***Human Anatomy, 8e* (Marieb/Mitchell/Smith)**

**Chapter 1 The Human Body: An Orientation**

1.1 Multiple Choice Questions

Use the diagram below to answer the following questions.



**Figure 1.1**

1) Which letter indicates the mental region?

A) A

B) B

C) C

D) D

E) E

Answer: A

Diff: 2 Page Ref: 7

2) Which letter indicates the umbilical region?

A) A

B) B

C) C

D) D

E) E

Answer: B

Diff: 2 Page Ref: 7

3) Which letter indicates the hallux?

A) A

B) B

C) C

D) D

E) E

Answer: E

Diff: 2 Page Ref: 7

4) Which letter indicates the inguinal region?

A) A

B) B

C) C

D) D

E) E

Answer: C

Diff: 2 Page Ref: 7

5) Which letter indicates the femoral region?

A) A

B) B

C) C

D) D

E) E

Answer: D

Diff: 2 Page Ref: 7



**Figure 1.2**

Use the diagram above to answer the following questions.

6) Which letter indicates the lumbar region?

A) A

B) B

C) C

D) D

E) E

Answer: D

Diff: 2 Page Ref: 7

7) Which letter indicates the acromial region?

A) A

B) B

C) C

D) D

E) E

Answer: B

Diff: 3 Page Ref: 7

8) Which letter indicates the scapular region?

A) A

B) B

C) C

D) D

E) E

Answer: C

Diff: 2 Page Ref: 7

9) Which letter indicates the popliteal region?

A) A

B) B

C) C

D) D

E) E

Answer: E

Diff: 2 Page Ref: 7

10) Which letter indicates the occipital region?

A) A

B) B

C) C

D) D

E) E

Answer: A

Diff: 3 Page Ref: 7

11) The chest is \_\_\_\_\_\_\_\_ to the abdomen.

A) superior

B) lateral

C) anterior

D) proximal

E) deep

Answer: A

Diff: 2 Page Ref: 7-8

12) The sternal region is \_\_\_\_\_\_\_\_ to the scapular region.

A) superior

B) lateral

C) anterior

D) proximal

E) deep

Answer: C

Diff: 2 Page Ref: 7-8

13) The knee is \_\_\_\_\_\_\_\_ to the foot.

A) superior

B) lateral

C) anterior

D) proximal

E) deep

Answer: D

Diff: 3 Page Ref: 7-8

14) The brain is \_\_\_\_\_\_\_\_ to the skull.

A) superior

B) lateral

C) anterior

D) proximal

E) deep

Answer: E

Diff: 2 Page Ref: 7-8

15) The thumb is \_\_\_\_\_\_\_\_ to the index finger.

A) superior

B) lateral

C) anterior

D) proximal

E) deep

Answer: B

Diff: 3 Page Ref: 7-8

16) Muscles are \_\_\_\_\_\_\_\_ to the skin.

A) superior

B) lateral

C) anterior

D) proximal

E) deep

Answer: E

Diff: 1 Page Ref: 7-8

17) The axillary region is \_\_\_\_\_\_\_\_ to the sternum.

A) superior

B) lateral

C) anterior

D) proximal

E) deep

Answer: B

Diff: 2 Page Ref: 7-8

18) The lip is \_\_\_\_\_\_\_\_ to the chin.

A) superior

B) lateral

C) anterior

D) proximal

E) deep

Answer: A

Diff: 2 Page Ref: 7-8

19) The eye is \_\_\_\_\_\_\_\_ to the occipital region.

A) superior

B) lateral

C) anterior

D) proximal

E) deep

Answer: C

Diff: 2 Page Ref: 7-8

20) The acromial region is \_\_\_\_\_\_\_\_ to the scapular region.

A) superior

B) lateral

C) anterior

D) proximal

E) deep

Answer: A

Diff: 2 Page Ref: 7-8

21) The gluteal region is \_\_\_\_\_\_\_\_ to the popliteal region.

A) superior

B) lateral

C) anterior

D) proximal

E) deep

Answer: A

Diff: 2 Page Ref: 7-8

22) The femoral region is \_\_\_\_\_\_\_\_ to the plantar region.

A) superior

B) lateral

C) anterior

D) proximal

E) deep

Answer: D

Diff: 2 Page Ref: 7-8

23) The heart is \_\_\_\_\_\_\_\_ to the sternum.

A) superior

B) lateral

C) anterior

D) proximal

E) deep

Answer: E

Diff: 2 Page Ref: 7-8

24) The pubic area is \_\_\_\_\_\_\_\_ to the gluteal region.

A) superior

B) lateral

C) anterior

D) proximal

E) deep

Answer: C

Diff: 2 Page Ref: 7-8

25) The umbilical region is \_\_\_\_\_\_\_\_ to the lumbar region.

A) superior

B) lateral

C) anterior

D) proximal

E) deep

Answer: C

Diff: 2 Page Ref: 7-8

26) The smallest living unit is

A) a cell.

B) an organ.

C) a human being.

D) a molecule.

Answer: A

Diff: 1 Page Ref: 3

27) Which branch of anatomy studies the structural changes that occur as one ages?

A) developmental anatomy

B) pathological anatomy

C) regional anatomy

D) surface anatomy

Answer: A

Diff: 2 Page Ref: 2

28) Which organ system includes the pancreas, thymus, testes, and pituitary gland?

A) integumentary

B) endocrine

C) reproductive

D) lymphatic

Answer: B

Diff: 2 Page Ref: 3 &5

29) A coronal section through the human body can

A) pass through both the nose and the occipital region.

B) pass through both ears.

C) provide mirror right and left images.

D) lie in a horizontal plane.

Answer: B

Diff: 2 Page Ref: 7, 9

30) During the process of \_\_\_\_\_\_\_\_, noncellular artifacts can be introduced into histology samples.

A) time

B) observation

C) staining

D) photography

Answer: C

Diff: 2 Page Ref: 14

31) The cervical region is the

A) thigh.

B) calf.

C) neck.

D) head.

Answer: C

Diff: 1 Page Ref: 7

32) The "CT" in "CT scanning" stands for

A) cut transversely.

B) Charles Thorgaard, the inventor's name.

C) correlated thickness.

D) computed tomography.

Answer: D

Diff: 1 Page Ref: 16

33) What is the function of serous membranes?

A) They act like wrapping paper to hold visceral organs together.

B) They contain gland cells that secrete mucus.

C) They halt the spread of infection.

D) They reduce friction so that viscera move freely.

Answer: D

Diff: 2 Page Ref: 12

34) The dorsal hollow nerve cord

A) develops into the brain and spinal cord.

B) is a primitive supporting rod.

C) contains the notochord.

D) is the same as the human backbone.

Answer: A

Diff: 2 Page Ref: 10

35) The main purpose of fixation is

A) to preserve the tissue.

B) to mend breaks in tissue sections.

C) to make an organ easier to section.

D) to stick tissue sections to a glass slide.

Answer: A

Diff: 2 Page Ref: 14

36) A histologist examines a specimen that has an epithelium overlying some smooth muscle. This specimen is part of

A) a molecule.

B) a cell.

C) a tissue.

D) an organ.

Answer: D

Diff: 2 Page Ref: 5

37) An example of a tissue in the body is

A) the stomach.

B) a muscle cell.

C) epithelium.

D) a macromolecule.

Answer: C

Diff: 2 Page Ref: 4

38) An example of an organ is

A) a fat cell.

B) the intestine.

C) epithelium.

D) the cardiovascular system (but not the circulatory system).

Answer: B

Diff: 1 Page Ref: 5

39) Which organ system consists of vessels that do not carry blood, but pick up fluids (and some cells) that are leaked from the blood?

A) urinary

B) endocrine

C) integumentary

D) lymphatic

Answer: D

Diff: 3 Page Ref: 4-5

40) Large molecules such as proteins are called

A) cells.

B) macromolecules.

C) multi-atom units.

D) cellular organelles.

Answer: B

Diff: 1 Page Ref: 4

41) Which organ system covers the external surface of the body, but not the internal surface of the mouth?

A) lymphatic

B) digestive

C) integumentary

D) cutaneous

Answer: C

Diff: 2 Page Ref: 4-5

42) Which organ system includes the spinal cord?

A) skeletal

B) muscular

C) nervous

D) integumentary

Answer: C

Diff: 1 Page Ref: 4-5

43) The height of an average person's trunk, from neck to perineum, is about

A) 5 meters.

B) 10 centimeters.

C) 1000 μm.

D) 1 meter.

Answer: D

Diff: 3 Page Ref: 3

44) Which statement concerning the anatomical position is *FALSE*?

A) The palms face anteriorly.

B) The toes point anteriorly, but the fingers point inferiorly.

C) The knees, elbow, and neck are straight (not bent).

D) The person is lying down, as straight as possible.

Answer: D

Diff: 2 Page Ref: 6

45) Bilateral symmetry can apply to objects as well as to animal bodies. Which of the following capital letters of the alphabet is *not* bilaterally symmetrical?

A) A

B) M

C) L

D) O

Answer: C

Diff: 2 Page Ref: 10

46) Which structure is *not* covered by visceral serosa?

A) lungs

B) ribs

C) stomach

D) uterus

Answer: B

Diff: 2 Page Ref: 12

47) The femoral region is the

A) buttocks.

B) hip.

C) thigh.

D) toes.

Answer: C

Diff: 1 Page Ref: 7

48) The inguinal region lies

A) anterior to the elbow joint.

B) on the anterior neck.

C) where the thigh joins the trunk.

D) on the external genitals.

Answer: C

Diff: 2 Page Ref: 7

49) The perineal region is the

A) side of the leg.

B) region between the external genitals and the anus.

C) point of the shoulder.

D) superior part of the gluteal region.

Answer: B

Diff: 2 Page Ref: 7

50) Which structure is *not* present in the mediastinum?

A) esophagus

B) heart

C) lung

D) trachea

Answer: C

Diff: 2 Page Ref: 11

51) A frontal plane is the same as a \_\_\_\_\_\_\_\_ plane.

A) midsagittal

B) transverse

C) coronal

D) sagittal

Answer: C

Diff: 2 Page Ref: 7, 9

52) Another name for the midsagittal plane is

A) parasagittal.

B) oblique.

C) coronal.

D) median.

Answer: D

Diff: 2 Page Ref: 7

53) What point or structure in the body is located farthest laterally? (*Hint*: Questions always refer to the body in the anatomical position.)

A) the coxal region

B) ear

C) little toe

D) tip of thumb

Answer: D

Diff: 3 Page Ref: 7-8

54) Although transmission electron microscopy is usually used for high-magnification viewing, it is certainly possible to use it at low magnification as well. That is, one can produce similar micrographs of tissues taken by light microscopy and electron microscopy at the same magnification. Even at the same magnification, however, you can easily tell the two kinds of micrographs apart. How?

A) The image in the electron micrograph is still sharper.

B) Tissue viewed by electron microscopy is colored, whereas light micrographs are always black and white (and shades of gray).

C) Tissue for light microscopy cannot be fixed (no fixation).

D) Tissue for electron microscopy cannot be sectioned.

Answer: A

Diff: 2 Page Ref: 14

55) What is the main advantage of MRI as a medical imaging technique?

A) It is safe.

B) The patient feels less pain during the procedure than with any other imaging technique.

C) It is very inexpensive.

D) It shows soft tissues very clearly.

Answer: D

Diff: 2 Page Ref: 18

56) The extremities are the same as

A) the ears.

B) the fingers and toes.

C) the limbs.

D) all structures in the head.

Answer: C

Diff: 2 Page Ref: 7

57) Which of the following pairs of organs/structures is located ipsilateral?

A) cecum : sigmoid colon

B) descending colon : spleen

C) mouth : navel

D) right lung : left lung

Answer: B

Diff: 3 Page Ref: 8

58) A physician viewing an injury to the back would look at the patient's \_\_\_\_\_\_\_\_ side.

A) lateral

B) posterior

C) cranial

D) ventral

Answer: B

Diff: 2 Page Ref: 8

59) The \_\_\_\_\_\_\_\_ body cavity contains the brain.

A) dorsal

B) ventral

C) serous

D) lateral

Answer: A

Diff: 2 Page Ref: 11

60) The roots of anatomical terminology lie mainly in

A) German and French.

B) Latin and Greek.

C) Esperanto.

D) Russian and Old English.

Answer: B

Diff: 2 Page Ref: 6

61) The \_\_\_\_\_\_\_\_ cavity contains the heart and lungs.

A) abdominopelvic

B) dorsal

C) thoracic

D) lateral

Answer: C

Diff: 2 Page Ref: 11

62) Hormones are regulatory proteins that are secreted by the \_\_\_\_\_\_\_\_ system.

A) urinary

B) endocrine

C) integumentary

D) lymphatic

Answer: B

Diff: 2 Page Ref: 4-5

63) Which organ system keeps blood constantly supplied with oxygen, removes carbon dioxide, and contains many air tubes?

A) urinary

B) endocrine

C) circulatory

D) respiratory

Answer: D

Diff: 2 Page Ref: 4-5

64) The elimination of nitrogenous wastes from body fluids is regulated by the \_\_\_\_\_\_\_\_ system.

A) urinary

B) endocrine

C) integumentary

D) lymphatic

Answer: A

Diff: 1 Page Ref: 4-5

65) Which structures are evidence of the vertebrate characteristic of segmentation?

A) branches of the blood vessels

B) multiple joints of fingers

C) subdivisions of the gastrointestinal tract

D) vertebral column

Answer: D

Diff: 2 Page Ref: 11

66) Which statement about visceral serosa is *false*?

A) It clings to the surface of organs.

B) It is continuous with the membrane that covers the outer body wall.

C) It is deep to the parietal serosa.

D) It lines the internal surface of hollow organs.

Answer: D

Diff: 2 Page Ref: 12

67) How many centimeters are there in a meter?

A) 10

B) 100

C) 1,000

D) 1,000,000

Answer: B

Diff: 3 Page Ref: 6

68) Which organ is *not* found in the ventral body cavity?

A) heart

B) liver

C) spinal cord

D) urinary bladder

Answer: C

Diff: 2 Page Ref: 11

69) The ankle lies \_\_\_\_\_\_\_\_ to the thigh.

A) distal

B) proximal

C) lateral

D) inferior

Answer: A

Diff: 2 Page Ref: 8

70) The axillary artery is found in the region of the

A) posterior surface of the knee.

B) vertebral column.

C) armpit.

D) long axis of any limb.

Answer: C

Diff: 2 Page Ref: 7

71) As an anatomical region, *lumbar* refers to

A) the infero-medial aspect of the back.

B) part of the lower limb.

C) the wrist.

D) the breast.

Answer: A

Diff: 2 Page Ref: 7

72) The buccal region is the

A) cheeks.

B) waist.

C) calf of the leg.

D) underside of the foot.

Answer: A

Diff: 2 Page Ref: 7

73) The popliteal region is

A) the side of the leg.

B) in the cervical region.

C) the posterior surface of the knee.

D) the inferior part of the gluteal region.

Answer: C

Diff: 2 Page Ref: 7

74) The coxal region is

A) the same as the inguinal region.

B) the skin over the "tailbone."

C) the hip.

D) the posterior surface of the wrist.

Answer: C

Diff: 2 Page Ref: 7

75) Which structure is located entirely within the right upper quadrant?

A) appendix

B) gallbladder

C) spleen

D) stomach

Answer: B

Diff: 2 Page Ref: 13

1.2 True/False Questions

1) Serous cavities include the pleural cavity.

Answer: TRUE

Diff: 1 Page Ref: 12

2) Serous cavities contain air.

Answer: FALSE

Diff: 2 Page Ref: 12

3) The peritoneal cavity is a serous cavity.

Answer: TRUE

Diff: 2 Page Ref: 12

4) EM has much greater resolution than LM.

Answer: TRUE

Diff: 2 Page Ref: 14

5) The dorsal body cavity is subdivided into a cranial cavity and a vertebral cavity.

Answer: TRUE

Diff: 2 Page Ref: 11

6) Pathological anatomy deals with structural changes caused by disease.

Answer: TRUE

Diff: 2 Page Ref: 2

7) A CT scan produces an image of a transverse section of the body.

Answer: TRUE

Diff: 2 Page Ref: 16-17

8) MRI techniques can show only images that are hard and deflect the X-rays.

Answer: FALSE

Diff: 2 Page Ref: 18

9) Ultrasound techniques are used to image a fetus because they are less damaging than other techniques.

Answer: TRUE

Diff: 2 Page Ref: 18

10) Angiography imaging is used primarily in the study of blood supply to the heart wall and brain.

Answer: TRUE

Diff: 2 Page Ref: 17

11) Most adults are between 1.5 and 2 meters tall.

Answer: TRUE

Diff: 3 Page Ref: 6

12) All vertebrate embryos have a dorsal hollow nerve cord.

Answer: TRUE

Diff: 2 Page Ref: 10

13) A transverse plane could cut the head off the body!

Answer: TRUE

Diff: 2 Page Ref: 7, 9

14) In anatomical position, the palms of the hands face medially toward the thighs.

Answer: FALSE

Diff: 1 Page Ref: 6

15) The mediastinum contains the trachea and lungs.

Answer: FALSE

Diff: 2 Page Ref: 11

1.3 Short Answer Questions

1) Describe the terms *proximal* and *distal*.

Answer: *Proximal* means closer to the point of attachment to the main part of the body; *distal* is farther from the point of attachment.

Diff: 2 Page Ref: 8

2) Describe the location of the femoral region in relation to the crural region.

Answer: The femoral region is proximal to the crural region.

Diff: 2 Page Ref: 7-8

3) Describe the location of the brachial region in relation to the pollex.

Answer: The brachial region is proximal to the pollex.

Diff: 2 Page Ref: 7-8

4) In humans, what term is synonymous with posterior?

Answer: dorsal

Diff: 2 Page Ref: 8

5) Clinicians refer to \_\_\_\_\_\_\_\_ anatomy when locating blood vessels to draw blood, feeling pulses, and avoiding nerves while giving injections.

Answer: surface

Diff: 1 Page Ref: 2

6) In humans, the region between the anus and the external genitals is the \_\_\_\_\_\_\_\_ region.

Answer: perineal

Diff: 2 Page Ref: 7

7) The olecranal region is posterior to what region?

Answer: antecubital

Diff: 2 Page Ref: 7

8) The head, neck, and trunk comprise the \_\_\_\_\_\_\_\_ region.

Answer: axial

Diff: 2 Page Ref: 7

9) What is the anatomical term for the thumb?

Answer: pollex

Diff: 2 Page Ref: 7

10) One could say that the forearm is \_\_\_\_\_\_\_\_ to the brachial region.

Answer: distal

Diff: 2 Page Ref: 8

11) Cutting the body along the median plane produces a \_\_\_\_\_\_\_\_ section

Answer: midsagittal

Diff: 1 Page Ref: 7, 9

12) One could describe the scalp as being \_\_\_\_\_\_\_\_ to the skull.

Answer: superficial

Diff: 2 Page Ref: 8

13) A \_\_\_\_\_\_\_\_ plane separates the body into equal left and right halves.

Answer: midsagittal (or median)

Diff: 2 Page Ref: 7, 9

14) The measurement typically used for structures within a cell is the \_\_\_\_\_\_\_\_.

Answer: micrometer

Diff: 3 Page Ref: 6

15) The \_\_\_\_\_\_\_\_ system is involved in immunity.

Answer: lymphatic

Diff: 3 Page Ref: 4-5

1.4 Essay Questions

1) Identify each of the systems that are found in the arm.

Answer: The arm contains elements of the skeletal, nervous, cardiovascular, muscular, lymphatic, and integumentary systems.

Diff: 3 Page Ref: 4-5

2) Which of the organ systems found in the arm are *not* found in the leg?

Answer: None

Diff: 3 Page Ref: 4-5

3) List the six unique features found in all vertebrates at some stage of their life.

Answer: Tube-within-a-tube body plan, bilateral symmetry, dorsal hollow nerve cord, notochord and vertebrae, segmentation, and pharyngeal pouches.

Diff: 3 Page Ref: 10-11

4) In adult humans, what remnants of segmentation remain?

Answer: The ribs and the vertebrae, with their segmental spinal nerves, are remnants of segmentation.

Diff: 3 Page Ref: 11

5) Select from the following techniques the best method for assessing brain function in a stroke patient: X-ray imaging, sonography, MRI. Explain why the other choices are not the best choice.

Answer: MRI is the best method of assessing brain function. X-rays do not image soft tissues well or with high resolution. They also produce only two-dimensional images of a structure. Sonography cannot be used to study the brain because sound waves cannot pass through the body skull.

Diff: 3 Page Ref: 15-19