

Chapter 02: Cells and Tissues

Solomon: Introduction to Human Anatomy and Physiology, 4th Edition

MULTIPLE CHOICE

1. The _____ is one of the largest cells in the human body.
- sperm
 - ovum
 - epithelial
 - nerve

ANS: B

2. The jelly-like material of the cell is called _____.
- cytoplasm
 - flagella
 - organelles
 - nucleus

ANS: A

3. The _____ surrounds and protects the cell, regulating passage of materials into and out of the cell.
- plasma membrane
 - endoplasmic reticulum
 - nuclear envelope
 - cytoplasm

ANS: A

4. Each _____ contains hundreds or thousands of units of hereditary information that govern the structure and activity of the cell.
- nucleolus
 - gene
 - DNA
 - chromosome

ANS: D

5. _____ are tiny power plants contained within the cell that carry on cellular respiration.
- Ribosomes
 - Golgi
 - Mitochondria
 - Lysosomes

ANS: C

6. A small membrane-enclosed structure that holds or transports some type of cargo within the cell is called a _____.
- lysosome
 - flagellum

- c. vesicle
- d. cellular respiration

ANS: C

7. The diffusion of water molecules through a selectively permeable membrane from a region where water molecules are more concentrated to a region where they are less concentrated is called _____.
- a. osmosis
 - b. diffusion
 - c. filtration
 - d. active transport

ANS: A

8. When blood cells are placed in a hypertonic solution, _____.
- a. the net movement of water molecules is zero
 - b. the blood cells die immediately
 - c. there is a net movement of water molecules out of the cells
 - d. the blood cells swell and may burst

ANS: C

9. In _____, the cell moves materials from a region of lower concentration to a region of higher concentration.
- a. active transport
 - b. diffusion
 - c. filtration
 - d. osmosis

ANS: A

10. A white blood cell ingests bacteria. This is an example of _____.
- a. diffusion
 - b. passive transport
 - c. phagocytosis
 - d. cell pumping action

ANS: C

11. _____ are chemical messengers used between cells for communication.
- a. Carbohydrates
 - b. Lipids
 - c. Receptors
 - d. Hormones

ANS: D

12. Target cells _____.
- a. typically have receptors that bind signal molecules to their surfaces
 - b. usually replicate and die when contracted by a signal molecule
 - c. are the first cells in a cell signaling pathway
 - d. kill invading microorganisms

ANS: A

13. In a process called _____, receptors convert signals outside the cell into a signal inside the cell that affects cellular activity.
- diffusion
 - apoptosis
 - signal transduction
 - active transport

ANS: C

14. The cell spends most of its life in _____, the period between mitoses.
- prophase
 - interphase
 - metaphase
 - telophase

ANS: B

15. During _____, the chromatids separate and become independent chromosomes.
- interphase
 - metaphase
 - anaphase
 - telophase

ANS: C

16. _____ epithelial cells are thin, flattened cells shaped like pancakes or flagstones.
- Stratified
 - Squamous
 - Cuboidal
 - Columnar

ANS: B

17. _____ cells in the lining of the intestine secrete mucus, a slippery protective substance.
- Body
 - Muscle
 - Glial
 - Goblet

ANS: D

18. _____ tissue stores fat and releases it when the body needs energy.
- Loose connective
 - Adipose
 - Muscle
 - Cardiac

ANS: B

19. _____ membranes line the body cavities that open to the outside of the body.

- a. Mucous
- b. Serous
- c. Parietal
- d. Visceral

ANS: A

20. A _____ lines a body cavity that does not open to the outside of the body.
- a. mucosa
 - b. serous membrane
 - c. synovial
 - d. connective tissue membrane

ANS: B

21. _____ are tiny cells with long whip-like tails called *flagella*.
- a. Sperm
 - b. Ovum
 - c. Epithelial
 - d. Nerve

ANS: A

22. _____ are specialized structures scattered throughout the cell, which perform jobs within the cell.
- a. Phospholipids
 - b. Nucleoli
 - c. Organelles
 - d. Chromosomes

ANS: C

23. Rough endoplasmic reticulum has a granular appearance that results from the presence of organelles called _____.
- a. cilia
 - b. ribosomes
 - c. lysosomes
 - d. mitochondria

ANS: B

24. Bacteria and foreign matter are destroyed by digestive enzymes contained in little sacs called _____.
- a. chromosomes
 - b. microtubules
 - c. lysosomes
 - d. ribosomes

ANS: C

25. _____ is the net movement of molecules or ions from a region of higher concentration to a region of lower concentration brought about by the energy of the molecules.
- a. Diffusion

- b. Filtration
- c. Active transport
- d. Hypertonic

ANS: A

26. The passage of materials through membranes by mechanical pressure is known as _____.
- a. diffusion
 - b. filtration
 - c. active transport
 - d. permeability

ANS: B

27. When blood cells are placed in a hypotonic solution, _____.
- a. there is a net movement of water molecules into the cells
 - b. water is pumped out of the cells
 - c. the cells shrink
 - d. water is removed by phagocytosis

ANS: A

28. In _____, the cell ingests large solid particles such as food or bacteria.
- a. diffusion
 - b. osmosis
 - c. apoptosis
 - d. phagocytosis

ANS: D

29. In cell signaling, _____.
- a. a message passes through membranes by mechanical pressure
 - b. the first step is active transport
 - c. the first step is signal transduction
 - d. one cell communicates with another by means of a hormone or other regulatory molecule

ANS: D

30. Signal molecules bind to _____ on the surface of target cells.
- a. receptors
 - b. tissues
 - c. lysosomes
 - d. neurons

ANS: A

31. _____ is the stage of mitosis in which the nuclear membrane dissolves.
- a. Prophase
 - b. Interphase
 - c. Metaphase
 - d. Anaphase

ANS: A

32. During _____, the chromatids are positioned along the equator of the cell.
- prophase
 - interphase
 - metaphase
 - anaphase

ANS: C

33. Epithelium lining the digestive tract _____ molecules of digested food.
- secretes
 - absorbs
 - senses
 - excretes

ANS: B

34. Almost every organ in the body has a framework of _____ tissue that supports it.
- adipose
 - connective
 - muscle
 - nervous

ANS: B

35. _____ fibers are very fine, branched fibers that form a network that supports many tissues and organs.
- Elastic
 - Collagen
 - Reticular
 - Nervous

ANS: C

36. In contrast to epithelial tissue, the cells of connective tissue _____.
- are separated by intercellular substance
 - contain fewer fibers
 - lack collagen fibers
 - are joined by ducts

ANS: A

37. Smooth muscle _____.
- is found in the wall of the heart
 - contracts rapidly
 - has a striated appearance
 - can be found in the wall of the intestine

ANS: D

38. _____ are specialized for receiving impulses.
- Adipose cells

- b. Axons
- c. Collagen fibers
- d. Dendrites

ANS: D

39. The main types of _____ membranes are mucous membranes, serous membranes, and the skin.
- a. epithelial
 - b. connective tissue
 - c. synovial
 - d. cardiac

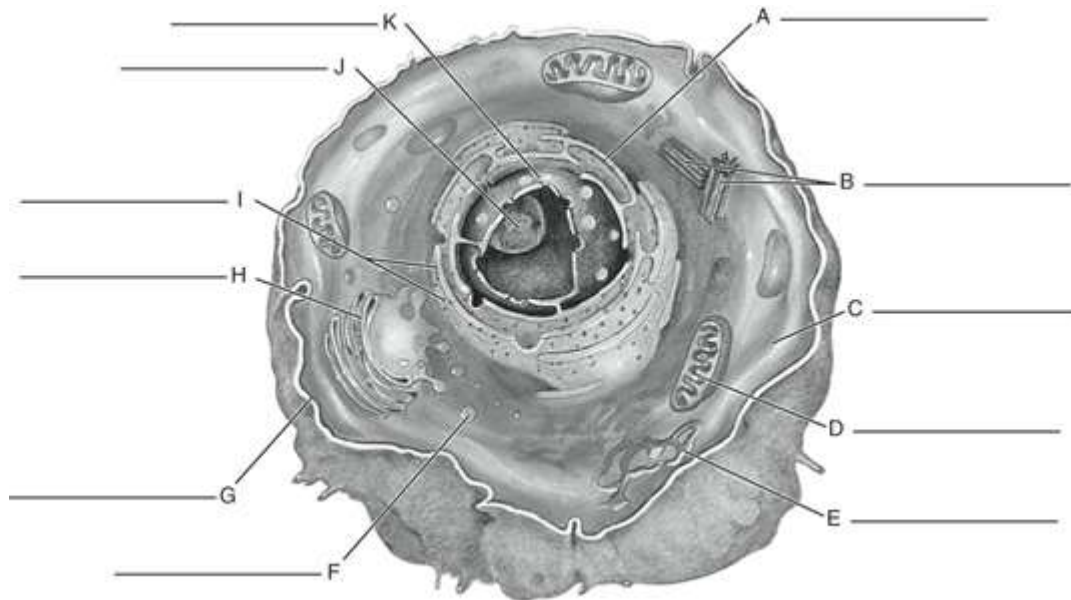
ANS: A

40. The _____ is the serous membrane lining the abdominal cavity.
- a. synovial membrane
 - b. parietal pleura
 - c. visceral pleura
 - d. parietal peritoneum

ANS: D

MATCHING

Fill in the correct labels for the following figure using the word bank below.



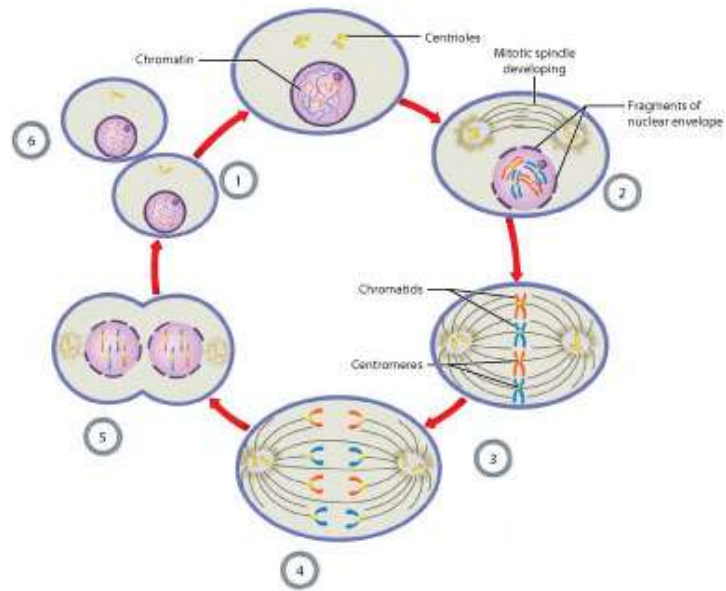
- a. Mitochondrion
- b. Plasma membrane
- c. Ribosomes
- d. Centrioles
- e. Nucleolus
- f. Cytoplasm

- g. Rough endoplasmic reticulum
- h. Nucleus
- i. Smooth endoplasmic reticulum
- j. Lysosome
- k. Golgi complex

- 1. A _____
- 2. B _____
- 3. C _____
- 4. D _____
- 5. E _____
- 6. F _____
- 7. G _____
- 8. H _____
- 9. I _____
- 10. J _____
- 11. K _____

- 1. ANS: G
- 2. ANS: D
- 3. ANS: F
- 4. ANS: A
- 5. ANS: I
- 6. ANS: J
- 7. ANS: B
- 8. ANS: K
- 9. ANS: C
- 10. ANS: E
- 11. ANS: H

Fill in the correct labels for the following figure using the word bank below.



- a. Anaphase
- b. Daughter Cells
- c. Telophase
- d. Prophase
- e. Interphase
- f. Metaphase

- 12. A _____
- 13. B _____
- 14. C _____
- 15. D _____
- 16. E _____
- 17. F _____

- 12. ANS: E
- 13. ANS: D
- 14. ANS: F
- 15. ANS: A
- 16. ANS: C
- 17. ANS: B

OTHER

- 1. Describe a condition in which excess adipose tissue could be harmful.

ANS:

Obesity is the result of excess adipose tissue. Obese people have a much greater risk for heart disease, stroke, diabetes, cancer, and arthritis.