

1. Physiology is the study of
  - a. the structures of anatomical features.
  - b. cellular metabolism.
  - c. processes that allow organisms to function.
  - d. how organ systems develop from the embryo.
  
2. Mary spends her days at work using a microscope. She examines the properties of lining and glandular epithelia. Which one of the following words best describes Mary?
  - a. cytologist
  - b. histologist
  - c. gross anatomist
  - d. pathologist
  - e. physiologist
  
3. A glycoprotein is
  - a. an organ.
  - b. a cell.
  - c. a chemical.
  - d. All of the responses above are correct.
  - e. None of the responses above is correct.
  
4. A phospholipid is an example of organization at the \_\_\_\_\_ level.
  - a. chemical

- b. tissue
  - c. organ
  - d. organism
  - e. organ system
5. The \_\_\_\_\_ system includes the skin.
- a. integumentary
  - b. endocrine
  - c. respiratory
  - d. lymphatic
  - e. None of the responses above is correct.
6. Which of the following definitions best describes homeostasis?
- a. The ability to exchange materials between the internal and external environments.
  - b. The ability to keep the internal environment fairly constant.
  - c. The ability to use energy to maintain metabolism.
  - d. The ability to use negative and positive feedback loops.
7. A negative feedback system is best defined as
- a. a system that is used to maintain homeostasis.
  - b. a system that minimizes changes from a set point.
  - c. a cycle that increases the change from a normal value.
  - d. a system that maintains body temperature.

8. Positive feedback systems
- a. increase deviations from a normal state.
  - b. are more common than negative feedback systems.
  - c. may not be used to maintain homeostasis.
  - d. More than one of the responses above is correct.
  - e. None of the responses above is correct.
9. If an organ starts to experience low levels of oxygen, it can release chemicals that dilate local blood vessels. This brings more oxygen to the organ and is an example of
- a. negative feedback.
  - b. positive feedback.
  - c. extrinsic regulation.
  - d. thermoregulation.
10. The \_\_\_\_\_ of a cell separates the intracellular space from the extracellular space.
- a. nuclear envelope
  - b. Golgi apparatus
  - c. mitochondrion
  - d. smooth endoplasmic reticulum
  - e. plasma membrane
11. About 20% of the lipids in the plasma membrane are

- a. phospholipids.
  - b. glycoproteins.
  - c. glycocalyx.
  - d. peripheral membrane lipids.
  - e. cholesterol molecules.
12. A protein attached loosely to the surface of a plasma membrane is
- a. an integral membrane protein.
  - b. a cholesterol protein.
  - c. a peripheral membrane protein.
  - d. a transmembrane protein.
13. A \_\_\_\_\_ between two cells allows small molecules to move freely between the two cells.
- a. desmosome
  - b. gap junction
  - c. tight junction
  - d. All of the answers above are correct.
  - e. None of the answers above is correct.
14. A mechanism of transport across a cellular membrane is considered passive if
- a. it does not require direct expenditure of energy by the cell.
  - b. it involves the formation of vesicles.
  - c. it involves movement of particles larger than proteins.

- d. particles move from low concentration to high concentration.
  - e. None of the responses above is correct.
15. Which one of the following statements is true?
- a. Channels may be used for facilitated transport of polar molecules.
  - b. Most polar molecules can cross a plasma membrane by simple diffusion.
  - c. Small, charged molecules can generally pass directly through lipid bilayers.
  - d. Carbon dioxide can cross a plasma membrane by osmosis.
  - e. Facilitated diffusion allows particles to move from low to high concentrations.
16. The drug Procaine (also known as Novocaine) blocks sodium ( $\text{Na}^+$ ) channels in plasma membranes. Given this information, which one of the following statements is most likely true about a cell bathed in a solution that contains Procaine?
- a. There will be no osmosis across the cell's plasma membrane.
  - b.  $\text{Na}^+$  will diffuse directly across the lipid bilayer.
  - c.  $\text{Na}^+$  will be unable to cross the membrane by facilitated diffusion.
  - d. Mitochondria will not be able to generate ATP.
  - e.  $\text{Na}^+$  will diffuse from a low concentration to a high concentration.

Match each statement, 17-18, with one of the responses, a-e. Each response may be used more than once or not at all.

- a. fluid-phase endocytosis
- b. exocytosis
- c. filtration

- d. phagocytosis
  - e. receptor-mediated endocytosis
17. Hydrostatic pressure forces particles through holes in the membrane.
18. One cell engulfs another cell.
19. There are four main tissue types in the human body. Epithelial and connective are two of the four tissue types. Which one of the following tissues is one of the **other** main tissue types?
- a. areolar
  - b. liver
  - c. bone
  - d. muscle
20. Every specific type of tissue contains just one type of cell.
- a. The statement above is true.
  - b. The statement above is false.
21. Which one of the following is **NOT** a characteristic of epithelial tissue?
- a. It consists mostly of cells.
  - b. Epithelial cells are held together with specialized contacts.
  - c. Epithelial tissue contains no blood vessels.
  - d. Sheets of epithelial tissue are supported by underlying muscle.

- e. None of the responses above is correct.
22. \_\_\_\_\_ is **NOT** a type of epithelial tissue.
- a. Transitional epithelium
  - b. Simple squamous epithelium
  - c. Columnar cuboidal epithelium
  - d. Pseudostratified columnar epithelium
  - e. Stratified squamous epithelium
23. The basement membrane of an epithelium is found
- a. on the apical surface.
  - b. only in stratified epithelia.
  - c. in microvilli.
  - d. between the epithelium and underlying connective tissue.
  - e. None of the responses above is correct.
24. Extra strength is provided in the stratified squamous tissue of the skin by specialized cellular contacts called
- a. desmosomes.
  - b. gap junctions.
  - c. tight junctions.
  - d. All of the responses above are correct.
  - e. None of the responses above is correct.

Match each statement, 25-26, with one of the responses, a-e. Each response may be used more than once or not at all.

- a. simple squamous epithelium
- b. simple cuboidal epithelium
- c. simple columnar epithelium
- d. pseudostratified columnar epithelium
- e. stratified squamous epithelium

25. In the digestive tract, the apical surface is lined with microvilli to aid in absorption.
26. This tissue lines the external surface of the body, the mouth, and the esophagus.
27. Which one of the following statements is true?
- a. All connective tissues have an extensive blood supply.
  - b. Dense connective tissues contain collagen, but cartilage does not.
  - c. Connective tissue fibers are made of ground substance.
  - d. Bones, blood, and tendons arise from mesenchyme tissue.
  - e. Collagen fibers are flexible and easily stretched.
28. \_\_\_\_\_ is a type of connective tissue proper.
- a. Bone
  - b. Blood
  - c. Lymph



- d. Elastic cartilage
  - e. None of the responses above is correct
29. Which one of the following statements is true?
- a. Endocrine glands produce “secretions” and exocrine glands produce “excretions.”
  - b. Endocrine glands release hormones into the bloodstream.
  - c. Exocrine glands release their products into the lymph.
  - d. Multicellular endocrine glands release their products through ducts.
  - e. Endocrine glands contain epithelial tissue, but exocrine glands do not.
30. The proliferation of fibrous connective tissue at the site of an injury is called
- a. fibrosis.
  - b. regeneration.
  - c. organization.
  - d. inflammation.
  - e. histamine.

Exam 1 Practice Questions

1.c

11.e

21.d

2.b	12.c	22.c
3.c	13.b	23.d
4.a	14.a	24.a
5.a	15.a	25.c
6.b	16.c	26.e
7.b	17.c	27.d
8.a	18.d	28.e
9.a	19.d	29.b
10.e	20.b	30.a

1. The study of changes that occur in the body prior to birth is

- a. embryology.
- b. cytology.
- c. histology.
- d. gross anatomy.
- e. developmental anatomy.

2. A glycoprotein is an example of a structure at the \_\_\_\_\_ level.

- a. tissue
- b. organ
- c. chemical
- d. organism

- e. organ system
3. The \_\_\_\_\_ system consists of glands that secrete hormones.
- a. integumentary
  - b. lymphatic/immune
  - c. nervous
  - d. endocrine
  - e. urinary
4. Which one of the following is an example of positive feedback?
- a. blood pressure drops—the heart begins to fail—blood pressure drops further
  - b. blood glucose level falls—the liver releases glucose—blood glucose rises
  - c. body temperature rises—sweat glands release more sweat—the body cools
  - d. blood CO<sub>2</sub> rises—the brain triggers a deep breath of air—blood CO<sub>2</sub> falls
5. According to the fluid mosaic model, a cell membrane is made of
- a. phospholipids.
  - b. cholesterol.
  - c. proteins.
  - d. All of the responses above are correct.
  - e. None of the responses above is correct.
6. \_\_\_\_\_ are most likely found between cells where it is important to prevent fluids moving between the cells.

- a. Tight junctions
- b. Desmosomes
- c. Gap junctions
- d. All of the responses above are correct.
- e. None of the responses above is correct.

## Human Anatomy & Physiology I Quiz 1 (version 2)

1. The study of changes that occur in the body prior to birth is
  - a. cytology.
  - b. histology.
  - c. embryology.
  - d. gross anatomy.
  - e. developmental anatomy.
  
2. The \_\_\_\_\_ system consists of glands that secrete hormones.
  - a. endocrine
  - b. integumentary
  - c. lymphatic/immune
  - d. nervous
  - e. urinary
  
3. Cholesterol is an example of a structure at the \_\_\_\_\_ level.
  - a. chemical
  - b. tissue
  - c. organ
  - d. organism
  - e. organ system

4. Which one of the following is an example of positive feedback?
- a. blood glucose level falls—the liver releases glucose—blood glucose rises
  - b. body temperature rises—sweat glands release more sweat—the body cools
  - c. blood pressure drops—the heart begins to fail—blood pressure drops further
  - d. blood CO<sub>2</sub> rises—the brain triggers a deep breath of air—blood CO<sub>2</sub> falls
5. \_\_\_\_\_ are most likely found between cells where it is important to allow movement of materials from cell to cell.
- a. Tight junctions
  - b. Desmosomes
  - c. Gap junctions
  - d. All of the responses above are correct.
  - e. None of the responses above is correct.
6. According to the fluid mosaic model, a cell membrane is made of
- a. phospholipids.
  - b. cholesterol.
  - c. proteins.
  - d. All of the responses above are correct.
  - e. None of the responses above is correct.
1. A “semi-permeable membrane” is best described as a membrane that
- a. has carrier proteins for facilitated diffusion.
  - b. restricts passage of some particles and allows others to pass freely.
  - c. allows osmosis.

- d. is made of a lipid bilayer.
2. Which one of the following molecules can pass directly through a lipid bilayer?
- a. glucose
  - b. potassium ions ( $K^+$ )
  - c. protein
  - d. carbon dioxide ( $CO_2$ )
3. A white blood cell engulfs a bacteria. This is an example of
- a. phagocytosis.
  - b. fluid-phase endocytosis.
  - c. exocytosis.
  - d. receptor-mediated endocytosis.

For questions 4-6, consider a cell in a beaker of fluid. The osmolarity inside the cell is 300 mOsm, and the osmolarity of the fluid that surrounds the cell is 350 mOsm.

4. The osmotic pressure is
- a. greater inside the cell.
  - b. greater in the fluid that surrounds the cell.
  - c. equal inside the cell and in the fluid that surrounds the cell.
  - d. None of the responses above is correct.
5. The cell is \_\_\_\_\_ compared to the fluid that surrounds the cell.

- a. isotonic
  - b. hypertonic
  - c. hypotonic
  - d. None of the responses above is correct.
6. There will be net movement of water
- a. into the cell from the surrounding fluid.
  - b. from the cell into the surrounding fluid.
  - c. There will be no net movement of water.
  - d. None of the responses above is correct.



## Human Anatomy & Physiology I: Quiz 2 (version 2)

1. Which one of the following molecules can pass directly through the lipid bilayer?
  - a. carbon dioxide (CO<sub>2</sub>)
  - b. potassium ions (K<sup>+</sup>)
  - c. protein
  - d. glucose
  
2. A “semi-permeable membrane” is best described as a membrane that
  - a. restricts passage of some particles and allows others to pass freely.
  - b. has carrier proteins for facilitated diffusion.
  - c. allows osmosis.
  - d. is made of a lipid bilayer.
  
3. A white blood cell engulfs a bacteria. This is an example of
  - a. exocytosis.
  - b. fluid-phase endocytosis.
  - c. phagocytosis.
  - d. receptor-mediated endocytosis.

For questions 4-6, consider a cell in a beaker of fluid. The osmolarity inside the cell is 300 mOsm, and the osmolarity of the fluid that surrounds the cell is 250 mOsm.

4. The osmotic pressure is

- a. greater inside the cell.
  - b. greater in the fluid that surrounds the cell.
  - c. equal inside the cell and in the fluid that surrounds the cell.
  - d. None of the responses above is correct.
5. The cell is \_\_\_\_\_ compared to the fluid that surrounds the cell.
- a. isotonic
  - b. hypertonic
  - c. hypotonic
  - d. None of the responses above is correct.
6. There will be net movement of water
- a. into the cell from the surrounding fluid.
  - b. from the cell into the surrounding fluid.
  - c. There will be no net movement of water.
  - d. None of the responses above is correct.