

## Chapter 01: Introduction to Anatomy and Physiology

### Cooper: Adult Health Nursing, 8th Edition

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#### MULTIPLE CHOICE

1. The anatomic term \_\_\_\_\_ means toward the midline.
  - a. anterior
  - b. posterior
  - c. medial
  - d. cranial

ANS: C

The term medial indicates an anatomic direction toward the midline.

DIF: Cognitive Level: Knowledge

REF: 1

OBJ: 2

TOP: Anatomic terminology

KEY: Nursing Process Step: Assessment

MSC: NCLEX: Physiological Integrity

2. What are the smallest living components in our body?
  - a. Cells
  - b. Organs
  - c. Electrons
  - d. Osmosis

ANS: A

Cells are considered to be the smallest living units of structure and function in our body.

DIF: Cognitive Level: Knowledge

REF: 4

OBJ: 6

TOP: Structural levels of organization

KEY: Nursing Process Step: N/A

MSC: NCLEX: Physiological Integrity

3. What is the largest organelle, responsible for cell reproduction and control of other organelles?
  - a. Nucleus
  - b. Ribosome
  - c. Mitochondrion
  - d. Golgi apparatus

ANS: A

The nucleus is the largest organelle within the cell.

DIF: Cognitive Level: Knowledge

REF: 5

OBJ: 8

TOP: Parts of the cell

KEY: Nursing Process Step: Assessment

MSC: NCLEX: Physiological Integrity

4. When the patient complains of pain in the bladder, the patient will indicate discomfort in which body cavity?
  - a. Pelvic
  - b. Mediastinum
  - c. Dorsal
  - d. Abdominal

ANS: A

A subdivision called the pelvic cavity contains the lower portion of the large intestine (lower sigmoid colon, rectum), urinary bladder, and internal structures of the reproductive system.

DIF: Cognitive Level: Comprehension REF: 3 OBJ: 5

TOP: Body cavity KEY: Nursing Process Step: Assessment

MSC: NCLEX: Physiological Integrity

5. The four phases of cell division all occur in:
- diffusion.
  - mitosis.
  - osmosis.
  - filtration.

ANS: B

During mitosis, the cell goes through four phases: prophase, metaphase, anaphase, and telophase.

DIF: Cognitive Level: Knowledge REF: 7 OBJ: 9

TOP: Cell division KEY: Nursing Process Step: N/A

MSC: NCLEX: Physiological Integrity

6. Telophase is which phase of cell reproduction during mitosis?
- First phase
  - Latent phase
  - Final phase
  - Spindle phase

ANS: C

During this final phase of cell division, the two nuclei appear and the chromosomes disperse.

DIF: Cognitive Level: Knowledge REF: 7 OBJ: 9

TOP: Cell division KEY: Nursing Process Step: N/A

MSC: NCLEX: Physiological Integrity

7. The nurse is aware that which muscle group is both striated and involuntary?
- Skeletal
  - Glial
  - Cardiac
  - Visceral

ANS: C

The cardiac muscle is both striated and involuntary.

DIF: Cognitive Level: Knowledge REF: 9 OBJ: 11

TOP: Tissues KEY: Nursing Process Step: Planning

MSC: NCLEX: Physiological Integrity

8. What is a group of several different kinds of tissues arranged so that together they can perform a more complex function than any tissue alone?
- Organ
  - System

- c. Cell
- d. Endoplasmic reticulum

ANS: A

When several kinds of tissues are united to perform a more complex function than any tissue alone, they are called organs.

DIF: Cognitive Level: Knowledge REF: 11 OBJ: 7  
TOP: Organs KEY: Nursing Process Step: N/A  
MSC: NCLEX: Physiological Integrity

9. What traits describe visceral muscles?
- a. Smooth and voluntary
  - b. Smooth and involuntary
  - c. Striated and voluntary
  - d. Striated and involuntary

ANS: B

Visceral (smooth) muscles will not function at will; thus, they act involuntarily.

DIF: Cognitive Level: Knowledge REF: 9 OBJ: 7  
TOP: Tissues KEY: Nursing Process Step: Assessment  
MSC: NCLEX: Physiological Integrity

10. How are the thoracic and abdominal cavities separated?
- a. By the pleura
  - b. By the diaphragm
  - c. By the sagittal plane
  - d. By the peritoneum

ANS: B

The diaphragm (a muscle directly beneath the lungs) separates the ventral cavity into the thoracic (chest) and abdominal cavities.

DIF: Cognitive Level: Knowledge REF: 2 OBJ: 3  
TOP: Ventral cavity KEY: Nursing Process Step: Assessment  
MSC: NCLEX: Physiological Integrity

11. What is the broad section of biology dealing with the description of human structure?
- a. Hematology
  - b. Anatomy
  - c. Kinesiology
  - d. Physiology

ANS: B

Anatomy is the study, classification, and description of the structure and organs of the body.

DIF: Cognitive Level: Knowledge REF: 1 OBJ: 1  
TOP: Terminology KEY: Nursing Process Step: N/A  
MSC: NCLEX: Physiological Integrity

12. \_\_\_\_ explains the processes and functions of many structures of the body and how they interact with one another.

- a. Anatomy
- b. Mitosis
- c. Filtration
- d. Physiology

ANS: D

Physiology explains the processes and functions of the various structures and how they interrelate with one another.

DIF: Cognitive Level: Knowledge      REF: 1      OBJ: 1  
TOP: Terminology      KEY: Nursing Process Step: N/A  
MSC: NCLEX: Physiological Integrity

13. The anatomic structure that is not in the thoracic cavity is/are the \_\_\_\_.
- a. heart
  - b. lungs
  - c. blood vessels
  - d. transverse colon

ANS: D

The transverse colon is located in the abdominal cavity.

DIF: Cognitive Level: Comprehension      REF: 3      OBJ: 5  
TOP: Thoracic cavity      KEY: Nursing Process Step: Assessment  
MSC: NCLEX: Physiological Integrity

14. When several organs and parts are grouped together for certain functions, they form:
- a. tissues.
  - b. systems.
  - c. cells.
  - d. membranes.

ANS: B

A system is an organization of varying numbers and kinds of organs arranged so that together they can perform complex functions for the body.

DIF: Cognitive Level: Knowledge      REF: 4      OBJ: 7  
TOP: Systems      KEY: Nursing Process Step: Assessment  
MSC: NCLEX: Physiological Integrity

15. What are the distinct surface proteins of the plasma membrane essential in determining?
- a. Tissue typing
  - b. Blood count
  - c. Effectiveness of a drug
  - d. Sexual maturity

ANS: A

The plasma membrane has distinct surface proteins as coming from one individual. This is the basis for the procedure of tissue typing to determine compatibility before an organ transplant.

DIF: Cognitive Level: Comprehension      REF: 5      OBJ: 12  
TOP: Cells      KEY: Nursing Process Step: Assessment  
MSC: NCLEX: Physiological Integrity

16. In anatomic terminology, posterior means toward the:
- tail.
  - head.
  - back.
  - trunk.

ANS: C

The posterior is toward the back.

DIF: Cognitive Level: Knowledge

REF: 1

OBJ: 2

TOP: Anatomic terminology

KEY: Nursing Process Step: Assessment

MSC: NCLEX: Physiological Integrity

17. What does the transverse body plane divide?
- The front and back (coronal) of the body
  - The body lengthwise (two equal halves)
  - The superior and inferior portions of the body
  - The body into axial and appendicular

ANS: C

The transverse plane cuts the body horizontally into the sagittal and the frontal planes, dividing the body into caudal and cranial portions.

DIF: Cognitive Level: Knowledge

REF: 2

OBJ: 3

TOP: Body planes

KEY: Nursing Process Step: Assessment

MSC: NCLEX: Physiological Integrity

18. Caudal is defined as toward the \_\_\_\_.
- head
  - feet
  - tail
  - chest

ANS: C

Caudal is a directional word that indicates toward the “tail,” the distal portion of the spine.

DIF: Cognitive Level: Knowledge

REF: 1

OBJ: 3

TOP: Anatomic terminology

KEY: Nursing Process Step: Assessment

MSC: NCLEX: Physiological Integrity

19. What is the term for movement of water from an area of lower solute concentration to an area of higher solute concentration?
- Absorption
  - Filtration
  - Diffusion
  - Osmosis

ANS: D

Osmosis is the passage of water from less concentrated solution to more concentrated solution.

DIF: Cognitive Level: Knowledge

REF: 8

OBJ: 10

TOP: Transport processes  
MSC: NCLEX: Physiological Integrity

KEY: Nursing Process Step: Assessment

20. What is the type of tissue composed of cells that contract in response to a message from the brain or spinal cord?
- a. Epithelial
  - b. Connective
  - c. Membrane
  - d. Muscle

ANS: D

Muscle tissue is composed of cells that contract in response to a message from the brain or spinal cord.

DIF: Cognitive Level: Knowledge      REF: 9      OBJ: 7  
TOP: Tissues      KEY: Nursing Process Step: Assessment  
MSC: NCLEX: Physiological Integrity

21. What is the type of tissue associated with the storage of fat?
- a. Areolar tissue
  - b. Adipose tissue
  - c. Osseous tissue
  - d. Muscle tissue

ANS: B

Adipose tissue is associated with the important function of storing fat.

DIF: Cognitive Level: Knowledge      REF: 10      OBJ: 11  
TOP: Tissues      KEY: Nursing Process Step: Assessment  
MSC: NCLEX: Physiological Integrity

22. What are the thin sheets of tissue that lubricate and line the body surfaces that open to the outside environment?
- a. Mucous membranes
  - b. Serous membranes
  - c. Cytoplasm
  - d. Involuntary visceral muscles

ANS: A

Mucous membranes secrete mucus. They line the body surfaces that open to the outside environment.

DIF: Cognitive Level: Knowledge      REF: 9      OBJ: 7  
TOP: Tissues      KEY: Nursing Process Step: Assessment  
MSC: NCLEX: Physiological Integrity

23. What is the process by which a cell digests a foreign material by surrounding it?
- a. Pinocytosis
  - b. Phagocytosis
  - c. Absorption
  - d. Diffusion

ANS: B

Phagocytosis is the process that permits a cell to engulf or surround any foreign material and digest it.

DIF: Cognitive Level: Knowledge  
TOP: Active transport processes  
MSC: NCLEX: Physiological Integrity

REF: 7  
OBJ: 10  
KEY: Nursing Process Step: Assessment

24. Active transport in the movement of ions and other water-soluble particles across cell membranes requires that the body uses its:
- rapid filtration.
  - charged diffusion.
  - a chemical pump.
  - osmosis.

ANS: C

Active transport of ions and other water-soluble particles of the cell membrane require a chemical pump, such as insulin, to move glucose into the cell.

DIF: Cognitive Level: Comprehension  
TOP: Active transport processes  
MSC: NCLEX: Physiological Integrity

REF: 7  
OBJ: 10  
KEY: Nursing Process Step: Assessment

25. What is the term for the passage of water containing dissolved materials through a membrane as the result of a greater mechanical force on one side?
- Metabolism
  - Mitosis
  - Filtration
  - Osmosis

ANS: C

Filtration is the movement of water and particles through a membrane by a force from either pressure or gravity.

DIF: Cognitive Level: Knowledge  
TOP: Passive transport processes  
MSC: NCLEX: Physiological Integrity

REF: 8  
OBJ: 10  
KEY: Nursing Process Step: Assessment

26. The nurse is aware that when a patient complains of pain in the epigastric region, the source of the pain is most likely to be a disorder involving the:
- gallbladder.
  - transverse colon.
  - stomach.
  - appendix.

ANS: C

The epigastric region of the abdomen is comprised of parts of the right and left lobes of the liver and a large portion of the stomach.

DIF: Cognitive Level: Comprehension  
TOP: Epigastric region  
MSC: NCLEX: Physiological Integrity

REF: 3  
OBJ: 5  
KEY: Nursing Process Step: Assessment

27. What are tissues that cover the outside of the body and some internal structures?
- Connective
  - Epithelial
  - Nerve
  - Muscle

ANS: B

Epithelial tissue covers the outside of the body and some of the internal structures.

DIF: Cognitive Level: Knowledge REF: 8 OBJ: 7  
TOP: Tissues KEY: Nursing Process Step: Assessment  
MSC: NCLEX: Physiological Integrity

28. When the nurse assesses an arm in proximal to distal order, the assessment is performed from:
- the shoulder to the fingers.
  - front to back.
  - fingers to the center of the body.
  - center of the body to the fingers.

ANS: A

Proximal is nearest the origin of the structure. Distal is farthest from the origin of the structure.

DIF: Cognitive Level: Comprehension REF: 2 OBJ: 3  
TOP: Anatomic terminology KEY: Nursing Process Step: Assessment  
MSC: NCLEX: Physiological Integrity

29. What is the function of epithelial membranes?
- Secretes mucus, lines ends of bones, and lines bursae.
  - Lines ends of bones, secretes synovial fluid, and lines internal surfaces of organs.
  - Covers the wall of lower digestive tract, secretes mucus, and lines lungs, peritoneum, and pericardium.
  - Lines lungs, peritoneum, and pericardium, and secretes synovial fluid.

ANS: C

The epithelial membrane secretes mucus, lines the lungs, peritoneum, and pericardium, and covers the wall of the lower digestive tract. The synovial membrane secretes synovial fluid to prevent friction between joints and the ends of bones, and lines the bursae found between moving body parts.

DIF: Cognitive Level: Knowledge REF: 9 OBJ: 7  
TOP: Tissues KEY: Nursing Process Step: Assessment  
MSC: NCLEX: Physiological Integrity

30. The nurse explains that pinocytosis is a process by which cells:
- divide.
  - take in extracellular fluid.
  - use a chemical pump.
  - convert mitochondria.

ANS: B



Pinocytosis is a process by which the cell wall makes an indentation allowing extracellular fluid to fill in, then encloses it into the cell.

DIF: Cognitive Level: Comprehension REF: 7 OBJ: 10  
TOP: Pinocytosis KEY: Nursing Process Step: Implementation  
MSC: NCLEX: Physiological Integrity

31. What is the most complex structural level of organization of the body?
- Body as a whole
  - Cellular
  - Organs
  - Chemical

ANS: A

The structural levels of organization progress from the least complex (chemical) through cells, tissues, organs, systems to the most complex (the body as a whole).

DIF: Cognitive Level: Comprehension REF: 3 OBJ: 6  
TOP: Structural levels of organization KEY: Nursing Process Step: N/A  
MSC: NCLEX: N/A

32. Using a poster, the nurse demonstrates the protection of the nucleus. Which layer is the most superficial?
- Endoplasmic reticulum
  - Nuclear membrane
  - Plasma membrane
  - Cytoplasm

ANS: C

The most superficial covering of the nucleus is the plasma membrane, under which is the cytoplasm containing the endoplasmic reticulum, nuclear membrane, and nucleus.

DIF: Cognitive Level: Application REF: 5 OBJ: 8  
TOP: Protective covering of nucleus KEY: Nursing Process Step: Implementation  
MSC: NCLEX: Physiological Integrity

## MULTIPLE RESPONSE

1. Which are among the 11 body systems? (*Select all that apply.*)
- Lymphatic
  - Cellular
  - Digestive
  - Reproductive
  - Accessory
  - Spinal cord

ANS: A, C, D

There are 11 body systems: integumentary, respiratory, skeletal, digestive, muscular, nervous, endocrine, urinary, reproductive, cardiovascular, and lymphatic.

DIF: Cognitive Level: Knowledge REF: 12 OBJ: 7  
TOP: Body systems KEY: Nursing Process Step: Assessment

MSC: NCLEX: Physiological Integrity

2. Which of the following are characteristics of visceral muscles? (*Select all that apply.*)
- a. Involuntary
  - b. Smooth
  - c. Striated
  - d. Independent from the spinal cord
  - e. Voluntary
  - f. Present in the blood vessels

ANS: A, B, F

Smooth muscles are smooth, involuntary, and respond to messages from the spinal cord.

DIF: Cognitive Level: Application

REF: 9

OBJ: 7

TOP: Voluntary muscle

KEY: Nursing Process Step: Assessment

MSC: NCLEX: Physiological Integrity

3. Which of the following are passive transport mechanisms that move material across the cell membranes? (*Select all that apply.*)
- a. Diffusion
  - b. Evaporation
  - c. Filtration
  - d. Osmosis
  - e. Mitosis
  - f. Anaphase

ANS: A, C, D

The passive transport systems are diffusion, filtration, and osmosis.

DIF: Cognitive Level: Comprehension

REF: 8

OBJ: 10

TOP: Passive transport system

KEY: Nursing Process Step: Assessment

MSC: NCLEX: Physiological Integrity

4. The nurse clarifies that the dorsal cavity is composed of the: (*Select all that apply.*)
- a. Descending colon
  - b. Kidneys
  - c. Gallbladder
  - d. Brain
  - e. Pancreas
  - f. Spinal cavities

ANS: D, F

The dorsal cavity is composed of the brain and the spinal cavities. The spinal cavities hold the cord and the meninges.

DIF: Cognitive Level: Comprehension

REF: 3

OBJ: 5

TOP: Dorsal cavity

KEY: Nursing Process Step: Implementation

MSC: NCLEX: Physiological Integrity

## COMPLETION

1. The nurse clarifies that the three functions of epithelial tissue are protection, \_\_\_\_\_, and secretion.

ANS:  
absorption

The function of epithelial tissue is protection by covering the body and preventing invasion; absorption by absorbing material; and secretion by secreting mucus to line and moisten the body surfaces.

DIF: Cognitive Level: Comprehension      REF: 11      OBJ: 7  
TOP: Epithelial tissue function      KEY: Nursing Process Step: Implementation  
MSC: NCLEX: Physiological Integrity

2. The nurse explains that \_\_\_\_\_ are small saclike structures inside the cell that digest compounds that have invaded the cell.

ANS:  
lysosomes

Lysosomes are small saclike structures inside the cell that digest compounds that have invaded the cell.

DIF: Cognitive Level: Knowledge      REF: 6      OBJ: 8  
TOP: Lysosomes      KEY: Nursing Process Step: Implementation  
MSC: NCLEX: Physiological Integrity

3. The body plane that divides the body into the ventral and dorsal section is the \_\_\_\_\_ plane.

ANS:  
coronal

The coronal plane divides the body into ventral and dorsal (front and back) sections.

DIF: Cognitive Level: Comprehension      REF: 2      OBJ: 3  
TOP: Coronal plane      KEY: Nursing Process Step: Assessment  
MSC: NCLEX: Physiological Integrity