

2

Body Organization and Anatomical Nomenclature

Answers and Explanations

I. Classification and Characteristics of Humans

A. Multiple Choice Questions

1. (d) – Humans belong to the phylum Chordata within the kingdom Animalia and to the family Hominidae within the class Mammalia and the order Primates.
2. (a) – The most distinguishing characteristic of humans is an impressive intellect.
3. (c) – The three principle characteristics of chordates are a dorsal hollow nerve cord, a notochord, and pharyngeal pouches.
4. (b) – The nucleus pulposus, a remnant of the notochord, is the cushioning gelatinous mass that forms the center of an intervertebral disc.

B. True–False Questions

1. True – The auditory canal connects the cavity of the middle ear with the cavity of the pharynx and is a direct remnant of a pharyngeal pouch.
2. False – Mammals are characterized by a muscular diaphragm and a four-chambered heart with a left aortic arch.
3. True – Although other primates have these same characteristics, they are especially well developed in humans, and to a large degree account for our cultural attainments.
4. False – The term *chordate* refers to the animals within the phylum Chordata; The term *vertebrate* refers to the animals within the subphylum Vertebrata.

II. Body Organization

A. Multiple Choice Questions

1. (b) – Cells are the basic structural and functional units of life.
2. (c) – Tissues are composed of a predominant kind of cell.
3. (c) – Vertebrate organisms are composed of systems, systems of organs, organs of tissues, and tissues of aggregations of cells.

B. True–False Questions

1. False – An organelle is a specialized structure within a cell that performs a specific function.
2. False – A tissue is an aggregation of similar cells. An organ is composed of two or more tissue types that perform a specific function.
3. False – A systemic approach focuses on studying individual systems of the body. A regional approach focuses on studying separate regions of the body.

III. Anatomical Terminology

A. Multiple Choice Questions

1. (a) – The significance of this terminology can be seen in the shape of the cochlea, located in the inner ear.
2. (a) – The term *orchi-* refers to the testicles, and *-ectomy* means “the removal of.”

B. Completion Questions

1. Latin
2. suffix

IV. Planes of Reference and Descriptive Terminology

A. Multiple Choice Questions

1. (d) – The coronal plane may also be referred to as the frontal plane.
2. (a) – In the anatomical position, the arms are to the sides with the thumbs turned outward and the palms directed forward.
3. (b) – The wrist is distal to the elbow; in other words, the elbow is proximal to the wrist.
4. (d) – Audition is simply the act of hearing, whereas auscultation is listening specifically to sounds arising from organs. Palpation and percussion involve, respectively, feeling and tapping specific portions of the body.

B. Completion Questions

1. midsagittal
2. transverse (cross-sectional)
3. palpation

C. Matching Questions

1. (d)
2. (a)
3. (c)
4. (b)
5. (e)

V. Body Regions

A. Multiple Choice Questions

1. (b) – The perineum is located within the pelvic region.
2. (c) – The perineal region, located on the inferior aspect of the pelvic region, includes the external genitalia.
3. (a) – The cervix pertains to the neck region.
4. (b) – The hypogastric region is located superior to the pelvic region within the lower middle section of the abdomen.
5. (a) – *Omos* is the technical term for shoulder, *axilla* for the armpit, and *popliteal* for the region of the posterior knee.

B. True–False Questions

1. True – The cranial region of the head supports and surrounds the brain, and the facial region of the head supports the eyes and nose and forms the framework of the oral cavity.
2. False – The thorax includes all of the upper trunk, or torso—front, back, and sides.
3. False – The appendix is located in the hypogastric region.
4. True – Knowledge of the derivations of these terms and others facilitates learning anatomical terminology.
5. True – The perineum is the region forming the inferior aspect of the pelvis.

VI. Body Cavities and Membranes

A. Multiple Choice Questions

1. (c) – The spinal cavity is part of the posterior (dorsal) cavity that houses the brain and spinal cord.
2. (b) – Each lung is covered by a visceral pleura and is surrounded by a pleural cavity.
3. (b) – The meaning of *parietal* is opposite that of *visceral*; the latter term means internal organ within the trunk of the body.
4. (a) – Nutrients are supplied to internal organs via the blood rather than through serous membranes.
5. (a) – The derivation of the term *pericardial* provides the explanation for this answer. The prefix *peri-* means “upon,” and the suffix *-cardia* means “heart.”

B. True–False Questions

1. True – The brain and spinal cord are continuous at the foramen magnum of the skull, and together form the central nervous system.
2. True – The parietal pleura lines the superior side (thoracic cavity), and the parietal peritoneum lines the inferior side (abdominal cavity).
3. False – The visceral peritoneum covers the abdominal visceral organs, and the parietal peritoneum lines the inside of the abdominal wall.
4. False – These are serous membranes, *not* mucous membranes.
5. False – Retroperitoneal organs, such as the kidney and adrenal gland, are not covered by visceral peritoneum.

VII. Chapter Review

A. Completion Questions

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| 1. <i>Homo sapiens</i> | 7. axillary fossa (axilla) |
| 2. Chordata | 8. thigh |
| 3. Cells | 9. plantar |
| 4. tissue | 10. thorax/abdomen |
| 5. system | 11. anatomical position |
| 6. systematic | 12. Serous |