

# Workbook



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# The Musculoskeletal System

## Exercise

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### Questions

- 1) The forearm consists of the:
  - a. radius and ulna
  - b. radius and humerus
  - c. ulna and humerus
  - d. humerus and carpus
  
- 2) The pectoral girdle consists of the:
  - a. clavicle and sternum
  - b. sternum and scapula
  - c. clavicle and scapula
  - d. clavicle and coccyx
  
- 3) All of the following are groups of vertebrae except\_\_\_\_\_ which is a curvature.
  - a. thoracic
  - b. cervical
  - c. lumbar
  - d. pelvic
  
- 4) Which of these is a facial bone?
  - a. frontal
  - b. occipital
  - c. lacrimal
  - d. temporal

- 5) Which of the following is **not** a true statement comparing exoskeletons and endoskeletons?
- a. Endoskeletons can support larger organisms.
  - b. Only endoskeletons can grow as an organism grows.
  - c. Exoskeletons provide greater protection of the internal organs.
  - d. Exoskeletons provide less mechanical leverage.
- 6) The Haversian canal:
- a. is arranged as rods or plates
  - b. contains the bone's blood vessels and nerve fibers
  - c. is responsible for the lengthwise growth of long bones
  - d. synthesizes and secretes matrix
- 7) The epiphyseal plate:
- a. is arranged as rods or plates
  - b. contains the bone's blood vessels and nerve fibers
  - c. is responsible for the lengthwise growth of long bones
  - d. synthesizes and secretes bone matrix
- 8) The cells responsible for bone resorption are
- a. osteoclasts
  - b. osteoblasts
  - c. fibroblasts
  - d. osteocytes
- 9) Compact bone is composed of.
- a. trabeculae
  - b. compacted collagen
  - c. osteons
  - d. calcium phosphate only

- 10)** Osteoporosis is a condition where bones become weak and brittle. It is caused by an imbalance in the activity of which cells?
- a. osteoclasts and osteoblasts
  - b. osteoclasts and osteocytes
  - c. osteoblasts and chondrocytes
  - d. osteocytes and chondrocytes
- 11)** While assembling a skeleton of a new species, a scientist points to one of the bones and observes that it looks like the most likely site of leg muscle attachment. What kind of bone did she indicate?
- a. sesamoid bone
  - b. long bone
  - c. trabecular bone
  - d. flat bone
- 12)** Synchondroses and symphyses are:
- a. synovial joints
  - b. cartilaginous joints
  - c. fibrous joints
  - d. condyloid joints
- 13)** The movement of bone away from the midline of the body is called
- a. circumduction
  - b. extension
  - c. adduction
  - d. abduction
- 14)** Which of the following is not a characteristic of the synovial fluid?
- a. lubrication
  - b. shock absorption
  - c. regulation of water balance in the joint
  - d. protection of articular cartilage

- 15)** The elbow is an example of which type of joint?
- a. hinge
  - b. pivot
  - c. saddle
  - d. gliding
- 16)** A high ankle sprain is an injury caused by over- stretching the ligaments connecting the tibia and fibula. What type of joint is involved in this sprain?
- a. ball and socket
  - b. gomphosis
  - c. syndesmosis
  - d. symphysis
- 17)** In relaxed muscle, the myosin-binding site on actin is blocked by \_\_\_\_\_.
- a. titin
  - b. troponin
  - c. myoglobin
  - d. tropomyosin
- 18)** The cell membrane of a muscle fiber is called a
- a. myofibril
  - b. sarcolemma
  - c. sarcoplasm
  - d. myofilament
- 19)** The muscle relaxes if no new nerve signal arrives. However, the neurotransmitter from the previous stimulation is still present in the synapse. The activity of \_\_\_\_ helps to remove this neurotransmitter.
- a. myosin
  - b. action potential
  - c. tropomyosin
  - d. acetylcholinesterase

**20)** The ability of a muscle to generate tension immediately after stimulation is dependent on:

- a. myosin interaction with the M line
- b. overlap of myosin and actin
- c. actin attachments to the Z line
- d. none of the above

**21)** Botulinum toxin causes flaccid paralysis of the muscles, and is used for cosmetic purposes under the name Botox. Which of the following is the most likely mechanism of action of Botox?

- a. Botox decreases the production of acetylcholinesterase.
- b. Botox increases calcium release from the sarcoplasmic reticulum.
- c. Botox blocks the ATP binding site in actin.
- d. Botox decreases the release of acetylcholine from motor neurons.

### Answer Key

- 1) a
- 2) c
- 3) d
- 4) c
- 5) d
- 6) b
- 7) c
- 8) a
- 9) c
- 10) a
- 11) d
- 12) b
- 13) d
- 14) c
- 15) a
- 16) c
- 17) d
- 18) b
- 19) d
- 20) d
- 21) d