide
   E. Water

ANS: A

6. Which of the following best describes the glycocalyx of a cell?

   A. Negatively charged carbohydrate chains that protrude into cytosol
   B. Negatively charged carbohydrate layer on cell surface
   C. Layer of anions aligned on the cytosolic surface of plasma membrane
   D. Large glycogen stores found in “fast” muscles
   E. A mechanism of cell-cell attachment

ANS: B

7. Proteins are sorted for their delivery to lysosomes, secretory vesicles, and the plasma membrane in which of the following?

   A. Golgi apparatus
   B. Smooth endoplasmic reticulum
   C. Nucleus
   D. Endocytotic vesicle

ANS: A

8. Ubiquinone, an electron acceptor in the electron transport chain (oxidative phosphorylation), is found in which of the following?

   A. Inner mitochondrial membrane
   B. Mitochondrial matrix
   C. Outer mitochondrial membrane
   D. Nucleus

ANS: A

9. The citric acid cycle (Krebs cycle) takes place in which of the following?

A. Mitochondrial matrix
B. Inner mitochondrial membrane
C. Outer mitochondrial membrane
D. Inner mitochondrial space

ANS: A

10. All the following processes depend on adenosine triphosphate **except** which of the following?

A. Ciliary movement
B. Positive chemotaxis
C. Movement of oxygen across lipid bilayer
D. Endocytosis
E. Smooth muscle contraction

ANS: C

11. This cytoskeletal element plays a role in certain forms of cell movement and is an essential component of the mitotic spindle _____.

A. Phospholipids
B. Glycocalyx
C. F-actin
D. Microtubules
E. Clathrin

ANS: D

12. Lipid synthesis occurs in which of the following locations?

A. Trans-Golgi network
B. Granular, or "rough," endoplasmic reticulum
C. Agranular, or "smooth," endoplasmic reticulum
D. Nucleus
E. Lysosome

ANS: C

13. The abnormal cleavage of mannose residues during the posttranslational processing of glycoproteins has been shown to result in the development of a lupus-like autoimmune disease in mice. The abnormal cleavage is due to a mutation of the enzyme α-mannosidase II. Based on your understanding of the processing of membrane proteins, you would predict this enzyme to be localized to which of the following?
A. Nucleus
B. Cytosol