

histology testbank

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Cartilage

Which structure covers the cartilage and supplies it with nutrients through diffusion?

1.

Which of the following structures represent small spaces that are hosting clusters of chondrocytes within the elastic cartilage?

2.

A Cartilage matrix

B Periosteum

C Anulus fibrosis of intervertebral disc

D Perichondrium

E Cartilage lacuna

A Osseous spiral lamina of cochlea

B Cartilage matrix

C Periosteum

D Cartilage lacuna

E Perichondrium

1	2
D	D

Which structures are found in the perichondrium and responsible for the production of cartilage?

A Chondroblast

B Epiphyseal plate

C Nucleus of chondrocyte

D Cartilage lacuna

E Cartilage matrix

3.

Which of the following tissues most frequently calcifies with age?

A Loose connective tissue

B Brown adipose tissue

C Fibrocartilage

D Elastic cartilage

E Hyaline cartilage

4.

5. Fibrocartilage found in except ?

- a. intervertebral discs
- b. pubic symphysis
- c. respiratory tract
- d. certain ligaments

6. which type of Cartilage has **NO perichondrium** ?

- A. elastic cartilage
- B. fibrocartilage
- C. hyaline cartilage

3	4	5	6
A	E	C	B

Which structure surrounds the chondrocytes and contains high concentrations of proteoglycans?

A Territorial matrix

B Calcified layer

C Interterritorial matrix

D Cartilage matrix

7.

Which of the following tissues forms the rings of trachea?

A Subepicardial connective tissue

B Fibrocartilage

C Subcutaneous tissue

D Bone tissue

E Hyaline cartilage of trachea

8.

What are the clusters of chondrocytes situated within one lacuna of the cartilage called?

A Isogenous group of chondrocytes

B Cartilage matrix

C Fibroblast

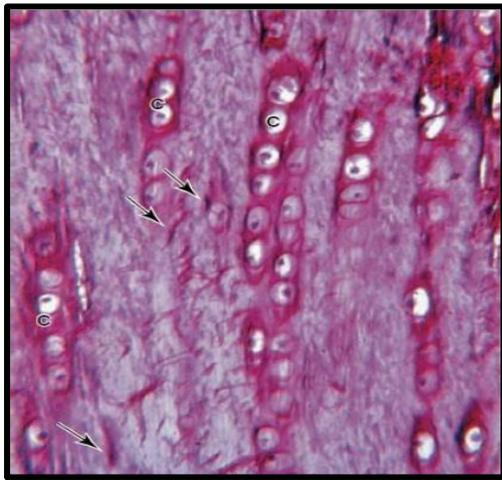
D Perichondrium

9.

7	8	9
A	E	A

10.Perichondrium is a:

- a) Loose connective which contains fibroblasts, chondrogenic cells, and other elements.
- b) Reticular connective which contains fibroblasts, chondrogenic cells, and other elements.
- c) Dense connective which contains fibroblasts, chondrocytes, and other elements.
- d) Loose connective which contains chondrocytes, chondrogenic cells, and other elements.
- e)Dense connective which contains fibroblasts, chondrogenic cells ,and other elements



11. which type of Cartilage ?

- A. elastic cartilage
- B. fibrocartilage
- C. hyaline cartilage

12.How does articular cartilage differ from most other hyaline cartilage?

- a. It undergoes mainly appositional growth.
- b. It contains isogenous groups of chondrocytes.
- c. It lacks a perichondrium.
- d. Its matrix contains aggrecan.
- e. It is derived from embryonic mesenchyme.

10	11	12
E	B	C

13. Which step occurs first in chondrogenesis?

- a. Appositional growth
- b. Conversion of chondroblasts to chondrocytes
- c. Formation of mesenchymal condensations
- d. Interstitial growth
- e. Secretion of collagen-rich and proteoglycan-rich matrix

14. . What distinguishes cartilage from most other connective tissues?

- a. Its extracellular matrix is rich in collagen.
- b. Its predominant cell type is a mesenchymal derivative.
- c. Its predominant cell type secretes both fibers and proteoglycans.
- d. It lacks blood vessels.
- e. It functions in mechanical support.

15. A 28-year-old woman visits the family medicine clinic complaining of loss of the sense of smell, nosebleeds, problems with swallowing, and hoarseness. She admits to “casual, social use” of cocaine on a regular basis since her sophomore year of college. A complete examination of her nose with a speculum and otoscope shows severe rhinitis (inflammation). There is also perforation and collapse of the nasal cartilage resulting in a “saddle nose” deformity. Erosions in the enamel of her front teeth are noted. The breakdown of the nasal cartilage releases collagen fibers primarily of which type?

- a. Type I
- b. Type II
- c. Type III
- d. Type IV
- e. Type VII

13	14	15
C	D	B

Bone

1. Which component of bone impedes the distribution of nutrients and oxygen to osteocytes?

- a. ECM
- b. Canaliculi
- c. Periosteum
- d. Cell processes
- e. Haversian canals

2. Which if the following most accurately describes compact bone?

- a. Predominant bone type in the epiphyses of adult long bones
- b. Also known as cancellous bone
- c. Characterized by the presence of osteons
- d. Lines the medullary (marrow) cavity
- e. Forms the diploë in cranial bones

What is the name of the basic functional unit of the bone that consists of concentric lamellae of osteocytes surrounding one Haversian canal?

A Osteon

B Bony trabecula

C Periosteum

3.

1	2	3
A	C	A

4.

What is the name of the delicate network of spongy bone surrounding the bone marrow in the medullary cavity?

- A** Interstitial lamellae
- B** Concentric lamellae of osteon
- C** Periosteum
- D** Bony trabecula
- E** Circumferential lamellae

5.

What is the name of the individual circular layers of osteocytes surrounding the Haversian canals in the lamellar bone tissue?

- A** Osteon
- B** Interstitial lamellae
- C** Bony trabecula
- D** Osteoid
- E** Concentric lamellae of osteon

6.

Which of the following structures runs parallel to the bone surface in the center of the osteon, containing small blood vessels and nerves?

- A** Bone canaliculus
- B** Perforating canal (of Volkmann)
- C** Central canal of osteon
- D** Endosteum
- E** Bone marrow

4	5	6
D	E	C

Which of the following structures runs transversely to the bone surface and interconnects the Haversian canals, allowing the small blood vessels running through them to anastomose?

- A** Bone canaliculus
- B** Bony trabecula
- C** Central canal of osteon
- D** Cartilage lacuna
- E** Perforating canal (of Volkmann)

7.

Which of the following structures contain the processes of osteocytes and connect the individual lacunae found in the lamellar bone tissue?

- A** Bone canaliculus
- B** Bony trabecula
- C** Osteoid
- D** Central canal of osteon
- E** Interstitial lamellae

8.

9. Hydroxyapatite crystals are made mainly from the combination of:

- a) Collagen type 1 fibers and carbon molecules
- b) Calcium, phosphate and collagen type 1 fibers
- c) Calcium and phosphate
- d) Chondroitin sulfate and inorganic salts
- e) Glycoproteins and vitamin D

7	8	9
E	A	C

What is the fundamental functional unit of bone?

- Osteophyte
- Chondrocyte
- Haversian canal
- Osteocytes
- Osteon

10.

All EXCEPT which of the following choices refer to the same type of bone?

- Trabecular bone
- Compact bone
- Cancellous bone
- All the choices provided refer to the same type of bone.
- Spongy bone

11.

12. All of the following statements about bone cells are correct EXCEPT:

- a) Osteoblasts produce type I collagen
- b) Osteocytes are often grouped in nests inside lacunae as a result of earlier mitoses
- c) Osteoblasts are mononucleate cells
- d) Osteoclasts form the ruffled border that opposes the surface of the bone tissue
- e) Some osteoblasts turn into osteocytes while the new bone is being formed

10	11	12
Osteon	compact	B

13. All the followings can be found in the ossification zone EXCEPT:

- a) Chondrocyte within lacunae
- b) Osteocyte within lacunae
- c) Primary bone
- d) Calcified matrix of the cartilage
- e) Osteoblasts

14. Osteocytes maintain contact with the blood vessels of the central canal through:

- a) Concentric lamellae
- b) Interstitial lamellae
- c) Canaliculi
- d) Perforating fibers
- e) Periosteum

15. Several layers of cells reside within epiphyseal plates of developing long bones.

Which statement best describes the ossification zone?

- a) Cells enlarging and causing the cartilaginous matrix to become calcified
- b) Resting cells
- c) Cells undergoing mitosis and forming long columns of isogenous groups
- d) None of the mentioned
- e) Osteoblasts adhering to the remnants of calcified cartilage matrix and producing woven bone

16. Which of the following are found in compact bone and cancellous bone?

- a) Lacunae
- b) Circumferential lamellae
- c) Haversian canals
- d) Trabeculae
- e) Volkmann's canals

13	14	15	16
A	C	E	A

17.Woven bone, choose the WRONG statement:

- a) Its collagen fibers are not organized into lamellae
- b) It has a lower mineral content compared to secondary bone
- c) It is the first bone tissue to appear in embryonic development
- d) It is not degraded by osteoclasts
- e) It is formed during repair of fracture sites

18.Endochondral ossification, choose the CORRECT statement:

- a) A process of bone formation involving the replacement of a fibrous membrane
- b) Found in long bones after the closure of the epiphyses
- c) Starts postnatally
- d) Typical of the development of the clavicle
- e) In long bones, the first site of ossification occurs in the middle of diaphysis

19.Regarding Endosteum, choose the WRONG statement:

- a) Covers trabeculae of spongy bone
- b) Is composed of a single layer of cells
- c) Is attached to bone trabeculae by Sharpey's fibers
- d) Is involved in bone growth in width
- e) Lines the internal cavity of the bone

20.In epiphyseal plate growth, what happens when the zone of ossification overtakes the zone of resting cartilage?

- a) All of the mentioned
- b) The hyaline cartilage of the plate is replaced by bone
- c)Longitudinal growth of the bone terminates (at least at one end)
- d) The epiphyseal plate becomes the epiphyseal line
- e) The diaphysis and epiphysis portions of the bone fuse together to form a single adult bone

17	18	19	20
D	D / E is the true	C	A

Muscle Tissue

1-	<p>Which structure is a layer of dense irregular connective tissue that surrounds the entire muscle head?</p>	<p>A Myofibril</p> <p>B Epimysium</p> <p>C Perimysium</p> <p>D Muscle fascicle</p>
2-	<p>What is the basic rod-like striated muscle unit consisting of thick and thin filaments organized in sarcomeres called?</p>	<p>A Myofibril</p> <p>B Sarcolemma</p> <p>C Myocyte (muscle fiber)</p> <p>D A band</p>
3-	<p>Which of the following is the functional unit of skeletal muscle consisting of actin and myosin filaments between two neighbouring Z discs?</p>	<p>A H zone</p> <p>B Sarcomere</p> <p>C I band</p> <p>D A band</p> <p>E Sarcolemma</p>

1	2	3
B	A	B

4- .In the I band of a sarcomere of voluntary muscle:

- a) The Z line is found
- b) There are only thick myofilaments
- c) The M line is found
- d) There are overlapping thin and thick myofilaments
- e) There are no myofilaments

5- Which characteristic is unique to skeletal muscle cells compared to cardiac and smooth muscle cells?

- a) Often branched
- b) Multinucleated
- c) Contain centrally located nuclei
- d) Striated
- e) Lack T-tubules

Which structure is a layer of loose connective tissue that fills the space between the individual muscle fibers?

- A** Epimysium
- B** Muscle fascicle
- C** Fascia
- D** Perimysium
- E** Endomysium

6-

7- The basal lamina of a muscle fiber is part of which structure?

- a. Perimysium
- b. Epimysium
- c. Fascia
- d. Endomysium
- e. Sarcoplasmic reticulum

4	5	6	7
A	B	E	D

What is the name of the central area of the sarcomere containing myosin filaments and overlapping actin filaments?

A Sarcolemma

B I band

C M line

D H zone

E A band

8-

What is the myocytic cytoplasm containing large amounts of glycosomes called?

A Myofibril

B Sarcoplasm

C Sarcolemma

9-

10- With the transmission electron microscope skeletal muscle fibers can be seen to contain structures called triads. What do the two lateral components of a triad represent?

- a. Attachment sites for thick myofilaments
- b. Sites for calcium sequestration and release
- c. Sites for impulse conduction into the fiber
- d. Sites for ATP production
- e. Sites for synthesis of proteins to be secreted outside the cell

11- Which characteristic is unique to smooth muscle?

- a. T-tubules lie across Z lines
- b. Each thick filament is surrounded by six thin filaments
- c. Thin filaments attach to dense bodies
- d. Cells are multinucleated

8	9	10	11
A E	B	B	C

Handwritten signature

12- A 5-year-old boy sustains a small tear in his gastrocnemius muscle when he is involved in a bicycle accident. Regeneration of the muscle will occur through which of the following mechanisms?

- a. Dedifferentiation of muscle cells into myoblasts
- b. Differentiation of muscle satellite cells
- c. Fusion of damaged myofibers to form new myotubes
- d. Hyperplasia of existing muscle fibers
- e. Differentiation of fibroblasts to form myoblasts

13- .The triad in skeletal muscle, choose the WRONG statement:

- a) Is visible by light microscopy
- b) Is found at the site of A-I band junction
- c) Includes two terminal cisternae of sarcoplasmic reticulum
- d) Includes part of T tubule
- e) Is involved in the process of initiating muscle contraction

14- A healthy 32-year-old man lifts weights regularly as part of his workout. In one of his biceps muscle fibers at rest, the length of the I band is 1.0 μm and the A band is 1.5 μm . Contraction of that muscle fiber results in a 10% shortening of the length of the sarcomere. What is the length of the A band after the shortening produced by muscle contraction?

- a. 1.50 μm
- b. 1.35 μm
- c. 1.00 μm
- d. 1.90 μm
- e. 0.45 μm

15- White fibers, choose the CORRECT statement:

- 16- a) Are smaller in diameter compared to red fibers
- 17- b) Their oxidative capacity is high
- 18- c) Can be differentiated from red fibers using H & E
- 19- d) Their glycolytic capacity is high

12	13	14
B	A	A

16.. In one type of muscle, numerous gap junctions, desmosomes, and adherens junctions are specifically localized in which structures?

- a. Myofilaments
- b. Dense bodies
- c. Sarcomeres
- d. Neuromuscular spindles
- e. Intercalated discs

17. Diads are usually seen in:

- a) Smooth muscles by electron microscope
- b) Cardiac muscles by electron microscope
- c) Cardiac muscles by light microscope
- d) Skeletal muscles by light microscope
- e) Skeletal muscles by electron microscope

18. In what way are cardiac muscles and skeletal muscles similar?

- a) Both have myogenic activity
- b) Both have tubular myofibrils
- c) Both are controlled by somatic nervous system
- d) Both are highly branched
- e) Both are connected by gap junctions

19. Which characteristic is unique to cardiac muscle?

- a. Contain centrally located nuclei
- b. Striated
- c. Often branched
- d. Multinucleated
- e. Lack T-tubules

16	17	18	19
E	B	B	C

20. A 66-year-old man who lives alone has a severe myocardial infarction and dies during the night. The medical examiner's office is called the following morning and describes the man's body as being in rigor mortis. This state of rigor mortis is due to which one of the following?

- a. Inhibition of Ca²⁺ leakage from the extracellular fluid and sarcoplasmic reticulum
- b. Enhanced retrieval of Ca²⁺ by the sarcoplasmic reticulum
- c. Failure to disengage tropomyosin and troponin from the myosin active sites
- d. Absence of ATP preventing detachment of the myosin heads from actin
- e. Increased lactic acid production

21. Thin filaments of human skeletal muscle, choose the CORRECT statement:

- a) Are attached to Z line by titin
- b) In a relaxed muscle, they completely overlap the myosin thick filaments
- c) Are anisotropic
- d) In a relaxed muscle, they present in the H zone of a sarcomere
- e) Are pulled by the thick filaments toward the center of the sarcomere during contraction

Which of the following types of fibers are fatigue prone motor units?

- A** Fast oxidative glycolytic fibres
- B** Slow twitch fibres
- C** Type 1 fibers
- D** Fast glycolytic fibres

22.

20	21	22
D	E	D

23.Red fibers,choose the CORRECT statement:

- a)Are larger in diameter compared to white fibers
- b) Can be diferentiated from white fibers using H & E
- C) Their oxidative capacity is high
- D) Their glycolytic capacity is high
- E) Their ATPase activity is high

24.Sarcoplasmic network, choose the correct phrase:

- A) is associated with T tubules in all muscle types
- B)is more extensive in cardial muscle cells compared to skeletal
- c) is rudimentary in smooth muscle cells
- d) forms diads in skeletal muscle cells
- e) None of the above

25.Concerning Cardiac and Skeletal muscle, which statement is most accurate?

- A) Cardiac Myofibril nuclei are eccentrically located whereas skeletal myofibers nuclei are centrally placed.
 - B) Skeletal muscle fibers exhibit more branching than cardiac muscle fibers
 - C) The striations of cardiac muscle cells are more distinct than that of skeletal muscles
 - D) Cardiac muscle contains structures known as intercalated discs while skeletal muscle does
- Not

23	24	25
C	C	D



NERVE TISSUE

Which of the following components of the peripheral nervous system specifically conveys **sensory** information to the central nervous system?

A Afferent

B Somatic

C Autonomic

D Motor

E Efferent

1-

What are the cells lining blood capillaries in the central nervous system?

A Schwann cells

B Astrocytes

C Neuronal cells

D Glial cells

E Endothelial cells

2-

Which of the following components allow the transport of substances within the cytoplasm of a neuron and along the length of the axon in two ways?

A Nissl bodies

B Microtubules

C Myelin

D Microglia

E Dendrite

3-

1	2	3
A	E	B

Which of the following is a cluster of neuron cell bodies outside the central nervous system?

A Nissl substance

B Neurofibril

C Synapse

D Ganglion

E Axon hillock

4-

Which of the following is NOT a component of a neuron?

A Axon

B Nissl substance

C Soma

D Dendrite

E Glia

5-

The neurons of the retina which carry light-elicited signals from photoreceptors in the outer retina to cells in the inner retina are primarily of which of the following type?

A Multipolar

B Tripolar

C Polypolar

D Bipolar

E Unipolar

6-

4	5	6
D	E	D

7- A sensory ganglion associated with a spinal sensory nerve root is located:

- a) Within the organ it innervates
- b) In a chain external to the spinal column, adjacent to the vertebral bodies
- c) In the dorsal root of spinal nerve
- d) In the ventral horn of spinal cord
- e) Near the peripheral receptor organ (in skin or muscle)

8- Small cells closely associated with neurons in peripheral ganglia are:

- a) Schwann cells
- b) Satellite cells
- c) Microglia
- d) Ependymal cells
- e) Oligodendrocyte

9- Schwann cells are characterized by the followings EXCEPT:

- a) Each Schwann cell myelinates only one internodal segment of one axon
- b) They are interrupted by nodes of Ranvier
- c) They play a role in regeneration of axons in peripheral nervous system
- d) They are similar in function to astrocytes of central nervous system
- e) They support both myelinated and unmyelinated axons in the peripheral nervous system

10- Neuroglial cells, choose the WRONG statement:

- a) Are smaller in size compared to neurons
- b) Are not able to transmit nervous impulses
- c) Are able to undergo mitosis
- d) Are found in both peripheral and central nervous systems
- e) Are less numerous compared to neurons

7	8	9	10
C	B	D	E

11- Which of the following is characteristic of the chromatophilic material called Nissl substance in neural tissue?

- a. Found throughout neurons
- b. Site of mRNA translation for proteins of the axolemma
- c. Most abundant in unipolar neurons
- d. Becomes more abundant as an individual gets older
- e. An example of intermediate filament proteins

12- Which of the following events occurs immediately after an action potential reaches a synapse at an axon terminal?

- a. Vesicle fusion with the presynaptic terminal membrane
- b. Calcium ion influx at the presynaptic terminal
- c. Neurotransmitter binding to receptors on the postsynaptic membrane
- d. Neurotransmitter release into the synaptic cleft
- e. Binding of the neurotransmitter at the presynaptic terminal

13- What term applies to collections of neuronal cell bodies (somata) in the central nervous system?

- a. Ganglia
- b. Neuroglia
- c. Nodes
- d. White matter
- e. Nuclei

14- Nervous tissue, choose the CORRECT statement :

- a) Each neuron has as a rule one primary dendrite, and never more than one primary dendrite
- b) Microtubule and neurofilaments are found in soma, dendrite, and axon
- c) Nissl bodies provide the main cytoskeletal tracks for axonal transport
- d) Bundle of axons within central nervous system is called nerve
- e) Bipolar neurons do not have axons

11	12	13	14
B	B	E	B

15- The axon hillock is found at:

- a) Schwann cells
- b) The dendrites
- c) The end of the axon
- d) The origin of the axon
- e) The middle of the axon

A 32-year-old woman comes to the neurology clinic and complains of a stumbling gait and a tendency to fall. Her visual acuity also seems to change periodically during the last several years. After performing a thorough neurological examination and an MRI scan, the neurologist establishes the diagnosis of multiple sclerosis (MS). MS is an autoimmune disease that results in the destruction of the myelin sheath in the central nervous system that is produced by oligodendrocytes. In contrast to oligodendrocytes, which cells are responsible for myelination in the peripheral nervous system?

- A** Astrocyte
- B** Schwann cell
- C** Microglial cell
- D** Fibrocyte
- E** Ependymal cells

16-

17- The outermost layer of dense irregular connective tissue surrounding a peripheral nerve is called :

- A)Endoneurium
- B)Fasciele
- C) Epineurium
- D)Septum
- E)Perineurium

15	16	17
D	B	C

18-

Which region of the nerve cell promote rapid impulse transmission along the axon via a process known as saltatory conduction?

- A** Terminal boutons of axon
- B** Dendrites
- C** Microtubule
- D** Axon hillock
- E** Node of Ranvier (Myelin sheath gap)

19-

Which layer of connective tissue surrounds the individual nerve fascicles in the peripheral nervous system?

- A** Perineurium
- B** Epineurium
- C** Myelin sheath
- D** Endomysium
- E** Endoneurium

20-

What is the name of the Schwann cell or oligodendrocyte membrane wrapped many times around an individual axon?

- A** Node of Ranvier (Myelin sheath gap)
- B** Microtubule
- C** Myelin sheath
- D** Axon hillock
- E** Dendrites

18	19	20
E	A	C

21- The myelin forming cells in central nervous system are:

- A) Schwann cells
- b)Oligodendrocytes
- C)Microglia
- D)Astrocytes
- E) Satellite cells

22- A typical peripheral mixed nerve includes all of the following EXCEPT:

- A) Connective tissue of epineurium, perineurium and endoneurium
- B)Sensory axons
- C)Interneurons
- D) Schwann cells
- E) Motor axons

23- Nissl bodies consist of ?

- a) Clusters of synaptic vesicles
- b)Golgi bodies
- c) Rough endoplasmic reticulum and ribosomes
- D) Lysosomes and lipofuscin granules
- E) Microtubules and microfilaments

24- Nervous tissue, choose the CORRECT statement :

- A) Motor and sensory innervations of viscera are mediated by somatic nervous system
- B)The ventral ramus of a spinal nerve is typically motor while the dorsal ramus is sensory
- c) Bundle of axons within peripheral nervous system is called tract
- D)Schwann cells support both myelinated and unmyelinated axons in the peripheral nervous system
- E) Basophilic granular structures within the axon are called Nissl bodies

21	22	23	24
B	C	C	D

25- Which of the following neuroglial cells participate in the formation of blood brain barrier:

- A)Microglia
- B)Satellite cells
- C)Oligodendrocytes
- D)Astrocytes
- E)schwann cells

ANS: D

GOOD LUCK

دفعة-القدس 🤩 😎

