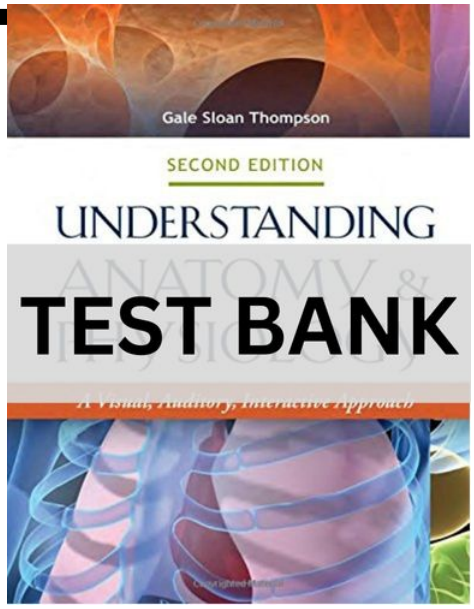
Chapter 1: Orientation to the Human Body



MATCHING

Match the name of each organ system to its key components.

a. integumentary system
b. skeletal system
c. muscular system
d. lymphatic system
e. respiratory system
f. urinary system
g. nervous system
h. endocrine system
i. circulatory system
j. digestive system
k. male reproductive system
l. female reproductive system

1. Consists of stomach, small and large intestines, liver, and pancreas
2. Consists of skin, hair, and nails
3. Consists of kidneys, ureters, urinary bladder, and urethra
4. Consists primarily of skeletal muscles
5. Consists of heart, arteries, veins, and capillaries
6. Consists of brain, spinal cord, nerves, and sense organs
7. Consists of ovaries, fallopian tubes, uterus, vagina, and breasts
8. Consists of pituitary gland, adrenals, pancreas, and thyroid
9. Consists of lymph nodes, lymphatic vessels, lymph, thymus, and spleen
10. Consists of the nose, pharynx, larynx, trachea, bronchi, and lungs

1. ANS: J PTS: 1 DIF: E REF: 6
   KEY: REMEMBERING
2. ANS: A PTS: 1 DIF: E REF: 5
   KEY: REMEMBERING
3. ANS: F PTS: 1 DIF: E REF: 5
   KEY: REMEMBERING
4. ANS: C PTS: 1 DIF: E REF: 5
   KEY: REMEMBERING
5. ANS: I PTS: 1 DIF: E REF: 6
   KEY: REMEMBERING
6. ANS: G PTS: 1 DIF: E REF: 6
   KEY: REMEMBERING
7. ANS: L PTS: 1 DIF: E REF: 6
   KEY: REMEMBERING
8. ANS: H PTS: 1 DIF: E REF: 6

KEY: REMEMBERING

9. ANS: D PTS: 1 DIF: E REF: 5
KEY: REMEMBERING
10. ANS: E PTS: 1 DIF: E REF: 5
KEY: REMEMBERING

Match each term to its definition.

a. distal
b. proximal
c. medial
d. lateral
e. superior
f. inferior
g. anterior
h. posterior
i. superficial
j. deep

11. Toward the back of the body
12. Farthest from the point of origin
13. Above
14. At or near the body's surface
15. Toward the body's midline
16. Closest to the point of origin
17. Toward the front of the body
18. Below

11. ANS: H PTS: 1 DIF: E REF: 7
KEY: REMEMBERING
12. ANS: A PTS: 1 DIF: E REF: 7
KEY: REMEMBERING
13. ANS: E PTS: 1 DIF: E REF: 7
KEY: REMEMBERING
14. ANS: I PTS: 1 DIF: E REF: 7
KEY: REMEMBERING
15. ANS: C PTS: 1 DIF: E REF: 7
KEY: REMEMBERING
16. ANS: B PTS: 1 DIF: E REF: 7
KEY: REMEMBERING
17. ANS: G PTS: 1 DIF: E REF: 7
KEY: REMEMBERING
18. ANS: F PTS: 1 DIF: E REF: 7
KEY: REMEMBERING

Match each term to its location on the body.

a. frontal
b. deltoid
c. brachial
d. inguinal
e. pectoral
f. sternal
g. digital
h. antecubital
i. buccal
j. cephalic
k. lumbar
l. calcaneal
m. plantar
n. pedal
o. tarsal
p. axillary

19. Arm
20. Lower back
21. Armpit
22. Heel
23. Fingers

24. Shoulder
25. Sole of the foot
26. Forehead
27. Chest
28. Front of elbow
29. Foot
30. Cheek
31. Groin
32. Ankle

19. ANS: C PTS: 1 DIF: M REF: 9
    KEY: REMEMBERING
20. ANS: K PTS: 1 DIF: M REF: 9
    KEY: REMEMBERING
21. ANS: P PTS: 1 DIF: M REF: 9
    KEY: REMEMBERING
22. ANS: L PTS: 1 DIF: M REF: 9
    KEY: REMEMBERING
23. ANS: G PTS: 1 DIF: M REF: 9
    KEY: REMEMBERING
24. ANS: B PTS: 1 DIF: M REF: 9
    KEY: REMEMBERING
25. ANS: M PTS: 1 DIF: M REF: 9
    KEY: REMEMBERING
26. ANS: A PTS: 1 DIF: M REF: 9
    KEY: REMEMBERING
27. ANS: E PTS: 1 DIF: M REF: 9
    KEY: REMEMBERING
28. ANS: H PTS: 1 DIF: M REF: 9
    KEY: REMEMBERING
29. ANS: N PTS: 1 DIF: M REF: 9
    KEY: REMEMBERING
30. ANS: I PTS: 1 DIF: M REF: 9
    KEY: REMEMBERING
31. ANS: D PTS: 1 DIF: M REF: 9
    KEY: REMEMBERING
32. ANS: O PTS: 1 DIF: M REF: 9
    KEY: REMEMBERING

MULTIPLE CHOICE

33. Which organ system produces immune cells and has a role in fluid balance?
    a. Integumentary system
    b. Circulatory system
    c. Endocrine system
    d. Lymphatic system

    ANS: D
    The lymphatic system produces immune cells and has a role in fluid balance. The integumentary system has a role in protection, temperature regulation, water retention, and sensation. The circulatory system distributes oxygen, nutrients, water, hormones, and other electrolytes; it also has a role in fluid and electrolyte balance. The endocrine system produces hormones and regulates other systems.

PTS: 1 DIF: E REF: 5 KEY: REMEMBERING

34. Which organ system protects organs, allows for support and movement, and also plays a key role in blood formation?
    a. Circulatory system
    b. Muscular system
    c. Skeletal system
    d. Nervous system

    ANS: C
    The skeletal system protects organs, gives the body support and allows it to move, and also plays a role in the formation of blood cells. The circulatory system distributes oxygen, nutrients, water, hormones, and other electrolytes; it also has a role in fluid and electrolyte balance. The muscular system allows the body to move and produces heat. The nervous system regulates and coordinates other systems, and also has a role in sensation and memory.

    PTS: 1 DIF: E REF: 5 KEY: REMEMBERING

35. Which type of tissue covers the body's surface?
    a. Epithelial
    b. Connective
    c. Muscle
    d. Nerve

    ANS: A
    Epithelial tissue covers the body surfaces. Connective tissue connects and supports parts of the body. Muscle contracts to produce movement. Nerve tissue generates and transmits impulses to regulate body function.

    PTS: 1 DIF: E REF: 4 KEY: REMEMBERING

36. Bone, cartilage, and adipose tissue are all types of
    a. epithelial tissue.
    b. connective tissue.
    c. muscle.
    d. nerve tissue.

    ANS: B
    Bone, cartilage, and adipose tissue are all types of connective tissue.

    PTS: 1 DIF: M REF: 4 KEY: UNDERSTANDING

37. The type of plane that divides the body horizontally into upper and lower portions is called a
    a. sagittal plane.
    b. frontal plane.
    c. transverse plane.
    d. coronal plane.

    ANS: C
    A transverse plane divides the body horizontally into upper and lower portions. A sagittal plane divides the body lengthwise into right and left sides. A frontal plane divides the body lengthwise into anterior and posterior positions. A coronal plane is another name for a frontal plane.

    PTS: 1 DIF: E REF: 8 KEY: REMEMBERING

38. Most illustrations that show the contents of the abdominal cavity use what type of plane?

a. Sagittal
b. Transverse
c. Horizontal
d. Frontal

ANS: D
Most illustrations that show the contents of the abdominal cavity use a frontal plane. A sagittal plane is used to illustrate the organs of the head or pelvic cavity. A horizontal plane is another name for a transverse plane. A transverse plane is used by computed tomography scanners.

PTS: 1 DIF: M REF: 8 KEY: APPLYING

39. Which of the following correctly describes the anatomical position?
a. Standing erect, facing forward, with arms outstretched
b. Standing erect with arms at sides, palms facing backward, face and feet facing forward
c. Standing erect with arms overhead, face and feet facing forward
d. Standing erect with arms at sides and with palms, face, and feet facing forward

ANS: D
The anatomical position involves standing erect with arms at the sides and with face, palms, and feet facing forward.

PTS: 1 DIF: E REF: 7 KEY: REMEMBERING

40. The dorsal cavity contains the
a. thoracic and abdominopelvic cavities.
b. cranial and spinal cavities.
c. mediastinum and pleural cavities.
d. abdominal and pelvic cavities.

ANS: B
The dorsal cavity contains the cranial and spinal cavities. The other cavities are all contained in the ventral cavity.

PTS: 1 DIF: M REF: 10 KEY: REMEMBERING

41. The heart is located in the mediastinum, which is part of what cavity?
a. Thoracic cavity
b. Dorsal cavity
c. Spinal cavity
d. Cranial cavity

ANS: A
The mediastinum is part of the thoracic cavity. The dorsal cavity is located at the back of the body. The spinal and cranial cavities are part of the dorsal cavity.

PTS: 1 DIF: E REF: 10 KEY: REMEMBERING

42. A patient comes to the hospital for treatment of pain in the right hypochondriac region. Based on the organs located in that region, which organ might be causing the pain?
a. Stomach
b. Small intestines
c. Gallbladder
d. Appendix

ANS: C

The gallbladder is located in the right hypochondriac region. The stomach is found in the epigastric region. The small intestines are in the right and left lumbar regions, right and left iliac regions, and hypogastric region. The appendix is in the right iliac region.

PTS: 1 DIF: D REF: 11 KEY: ANALYZING

COMPLETION

43. The structure of the body is called _____; how it functions is called _____.

ANS: anatomy, physiology

PTS: 1 DIF: E REF: 3 KEY: REMEMBERING

44. The human body is organized from the very _____ to the very _____.

ANS: simple, complex

PTS: 1 DIF: E REF: 4 KEY: REMEMBERING

45. The region proximal to the patellar region and distal to the inguinal region is the _____ region.

ANS: femoral

PTS: 1 DIF: D REF: 9 KEY: APPLYING

46. The region superior to the pubic region and inferior to the abdominal region is the _____ region.

ANS: pelvic

PTS: 1 DIF: D REF: 9 KEY: APPLYING

47. The two major body cavities are the _____ and _____ cavities.

ANS:
dorsal, ventral
ventral, dorsal

PTS: 1 DIF: E REF: 10 KEY: REMEMBERING

48. The constancy of the body's internal environment is called _____.

ANS: homeostasis

PTS: 1 DIF: E REF: 12 KEY: REMEMBERING

49. _____ feedback is when an effector opposes the stimulus and reverses the direction of change.

ANS: Negative

PTS: 1 DIF: M REF: 13 KEY: REMEMBERING

50. During childbirth, the hormone oxytocin is released, which causes even greater contractions and an even greater release of oxytocin. This is an example of _____ feedback.

ANS: positive

PTS: 1 DIF: M REF: 13 KEY: APPLYING

Chapter 2: Chemistry of Life

MATCHING

Match each term to its definition or characteristic.

a. galactose
b. electron
c. radioactivity
d. proton
e. amino group
f. glucose
g. compounds
h. carboxyl group
i. cation
j. glycogen
k. catalyst
l. polar
m. buffer
n. anion
o. enzymes
p. matter
q. neutron
r. atomic weight
s. fructose

1. Positively charged atomic particle
2. Stored form of sugar in the human body
3. Having oppositely charged ends
4. COOH molecule
5. Atom with a positive charge
6. Substances that donate or remove H^+ ions
7. Atom with a negative charge
8. Primary source of energy used by most of the body's cells
9. Substance that enhances the rate of a chemical reaction
10. NH_3 molecule

1. ANS: D PTS: 1 DIF: E REF: 19
   KEY: REMEMBERING
2. ANS: J PTS: 1 DIF: E REF: 29
   KEY: REMEMBERING
3. ANS: L PTS: 1 DIF: E REF: 22
   KEY: REMEMBERING
4. ANS: H PTS: 1 DIF: E REF: 31
   KEY: REMEMBERING
5. ANS: I PTS: 1 DIF: E REF: 21
   KEY: REMEMBERING
6. ANS: M PTS: 1 DIF: E REF: 28
   KEY: REMEMBERING
7. ANS: N PTS: 1 DIF: E REF: 21
   KEY: REMEMBERING
8. ANS: F PTS: 1 DIF: E REF: 29
   KEY: REMEMBERING

9. ANS: K PTS: 1 DIF: E REF: 24
   KEY: REMEMBERING
10. ANS: E PTS: 1 DIF: E REF: 31
    KEY: REMEMBERING

MULTIPLE CHOICE

11. What differentiates one element from another?
    a. The number of shells encircling the nucleus
    b. The number of electrons
    c. The number of neutrons
    d. The number of protons

    ANS: D
    The number of protons in the nucleus differentiates one element from another. The number of shells around the nucleus depends on the number of electrons, which is equal to the number of protons. The number of neutrons can vary but does not change the element.

    PTS: 1 DIF: E REF: 19 KEY: UNDERSTANDING

12. What distinguishes elements from compounds?
    a. Elements can be broken down into two or more compounds.
    b. Elements have only one kind of atom.
    c. Elements do not combine with compounds.
    d. Elements do not react with other elements.

    ANS: B
    Elements have only one kind of atom. They cannot be broken down into other constituents. Compounds can be broken down into two or more elements, not the other way around. Elements combine or react with other compounds as well as with other elements.

    PTS: 1 DIF: E REF: 17 KEY: UNDERSTANDING

13. Which four elements make up more than 96% of the human body?
    a. Oxygen, carbon, hydrogen, and iron
    b. Carbon, hydrogen, calcium, and oxygen
    c. Nitrogen, oxygen, carbon, and sodium
    d. Oxygen, carbon, hydrogen, and nitrogen

    ANS: D
    Oxygen, carbon, hydrogen, and nitrogen are the most abundant elements in the human body and account for 96% of its mass. Calcium, iron, and sodium are critically important to the body's structure and function but combined they make up less than 2% of its mass.

    PTS: 1 DIF: E REF: 17 KEY: REMEMBERING

14. Electrons are found
    a. orbiting around the nucleus in circular paths.
    b. moving around the nucleus in concentric clouds.
    c. in individual clouds (one electron per cloud) that orbit the nucleus.
    d. in fixed positions on the rings that surround the nucleus.

    ANS: B

Electrons move around the nucleus in concentric clouds that represent different energy levels. Electrons do not orbit in circular paths like the planets orbit the Sun. The electron cloud can contain many electrons and does not orbit the nucleus but surrounds it. Electrons do not maintain fixed positions.

PTS: 1 DIF: M REF: 19 KEY: UNDERSTANDING

15. Where are protons and neutrons located?
    a. Protons and neutrons orbit the nucleus in one or more concentric clouds.
    b. Protons orbit the nucleus in a cloud, and neutrons reside in the nucleus.
    c. Protons and neutrons both reside in the nucleus.
    d. Neutrons orbit the nucleus in a cloud, whereas protons reside in the nucleus.

    ANS: C
    Protons and neutrons are located in the nucleus of the atom. Neither particle ever orbits the nucleus.

    PTS: 1 DIF: E REF: 19 KEY: REMEMBERING

16. What are the electrons in the outer energy level (shell) called?
    a. Covalent electrons
    b. Bonding electrons
    c. Valence electrons
    d. Ionic electrons

    ANS: C
    The outer energy level is called the *valence shell* and the electrons are called *valence electrons*. Covalent refers to a type of chemical bond between atoms. Although valence electrons are involved in chemical bonding, the term "bonding electrons" is not used. Ionic refers to a type of chemical bond that results in charged particles.

    PTS: 1 DIF: M REF: 20 KEY: UNDERSTANDING

17. An atom is stable when the outer shell contains how many electrons?
    a. Four
    b. Six
    c. Eight
    d. Twelve

    ANS: C
    Atoms are stable when the outer shell has eight electrons. The shell closest to the nucleus can hold two electrons; each shell after the inner shell can hold eight.

    PTS: 1 DIF: E REF: 19 KEY: UNDERSTANDING

18. Why do atoms lose, gain, or share electrons?
    a. To release energy
    b. To obtain stability
    c. To increase bonding
    d. To form compounds

    ANS: B
    Atoms lose, gain, or share electrons to achieve a full outer shell and stability. Energy is not released by bonding but is released by breaking bonds. The bonding of two atoms does not necessarily result in a compound; atoms of the same element bond to each other.

    PTS: 1 DIF: M REF: 20 KEY: REMEMBERING