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| 1. Physiology is best defined as the \_\_\_\_\_.​   |  |  |  | | --- | --- | --- | |  | a. | study of all living things | |  | b. | study of the bodily functions of living things | |  | c. | ​study of human relationships | |  | d. | ​maintenance of body temperature | |  | e. | ​maintenance of physical fitness |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.1 Introduction to Physiology | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.1 - Describe the physiological approach to explaining an event | |

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| 2. What are the most basic building blocks of matter?   |  |  |  | | --- | --- | --- | |  | a. | tissue | |  | b. | ​cells | |  | c. | ​atoms | |  | d. | ​bones | |  | e. | ​amino acids |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts | |

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| 3. ​What are the four most common chemical elements in the human body?   |  |  |  | | --- | --- | --- | |  | a. | ​water, salt, protein, and fat | |  | b. | ​iron, carbon, oxygen, and potassium | |  | c. | ​blood, muscle, fat, and bone | |  | d. | ​collagen, glucosamine, chondroitin, and cartilage | |  | e. | ​oxygen, carbon, hydrogen, and nitrogen |  |  |  | | --- | --- | | *ANSWER:* | e | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts | |

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| 4. Approximately how many red blood cells are replaced per minute in the human body on average?   |  |  |  | | --- | --- | --- | |  | a. | ​150,000,000 | |  | b. | ​50,000,000 | |  | c. | ​5,000,000 | |  | d. | ​500,000 | |  | e. | ​5,000 |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts | |

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| 5. Which structure encloses the cells of the human body?   |  |  |  | | --- | --- | --- | |  | a. | ​a carbon shell | |  | b. | ​an electron cluster | |  | c. | ​microvilli | |  | d. | ​a plasma membrane | |  | e. | ​a protective protein sheath |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts | |

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| 6. The human body is made up of approximately how many specialized cell types?​   |  |  |  | | --- | --- | --- | |  | a. | ​400 | |  | b. | ​200 | |  | c. | ​100 | |  | d. | ​50 | |  | e. | ​25 |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts | |

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| 7. What occurs when a cell differentiates?   |  |  |  | | --- | --- | --- | |  | a. | ​It becomes specialized to perform a particular function. | |  | b. | ​It stops using nutrients and dies. | |  | c. | It morphs into a faster dividing cell. | |  | d. | ​It divides into other cells that contain a lesser number of chromosomes. | |  | e. | ​It becomes physically larger and more complex. |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Bloom’s: Understand | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts | |

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| 8. ​Which progression represents the correct hierarchy of organization, from simpler to more complex?   |  |  |  | | --- | --- | --- | |  | a. | ​atom, cell, tissue, organ, system, organism | |  | b. | ​tissue, cell, system, organism, organ, body | |  | c. | ​system, atom, cell, organ, tissue, organism | |  | d. | ​atom, molecule, compound, cell, body, organism | |  | e. | ​chemical, cell, organ, tissue, system, organism |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts | |

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| 9. What type of tissue consists of cells specialized for exchanging materials with the environment?   |  |  |  | | --- | --- | --- | |  | a. | ​connective | |  | b. | ​muscle | |  | c. | ​bone | |  | d. | ​nervous | |  | e. | ​epithelial |  |  |  | | --- | --- | | *ANSWER:* | e | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.1 - Describe the four specialized cell functions in multicellular organisms | |

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| 10. ​What type of tissue consists of cells specialized for transmitting messages?   |  |  |  | | --- | --- | --- | |  | a. | ​connective | |  | b. | ​muscle | |  | c. | ​bone | |  | d. | ​nervous | |  | e. | ​epithelial |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.1 - Describe the four specialized cell functions in multicellular organisms | |

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| 11. Which two cell types lose the ability to reproduce soon after they are formed?​   |  |  |  | | --- | --- | --- | |  | a. | ​skin cells and heart cells | |  | b. | ​epithelial cells and muscle cells | |  | c. | ​nerve cells and muscle cells | |  | d. | ​kidney cells and pancreatic cells | |  | e. | ​connective cells and nerve cells |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.1 - Describe the four specialized cell functions in multicellular organisms | |

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| 12. Of the different muscle types, which one can be voluntarily controlled?​   |  |  |  | | --- | --- | --- | |  | a. | ​smooth | |  | b. | ​arterial | |  | c. | ​cardiac | |  | d. | ​skeletal | |  | e. | ​heart |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.2 - Identify the four primary types of tissues in the human body | |

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| 13. ​What are the four primary tissue types?   |  |  |  | | --- | --- | --- | |  | a. | ​muscle, nervous, epithelial, and connective | |  | b. | ​bone, nerves, brain, and skin | |  | c. | ​epithelial, nervous, cardiovascular, and alimentary | |  | d. | ​skin, epithelial, connective, and integumentary | |  | e. | ​contractile, protective, absorptive, and integumentary |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.2 - Identify the four primary types of tissues in the human body | |

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| 14. Epithelial tissue is organized into what two general types of structures?​   |  |  |  | | --- | --- | --- | |  | a. | ​cells and cell walls | |  | b. | ​ducts and nuclei | |  | c. | ​epithelial sheets and secretory glands | |  | d. | ​protective and absorptive | |  | e. | ​epithelial sheets and cell membranes |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.2 - Identify the four primary types of tissues in the human body | |

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| 15. The two main categories of glands are called \_\_\_\_.​   |  |  |  | | --- | --- | --- | |  | a. | ​secretive and absorptive | |  | b. | ​endocrine and exocrine | |  | c. | ​internal and external | |  | d. | ​embryonic and latent | |  | e. | ​ducted and ductless |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.3 - Distinguish between exocrine and endocrine glands | |

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| 16. ​What kind of glands secrete through ducts to the outside of the body (or cavity open to the outside)?   |  |  |  | | --- | --- | --- | |  | a. | ​endocrine | |  | b. | ​embryonic | |  | c. | ​external | |  | d. | ​latent | |  | e. | ​exocrine |  |  |  | | --- | --- | | *ANSWER:* | e | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.3 - Distinguish between exocrine and endocrine glands | |

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| 17. What are two examples of exocrine glands?   |  |  |  | | --- | --- | --- | |  | a. | ​sweat glands and glands that secrete digestive juices | |  | b. | ​mammary glands and the pancreas | |  | c. | ​the bladder and the kidneys | |  | d. | ​thyroid gland and sweat glands | |  | e. | ​pancreas and the pituitary gland |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Bloom’s: Apply | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.3 - Distinguish between exocrine and endocrine glands | |

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| 18. ​What are two examples of connective tissue?   |  |  |  | | --- | --- | --- | |  | a. | ​muscle and tendons | |  | b. | ​bone and tendons | |  | c. | ligaments and nerves | |  | d. | cartilage and skin | |  | e. | ​blood and muscle |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Bloom’s: Apply | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.2 - Identify the four primary types of tissues in the human body | |

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| 19. What compound/molecule produced by connective tissue is a rubber band-like protein fiber?   |  |  |  | | --- | --- | --- | |  | a. | ​fibrin | |  | b. | ​fibrinogen | |  | c. | ​elastin | |  | d. | ​glucosamine | |  | e. | ​chondroitin |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.2 - Identify the four primary types of tissues in the human body | |

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| 20. ​What is the best definition of a body system?   |  |  |  | | --- | --- | --- | |  | a. | ​The containment of functional tissues | |  | b. | ​A collection of diverse specialized cells | |  | c. | ​A multi-cellular life form | |  | d. | An integrated collection of related organs | |  | e. | ​A living being capable of cognition |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.1 - Describe the four specialized cell functions in multicellular organisms | |

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| 21. ​How many body systems does the human body contain?   |  |  |  | | --- | --- | --- | |  | a. | ​four | |  | b. | ​five | |  | c. | ​seven | |  | d. | ​nine | |  | e. | ​eleven |  |  |  | | --- | --- | | *ANSWER:* | e | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts | |

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| 22. ​What type of fluid resides within cells?   |  |  |  | | --- | --- | --- | |  | a. | ​systemic | |  | b. | ​extracellular | |  | c. | ​ribosomal | |  | d. | ​intracellular | |  | e. | ​plasma |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.1 - Explain the roles of the external and internal environments in multicellular organisms | |

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| 23. The extracellular fluid is made up of which two components?​   |  |  |  | | --- | --- | --- | |  | a. | ​lymph and plasma | |  | b. | ​cellular matrix and globular filtrate | |  | c. | ​plasma and interstitial fluid | |  | d. | ​white blood cells and lymph | |  | e. | ​red blood cells and interstitial fluid |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.1 - Explain the roles of the external and internal environments in multicellular organisms | |

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| 24. Broadly speaking, how many internal factors in the body must be homeostatically maintained?​   |  |  |  | | --- | --- | --- | |  | a. | ​nine | |  | b. | ​seven | |  | c. | ​five | |  | d. | ​four | |  | e. | ​three |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.2 - State the seven factors that must be homeostatically maintained | |

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| 25. What do human cells require to carry out energy-yielding chemical reactions?   |  |  |  | | --- | --- | --- | |  | a. | ​oxygen | |  | b. | ​carbon dioxide | |  | c. | ​salt | |  | d. | ​ATP molecules | |  | e. | ​sunlight |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.2 - State the seven factors that must be homeostatically maintained | |

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| 26. ​What does “pH” measure?   |  |  |  | | --- | --- | --- | |  | a. | ​The percentage of potassium in the extracellular fluid | |  | b. | ​The amount of phosphorus in the intracellular fluid | |  | c. | ​The relative amount of acidity based on hydrogen ions | |  | d. | ​The energy producing ability of a cell | |  | e. | ​The percentage of water in the interstitial fluid |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.2 - State the seven factors that must be homeostatically maintained | |

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| 27. ​Electrolytes are best defined as \_\_\_\_\_.   |  |  |  | | --- | --- | --- | |  | a. | ​chemicals that form ions in solution and conduct electricity | |  | b. | ​chemicals that generate electricity | |  | c. | ​compounds that form molecules without electrons | |  | d. | ​salts that exchange covalent electrons | |  | e. | ​salts that increase pH levels |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.2 - State the seven factors that must be homeostatically maintained | |

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| 28. ​What electrolyte does the heart rely on most in order to keep a rhythmic beat?   |  |  |  | | --- | --- | --- | |  | a. | ​potassium | |  | b. | ​phosphorus | |  | c. | ​magnesium | |  | d. | ​iron | |  | e. | ​sodium |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.2 - State the seven factors that must be homeostatically maintained | |

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| 29. How many body systems contribute to homeostasis?​   |  |  |  | | --- | --- | --- | |  | a. | ​5 | |  | b. | ​7 | |  | c. | ​9 | |  | d. | ​11 | |  | e. | ​15 |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.3 - List the important contributions of the eleven body systems to homeostasis | |

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| 30. ​The integumentary system consists of \_\_\_\_.   |  |  |  | | --- | --- | --- | |  | a. | connective tissue such as ligaments and tendons | |  | b. | ​everything related to the cardiovascular system | |  | c. | ​muscles and bones | |  | d. | ​nerves and ganglions | |  | e. | ​the skin and related structures |  |  |  | | --- | --- | | *ANSWER:* | e | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.3 - List the important contributions of the eleven body systems to homeostasis | |

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| 31. Which mineral is most important for muscle movement and is stored in the skeletal system?​   |  |  |  | | --- | --- | --- | |  | a. | ​magnesium | |  | b. | ​iron | |  | c. | ​calcium | |  | d. | ​phosphorus | |  | e. | ​boron |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.3 - List the important contributions of the eleven body systems to homeostasis | |

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| 32. By what means does the endocrine system regulate bodily processes?​   |  |  |  | | --- | --- | --- | |  | a. | ​nerves | |  | b. | ​electrolytes | |  | c. | ​minerals such as calcium | |  | d. | ​carbon dioxide | |  | e. | ​hormones |  |  |  | | --- | --- | | *ANSWER:* | e | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.3 - List the important contributions of the eleven body systems to homeostasis | |

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| 33. What are the three actions that the body’s control system must perform in order to maintain homeostasis?   |  |  |  | | --- | --- | --- | |  | a. | ​Control the external environment, record information, and make adjustments. | |  | b. | ​Control the internal environment, record information, and detect deviation. | |  | c. | ​Detect information, integrate internal environment, and control changes. | |  | d. | ​Detect deviations, control temperature, and maintain pH. | |  | e. | ​Detect deviations, integrate information, and make appropriate adjustments. |  |  |  | | --- | --- | | *ANSWER:* | e | | *DIFFICULTY:* | Bloom’s: Apply | | *REFERENCES:* | 1.4 Homeostatic Control Systems | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.4 - Describe the function of homeostatic control systems | |

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| 34. What are the two classes of homeostatic control systems?​   |  |  |  | | --- | --- | --- | |  | a. | ​conscious and unconscious | |  | b. | ​intrinsic and extrinsic | |  | c. | ​intrinsic and internal | |  | d. | ​extrinsic and external | |  | e. | ​automated and reflex |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.4 Homeostatic Control Systems | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.4.1 - Distinguish between the two classes of homeostatic systems | |

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| 35. Homeostatic control systems resist change by operating on what primary principle?​   |  |  |  | | --- | --- | --- | |  | a. | ​The principle of positive feedback | |  | b. | ​The principle of negative feedback | |  | c. | ​The principle of integration | |  | d. | ​The principle of assimilation | |  | e. | ​The principle of deactivation |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.4 Homeostatic Control Systems | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.4.1 - Distinguish between the two classes of homeostatic systems | |

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| 36. The output in a positive feedback system becomes \_\_\_\_.   |  |  |  | | --- | --- | --- | |  | a. | ​inactivated | |  | b. | ​static | |  | c. | ​externalized | |  | d. | ​amplified | |  | e. | ​dampened |  |  |  | | --- | --- | | *ANSWER:* | d | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.4 Homeostatic Control Systems | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.4.2 - Compare the roles of negative and positive feedback in stabilizing physiological factors | |

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| 37. ​Which sequence correctly illustrates a negative feedback system?   |  |  |  | | --- | --- | --- | |  | a. | ​input → negative effect → output → change | |  | b. | ​external stimuli → effector → internal change → integration | |  | c. | ​sensor → integrator → effector → compensatory response | |  | d. | ​integrator → effector → compensatory response → sensor | |  | e. | ​negative input → sensor → integrator → positive output |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Bloom’s: Apply | | *REFERENCES:* | 1.4 Homeostatic Control Systems | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.4.2 - Compare the roles of negative and positive feedback in stabilizing physiological factors | |

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| 38. In addition to feedback mechanisms, what other control mechanism does the body use?   |  |  |  | | --- | --- | --- | |  | a. | ​balanced mechanisms | |  | b. | ​feedforward mechanisms | |  | c. | ​complimentary mechanisms | |  | d. | ​hybrid mechanisms | |  | e. | ​ancillary mechanisms |  |  |  | | --- | --- | | *ANSWER:* | b | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.4 Homeostatic Control Systems | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.4.3 - Discuss the role of feed forward mechanisms in the body | |

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| 39. Which example best illustrates a feedforward mechanism?​   |  |  |  | | --- | --- | --- | |  | a. | ​The release of thyroxin from the thyroid | |  | b. | ​The production of red blood cells | |  | c. | ​The replacement of skin cells | |  | d. | ​The excretion of bile from the gall bladder | |  | e. | ​The secretion of insulin following a meal |  |  |  | | --- | --- | | *ANSWER:* | e | | *DIFFICULTY:* | Bloom’s: Apply | | *REFERENCES:* | 1.4 Homeostatic Control Systems | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.4.3 - Discuss the role of feed forward mechanisms in the body | |

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| 40. What is a predicted outcome of a severe homeostatic disruption?​   |  |  |  | | --- | --- | --- | |  | a. | ​death | |  | b. | ​feedforward activity | |  | c. | ​cellular uptake | |  | d. | ​enhanced sensation | |  | e. | ​adaptation |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.4 Homeostatic Control Systems | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.4.4 - Describe the consequence of disruptions in homeostasis | |

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| 41. Physiology focuses exclusively on the study of human beings.​   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.1 Introduction to Physiology | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.1 - Describe the physiological approach to explaining an event | |

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| 42. Physiology examines the mechanisms of actions. in the body​   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.1 Introduction to Physiology | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.1 - Describe the physiological approach to explaining an event | |

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| 43. Within physiology, structure and function are inseparable.​   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Bloom’s: Apply | | *REFERENCES:* | 1.1 Introduction to Physiology | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts | |

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| 44. The four most common elements in the human body make up about 70% of the total chemistry.​   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts | |

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| 45. The cell is the smallest unit capable of carrying out the processes associated with life.​   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts | |

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| 46. The plasma membrane that surrounds each cell consists of non-fatty substances to allow for free movement of materials in and out of the cell.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts | |

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| 47. Enzymes are specialized proteins that speed up particular chemical reactions in the body.​   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts | |

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| 48. The three types of muscle tissue include skeletal, smooth, and connective.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.1 - Describe the four specialized cell functions in multicellular organisms | |

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| 49. Epithelial sheets are layers of tightly joined cells that cover and line various parts of the body.​   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.2 - Identify the four primary types of tissues in the human body | |

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| 50. Glands are epithelial tissue derivatives specialized for secreting.​   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.2 - Identify the four primary types of tissues in the human body | |

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| 51. Blood is classified as connective tissue.​   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.2 - Identify the four primary types of tissues in the human body | |

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| 52. Tendons and ligaments are classified as epithelial tissue.​   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.2 - Identify the four primary types of tissues in the human body | |

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| 53. ​All endocrine glands contain ducts.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.3 - Distinguish between exocrine and endocrine glands | |

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| 54. ​The internal environment of a multicellular organism is the fluid surrounding cells, through which life-sustaining exchanges are made.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.1 - Explain the roles of the external and internal environments in multicellular organisms | |

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| 55. ​Homeostasis is a static-state control system within the body.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.1 - Explain the roles of the external and internal environments in multicellular organisms | |

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| 56. ​Long-term adaptations make the body more efficient in responding to an ongoing or repetitive challenge in homeostasis.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Bloom’s: Understand | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.1 - Explain the roles of the external and internal environments in multicellular organisms | |

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| 57. ​Exercise initially disrupts homeostasis.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.1 - Explain the roles of the external and internal environments in multicellular organisms | |

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| 58. ​The respiratory system removes excess water, salt, acid, and other electrolytes from the plasma.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.3 - List the important contributions of the eleven body systems to homeostasis | |

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| 59. Muscle tissue is the ultimate source of all red blood cells.​   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Bloom’s: Understand | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.3 - List the important contributions of the eleven body systems to homeostasis | |

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| 60. ​In contrast to the nervous system, the endocrine system regulates activities that require duration rather than speed, such as growth.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.3 - List the important contributions of the eleven body systems to homeostasis | |

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| 61. The reproductive system is not essential for homeostasis, nor is it essential for survival of the individual.​   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.3 - List the important contributions of the eleven body systems to homeostasis | |

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| 62. Intrinsic, or local, controls are learned by an organ.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.4 Homeostatic Control Systems | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.4.1 - Distinguish between the two classes of homeostatic systems | |

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| 63. ​A common example of positive feedback is the control of room temperature via a thermostat.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Bloom’s: Apply | | *REFERENCES:* | 1.4 Homeostatic Control Systems | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.4.2 - Compare the roles of negative and positive feedback in stabilizing physiological factors | |

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| 64. Because the body’s goal is to maintain stable, homeostatic conditions, positive feedback occurs more often than negative feedback.​   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.4 Homeostatic Control Systems | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.4.2 - Compare the roles of negative and positive feedback in stabilizing physiological factors | |

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| 65. The body uses feedforward mechanisms less frequently than feedback mechanisms.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.4 Homeostatic Control Systems | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.4.3 - Discuss the role of feed forward mechanisms in the body | |

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| 66. ​Physiology is closely related to **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**, the study of the structure of the body.   |  |  | | --- | --- | | *ANSWER:* | anatomy​ | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.1 Introduction to Physiology | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.1 - Describe the physiological approach to explaining an event | |

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| 67. ​Common atoms combine to form the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of life, such as proteins, carbohydrates and fats.   |  |  | | --- | --- | | *ANSWER:* | molecules | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts | |

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| 68. The basic units of life are **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**.​   |  |  | | --- | --- | | *ANSWER:* | cells​ | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts | |

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| 69. The simplest forms of independent life are called **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** organisms.​   |  |  | | --- | --- | | *ANSWER:* | single-celled, single celled​ | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts | |

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| 70. Each living organism must perform the following equation: food + O2 ➞ CO2 + H2O + **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**.​   |  |  | | --- | --- | | *ANSWER:* | energy​ | | *DIFFICULTY:* | Bloom’s: Apply | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts | |

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| 71. Tissues are groups of **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** with similar specialization.   |  |  | | --- | --- | | *ANSWER:* | ​cells | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts | |

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| 72. Muscle tissue is able to contract and, therefore, allows **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** of the body.​   |  |  | | --- | --- | | *ANSWER:* | movement​ | | *DIFFICULTY:* | Bloom’s: Understand | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.2 - Identify the four primary types of tissues in the human body | |

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| 73. A(n) **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** is the cavity within a hollow organ or tube.​   |  |  | | --- | --- | | *ANSWER:* | lumen​ | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.2 - Identify the four primary types of tissues in the human body | |

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| 74. Glands are formed during **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** development by pockets of epithelial tissue.​   |  |  | | --- | --- | | *ANSWER:* | embryonic​ | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.3 - Distinguish between exocrine and endocrine glands | |

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| 75. ​\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ glands lack ducts and release their secretory products (hormones) into the blood.   |  |  | | --- | --- | | *ANSWER:* | Endocrine​ | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.3 - Distinguish between exocrine and endocrine glands | |

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| 76. Milk-secreting glands are examples of **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** glands.   |  |  | | --- | --- | | *ANSWER:* | exocrine​ | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.3 - Distinguish between exocrine and endocrine glands | |

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| 77.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ tissue is distinguished by relatively fewer cells within an abundance of extracellular material.​   |  |  | | --- | --- | | *ANSWER:* | Connective​ | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.2 - Identify the four primary types of tissues in the human body | |

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| 78. Except for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, cells within connective tissue produce specific structural molecules that they release into extracellular spaces.​   |  |  | | --- | --- | | *ANSWER:* | blood​ | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.2 - Identify the four primary types of tissues in the human body | |

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| 79. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ environment is the surrounding environment in which an organism lives.​   |  |  | | --- | --- | | *ANSWER:* | ​external | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.1 - Explain the roles of the external and internal environments in multicellular organisms | |

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| 80. The fluid outside the cells is called **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** fluid.​   |  |  | | --- | --- | | *ANSWER:* | extracellular​ | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.1 - Explain the roles of the external and internal environments in multicellular organisms | |

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| 81. Body systems maintain **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**, a dynamic steady state in the internal environment.   |  |  | | --- | --- | | *ANSWER:* | homeostasis​ | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.1 - Explain the roles of the external and internal environments in multicellular organisms | |

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| 82. Two natural categories of stem cells are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cells and tissue-specific cells from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.​   |  |  | | --- | --- | | *ANSWER:* | embryonic, adults​ | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.1 - Explain the roles of the external and internal environments in multicellular organisms | |

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| 83. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ medicine is a field that involves repairing, replacing, or regenerating cells, tissues, or organs to establish normal function.​   |  |  | | --- | --- | | *ANSWER:* | ​Regenerative | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.1 - Explain the roles of the external and internal environments in multicellular organisms | |

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| 84. ​Homeostasis involves both \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ compensatory responses and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ adaptations among the different body systems.   |  |  | | --- | --- | | *ANSWER:* | short-term, long-term; short term, long term​ | | *DIFFICULTY:* | Bloom’s: Understand | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.1 - Explain the roles of the external and internal environments in multicellular organisms | |

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| 85. ​Body cells function best within a(n) **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** temperature range.   |  |  | | --- | --- | | *ANSWER:* | narrow; small​ | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.2 - State the seven factors that must be homeostatically maintained | |

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| 86. ​ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is one of the easiest factors to monitor that shows both an immediate response to exercise and long-term adaptation to exercise program.   |  |  | | --- | --- | | *ANSWER:* | ​Heart rate | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.3 - List the important contributions of the eleven body systems to homeostasis | |

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| 87. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** or systemic controls are regulatory mechanisms initiated outside an organ.​   |  |  | | --- | --- | | *ANSWER:* | ​Extrinsic | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.4 Homeostatic Control Systems | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.4.1 - Distinguish between the two classes of homeostatic systems | |

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| 88. In a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ feedback control system, output is regulated to resist change so that the controlled variable is kept at a relatively steady set point.   |  |  | | --- | --- | | *ANSWER:* | ​negative | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.4 Homeostatic Control Systems | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.4.2 - Compare the roles of negative and positive feedback in stabilizing physiological factors | |

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| 89. ​The hormone oxytocin is controlled by a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ feedback loop during the birthing process.   |  |  | | --- | --- | | *ANSWER:* | positive​ | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.4 Homeostatic Control Systems | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.4.2 - Compare the roles of negative and positive feedback in stabilizing physiological factors | |

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| 90. ​The term \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ refers to the abnormal functioning of the body associated with disease.   |  |  | | --- | --- | | *ANSWER:* | pathophysiology​ | | *DIFFICULTY:* | Bloom’s: Remember | | *REFERENCES:* | 1.4 Homeostatic Control Systems | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.4.4 - Describe the consequence of disruptions in homeostasis | |

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| Figure 1-5​  ​  **Answer the following questions using the accompanying figure.** |

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| 91. Which numbered diagram shows the source of all blood cells?​   |  |  |  | | --- | --- | --- | |  | a. | ​1 | |  | b. | ​2 | |  | c. | ​3 | |  | d. | ​4 | |  | e. | ​5 | |  | f. | ​6 |  |  |  | | --- | --- | | *ANSWER:* | e | | *DIFFICULTY:* | Bloom’s: Apply | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.1 - Describe the four specialized cell functions in multicellular organisms | |

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| 92. ​Which numbered diagram shows the site of nutrient/waste exchange via alveoli?   |  |  |  | | --- | --- | --- | |  | a. | ​1 | |  | b. | ​2 | |  | c. | ​3 | |  | d. | ​4 | |  | e. | ​5 | |  | f. | ​6 |  |  |  | | --- | --- | | *ANSWER:* | c | | *DIFFICULTY:* | Bloom’s: Apply | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.1 - Describe the four specialized cell functions in multicellular organisms | |

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| 93. ​Which numbered diagram depicts a system vulnerable to atherosclerosis disease?   |  |  |  | | --- | --- | --- | |  | a. | ​1 | |  | b. | ​2 | |  | c. | ​3 | |  | d. | ​4 | |  | e. | ​5 | |  | f. | ​6 |  |  |  | | --- | --- | | *ANSWER:* | f | | *DIFFICULTY:* | Bloom’s: Analyze | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.1 - Describe the four specialized cell functions in multicellular organisms | |

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| 94. ​Which numbered diagram depicts a system most negatively affected by a lack of dietary protein?   |  |  |  | | --- | --- | --- | |  | a. | ​1 | |  | b. | ​2 | |  | c. | ​3 | |  | d. | ​4 | |  | e. | ​5 | |  | f. | ​6 |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Bloom’s: Analyze | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.1 - Describe the four specialized cell functions in multicellular organisms | |

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| 95. ​Which numbered diagram depicts the site of nutrient/waste exchange between cells and the interstitial fluid?   |  |  |  | | --- | --- | --- | |  | a. | ​1 | |  | b. | ​2 | |  | c. | ​3 | |  | d. | ​4 | |  | e. | ​5 | |  | f. | ​6 |  |  |  | | --- | --- | | *ANSWER:* | a | | *DIFFICULTY:* | Bloom’s: Apply | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.1 - Describe the four specialized cell functions in multicellular organisms | |

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| 96. ​Describe a typical physiologist’s explanation of shivering.   |  |  | | --- | --- | | *ANSWER:* | A physiologist’s explanation of shivering is that when temperature-sensitive nerve cells detect a fall in body temperature, they signal the area in the brain responsible for temperature regulation. In response, this brain area activates nerve pathways that ultimately bring about involuntary, oscillating muscle contractions, which is commonly referred to as shivering.​ | | *DIFFICULTY:* | Bloom’s: Apply | | *REFERENCES:* | 1.1 Introduction to Physiology | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.1 - Describe the physiological approach to explaining an event | |

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| 97. ​How does the interface between the air and blood in the lungs work?   |  |  | | --- | --- | | *ANSWER:* | ​The respiratory airways, which carry air from the outside into the lungs, branch extensively when they reach the lungs. Tiny air sacs cluster at the ends of the huge number of airway branches. Similarly, the vessels carrying blood into the lungs branch extensively and form dense networks of small vessels that encircle each air sac. This tremendous interface is crucial for the lungs’ ability to efficiently carry out their function: the transfer of needed oxygen from the air into the blood and the unloading of the waste product carbon dioxide from the blood into the air. The greater the surface area available for these exchanges, the faster O2 and CO2 can move between the air and the blood. | | *DIFFICULTY:* | Bloom’s: Apply | | *REFERENCES:* | 1.1 Introduction to Physiology | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2 - Explain the structure-function relationship of body parts | |

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| 98. Distinguish between exocrine and endocrine glands.​   |  |  | | --- | --- | | *ANSWER:* | ​Exocrine glands secrete through ducts to the outside of the body (or into a cavity that opens to the outside). Examples are sweat glands and glands that secrete digestive juices. Endocrine glands lack ducts and release their secretory products, known as hormones, internally into the blood. For example, the pancreas secretes insulin into the blood, which transports this hormone to its sites of action throughout the body. | | *DIFFICULTY:* | Bloom’s: Understand | | *REFERENCES:* | 1.2 Levels of Organization in the Body | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.2.3 - Distinguish between exocrine and endocrine glands | |

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| 99. Discuss the ethical concerns and political issues of the use of embryonic stem cells (ESC).​   |  |  | | --- | --- | | *ANSWER:* | Despite the potential, ESC research is fraught with controversy because of the source of these cells: they are isolated from discarded embryos from abortion clinics and *in vitro* fertility (“test-tube baby”) clinics. Opponents of using ESC are morally and ethically concerned because embryos are destroyed in the process of harvesting these cells. Proponents argue that these embryos were destined to be destroyed anyway (a decision already made by the parents of the embryos) and that these stem cells have great potential for alleviating human suffering. As such, ESC science has become inextricably linked with stem cell politics. | | *DIFFICULTY:* | Bloom’s: Analyze | | *REFERENCES:* | 1.3 Concept of Homeostasis | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.3.1 - Explain the roles of the external and internal environments in multicellular organisms | |

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| 100. What must a body control system do to maintain homeostasis?​   |  |  | | --- | --- | | *ANSWER:* | To maintain homeostasis, the control system must be able to (1) detect deviations from normal in the internal environmental factor that needs to be held within narrow limits; (2) integrate this information with any other relevant information; and (3) make appropriate adjustments in the activity of the body parts responsible for restoring this factor to its desired value.​ | | *DIFFICULTY:* | Bloom’s: Understand | | *REFERENCES:* | 1.4 Homeostatic Control Systems | | *LEARNING OBJECTIVES:* | HUPH.SHER.16.1.4 - Describe the function of homeostatic control systems | |