

## Unit:- II

### Chapter-6. Animal Tissue

#### IMPORTANT POINTS

Tissue is the group of cells having similar structure & function. Animals contain 4 basic types of tissues which are :- epithelial tissue, connective tissue, muscular tissue and nervous tissue. Epithelial tissue can be derived from any of the three germinal layers. Epithelial tissues are of different types such as : Squamous, cuboidal, columnar, ciliated, pseudo-stratified, stratified, and transitional.

Functions of epithelial tissue : Protection, secretion & absorption. There are 3 types of connective tissues which are differentiated on the basis of extracellular material. Secreted by cells themselves. (a) Connective tissue proper- (soft jelly like matrix with fibres) - are of five types : areolar, adipose, white fibrous, tendon and legament.

(b) Skeletal tissue (Supportive connective tissue) includes cartilage and bones which form the endoskeleton of the vertebrate body. The Cartilages are classified in to four group : Hyaline, white fibrous, yellow elastic fibro cartilage and calcified cartilage.

(c) Blood (fluid connective tissue) is a fibre-free fluid extra cellular matrix.

It is a mobile connective tissue (Vascular/Fluid tissue). It is composed of plasma, blood cells and blood platlets. It is a opaque trubid fluid.

Blood cells are erythrocytes and Leucocytes. There are five types of leucocytes : neutrophils, eosinophils, basophils, monocytes and lymphocytes.

WBCs are colourless, nucleated found in blood (and lymph). Which are devoid of haemoglobin. They are capable of coming out of blood capillaries through the process of diapendesis. (i. e. Greek Word - diapendesis - leaping through)

(d) Muscular tissue (mostly mesodermal origin) is made up of elongated and contractive cells : called muscles cells or myocytes.

There are three types of Muscular tissue : Skeletal muscle (striated), non striated and cardiac,

. Myoglobin - Muscle haemoglobin

. Myoblasts - Muscle forming cells.

. Myology : study of all aspects of muscles & accessory structures .

(e) The nervous tissue it is composed of two types of cells - (a) neurons : (Nerve cells) are structural & functional unit, they transmit nerve impulses, (b) neuroglia. Neuron has one or more processes extending from it . (i) Axon - carries impulses away from the cell body.

(ii) dendrites (G.K. dendron tree) take nerve impulse to the cell body.

On the basis of number of processes, neurons are : unipolar, bipolar & multipolar.

The nerve fibres may be surrounded by two concentric sheath. The inner is known as medullary or myelin sheath.

Myelin is secreted by schwann cells in peripheral nerve fibres and oligodendrocytes in central Nervons system.

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Schwann cells form the outer sheath called neurilemma (GK. neuron- nerve, lemna-skin).  
There is a physical gap between the nerve ending of axon and dendrites called synapse.

**For the given options select the correct options (a, b, c, d) each carries one mark.**

- Which of the following structure are made of several layer's of cells :-  
(A) Ciliated epithelium (B) Stratified epithelium  
(C) Cuboidal epithelium (D) Columnar epithelium
- Which simple epithelium tissue cells are square in vertical sections and Polygonal in horizontal section  
(A) Columnar epithelium (B) Squamous epithelium  
(C) Cuboidal epithelium (D) Ciliated epithelium
- Which of the following structure is not covered by epithelial tissue :-  
(A) Blood vessels (B) Digestive gland  
(C) Skin (D) Cartilage
- Which type of epithelium is present in the inner lining of large bronchi :-  
(A) Squamous epithelium (B) Pseudo - stratified epithelium  
(C) Cuboidal epithelium (D) Columnar epithelium
- Which of the following is arranged in a single layer :-  
(A) Stratified epithelium (B) Pseudo-stratified epithelium  
(C) Ciliated epithelium (D) Transitional epithelium
- Which tissue is located in uterine tube and proximal tube of kidneys respectively :-  
(A) Columnar epithelium, Cuboidal epithelium (B) Ciliated epithelium, columnar epithelium  
(C) Ciliated epithelium, Cuboidal epithelium (D) Cuboidal epithelium, ciliated epithelium
- Which of the following is a function of cuboidal epithelium :-  
(A) Participate in secretion and excretion (B) Helps to remove mucus from trachea  
(C) To move mucus in a specific direction (D) Protect inner tissue cells
- Name the structure arranged on basement membrane in compound epithelium :-  
(A) Malpighian Corpuscle (B) Malpighian tubule  
(C) Germinative layer (D) Malpighian body
- Which tissue occurs with in the passages of the excretory organs :-  
(A) Ciliated Stratified epithelium (B) Squamous Stratified epithelium  
(C) Transitional epithelium (D) Cuboidal Stratified epithelium
- When the surface cells of stratified epithelium contain insoluble protein (Keratin) the tissue is called :-  
(A) Stratified Squamous Keratinised (B) Stratified Ciliated Keratinised  
(C) Stratified Cuboidal Keratinised (D) Stratified Columnar Keratinised
- Name of a structure formed of collagen protien :-  
(A) Yellow elastic (B) White fibres (C) Yellow fibre (D) White fibrous
- Which cells of areolar tissue are able to move and ingest foreign particles  
(A) Fibroblast (B) Mast cells (C) Histocytes (D) All above

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13. Which of the following is not a component of connective tissue proper .  
(A) Adipose tissue (B) Tendon (C) Cartilage (D) Ligament
14. Which of the following is not a component of Skeletal connective tissue :-  
(A) Compact bone (B) White-fibro cartilage  
(C) Calcified cartilage (D) Areolar tissue
15. What is Synthesized by fibroblast  
(A) Collagen (B) Elastin (C) (A) and (B) (D) (A) or (B)
16. Which connective tissue proper is made up of two types of fibre and cells :-  
(A) Tendon (B) White fibrous tissue  
(C) Ligament (D) Areolar tissue
17. Which of the following tissue is normally found in tendon .  
(A) Hyaline cartilage (B) White fibrous tissue  
(C) Ligament (D) Areolar tissue
18. It connects the bones joints and holds them in position :-  
(A) Tendon (B) White elastic cartilage  
(C) Ligament (D) (B) and (C) both
19. Give examples of elastic bond  
(A) Tendon (B) Cartilage  
(C) Ligament (D) (B) and (C) both
20. Which of the following structure present in abundance in subcutaneous tissue :-  
(A) Yellow elastic tissue (B) Adipose tissue  
(C) White fibrous tissue (D) Tendon
21. It is composed of bundles of collagen fibers :-  
(A) Tendon (B) White-fibro cartilage  
(C) Hyaline cartilage (D) White fibrous tissue
22. Who synthesized elastin protein  
(A) Fibroblasts (B) Adipose cell (C) Phagocytic cell (D) Mast cells
23. Which of the following structure is seen in the joints between skull bones :-  
(A) Yellow elastic tissue (B) Cellular Cartilage  
(C) White Fibrous tissue (D) Tendon
24. Which Structure is able to move in areolar tissue  
(A) Adipose cell (B) Phagocytic cell (C) Fibroblasts (D) Mast cell
25. Name the connective tissue present in larynx  
(A) White fibrous cartilage (B) Hyaline cartilage  
(C) Areolar tissue (D) Yellow elastic cartilage
26. Which connective tissue is found in epiglottis :-  
(A) Yellow elastic cartilage (B) Calcified cartilage  
(C) Areolar tissue (D) White fibrous tissue

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27. A Structure having blood vessels in hyaline cartilage is :-  
(A) Matrix (B) Perichondrium (C) Lacunae (D) Chondroblasts
28. In which of the following yellow elastic cartilage is observed :-  
(A) Tip of nose (B) Ear pinna  
(C) Epiglottis (D) all above
29. Which of the following characteristics observed in yellow elastic cartilage :  
(A) It has elastin  
(B) Its matrix is homogeneous and translucent  
(C) A few flat and elongated fibroblast cells lay between the fibre bundles.  
(D) Cell are ovoid in shape and are surrounded by matrix.
30. Matrix of bone is composed of protein called  
(A) Myosin (B) Ossein (C) Elastin (D) Actin
31. In the centre of bone there is a narrow cavity it contains a tissue which :-  
(A) is composed of adipose (B) is yellow in colour  
(C) Possess blood vessels (D) all above
32. Which of the following structure is not included in blood cells  
(A) Fibrinogen (B) Lymphocytes (C) Basophils (D) Erythrocytes
33. Which is metabolic waste product of blood :-  
(A) Fibrinogen (B) carbon dioxide (C) Lysine (D) Immunoglobulin
34. What is the number of RBCs per cubic mililiter blood of adult made under normal condition .  
(A) 41,00,000 to 60,00,000 (B)  $7.5 \pm 3.5 \times 10^3$   
(C)  $39 \text{ to } 55 \times 10^{10}$  (D) 39,00,000 to 55,00,000
35. Which structure of blood is nucleated?  
(A) Erythrocytes (B) Leucocytes (C) Blood platlets (D) Above all
36. Nucleus of which leucocytes have many lobe :-  
(A) Eosinophils (B) Neutrophils (C) Basophils (D) Monocytes
37. The darker bands in muscle fibre is called  
(A) H - bands (B) A - bands (C) Z - bands (D) I - bands
38. Which muscle tissue is mononucleate having granular sarcoplasm around its nucleus :-  
(A) Smooth muscle (B) Voluntary muscle tissue  
(C) Cardiac muscle (D) Skeletal muscle tissue
39. The lighter bands in muscles fiber is called :-  
(A) I - bands (B) H - bands (C) Z - bands (D) A - bands
40. A structure formed by enveloped of schwann's cells  
(A) Nodes of Ranvier (B) Neurilemma (C) Myelin Sheath (D) (A) and (C) both
41. Cell body of which neuron giving rise to both dendrite and axonal branches.  
(A) Unipolar neuron (B) Multipolar neuron (C) Bipolar neuron (D) All the above

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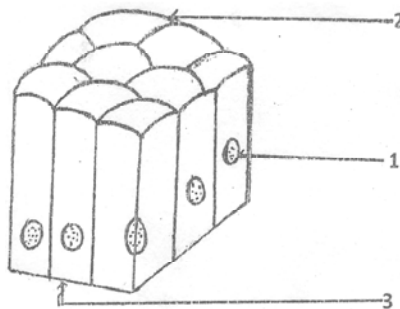
42. Which structure is indicated by each myelinated nerve fibre.  
 (A) Neurilemma (B) Constrictions at regular intervals called nodes of ranvier  
 (C) Neurotransmitters (D) Synapses  
 Directions : In the following questions there are two statements; Assertion (A) and Reason (R):  
 (A) Both A and R are true and R is correct explanation of A.  
 (B) Both A and R are true but R is not correct explanation of A.  
 (C) A is true and R is wrong.  
 (D) A is wrong and R is true.
43. A : Squamous epithelium protect the under lying tissue.  
 R : Outer most layer of skin of frog made up of squamous epithelium.  
 (A) (B) (C) (D)
44. A : Thickness of skin layer is maintained.  
 R : In compound epithelium, layer rested on basement membrane shows power of cell division.  
 (A) (B) (C) (D)
45. A : Mast cells are found in areolar tissue.  
 R : Mast cells produces heparin, histamine etc.  
 (A) (B) (C) (D)
46. A : Cartilage bond connects the joints.  
 R : Matrix of cartilage is dense.  
 (A) (B) (C) (D)
47. A : Yellow elastin cartilage has elastin.  
 R : Whie fibrous cartilage has bundles of collagen, fibres  
 (A) (B) (C) (D)
48. A : Blood has properties of clotting  
 R : Blood has plasma protein fibrinogen.  
 (A) (B) (C) (D)
49. A : Muscle fibre of skeletal muscle is multi nucleate.  
 R : In each animals muscle fibres are attached to bones by tendons.  
 (A) (B) (C) (D)
50. A : Thick and thin filaments overlap for some distance within the 'A' band  
 R : Thin Filaments slides over thick filaments  
 (A) (B) (C) (D)
51. Which pair of structures distinguishes a nerve cell from other cells.  
 (A) Vacuole and fibres (B) Nucleus and mitochondria  
 (C) Perikaryon and dendrites (D) Flagellum and medullary sheath
52. Transitional epithelium occurs in : (MHTCET 2008)  
 (A) Blood vessels (B) Trachea  
 (C) Kidney (D) Ureter/urinary bladder

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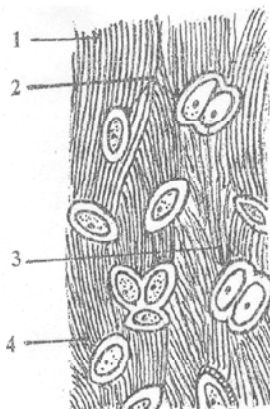
53. The study of tissues is known as : (MPPMT 2010)  
 (A) Physiology (B) Ecology (C) Histology (D) Anatomy
54. Find out the wrong match : (Kerala 2010)  
 (A) Eosinophils Allergic response  
 (B) Basophils Secrete histamine and serotonin  
 (C) Monocytes Secrete heparin  
 (D) Lymphocytes Immune response
55. The outer covering of cartilage is called. (WB 2010)  
 (A) Peritoneum (B) Periosteum (C) Endosteum (D) Perichondrium
56. Skin is : (CPMT 2010)  
 (A) Cuboidal epithelium  
 (B) Stratified epithelium  
 (C) Columnar epithelium  
 (D) Pseudostratified epithelium
57. Match the animals listed in column-I to blood listed in column-II. (KCET 2010)
- | Column-I       | Column-II                                    |
|----------------|--|
| (P) Man        | (i) Plasma and cells are colourless          |
| (Q) Earth worm | (ii) Plasma colourless and nucleated RBC     |
| (R) Cockroach  | (iii) Plasma colourless and enucleated RBC   |
| (S) Frog       | (iv) Plasma red and nucleated colourless RBC |
|                | (v) Plasma and RBCs have haemoglobin         |
- (A) (P-iii), (Q-iv), (R-i), (S-ii) (B) (P-iv), (Q-v), (R-iii), (S-ii)  
 (C) (P-i), (Q-iv), (R-ii), (S-iii) (D) (P-v), (Q-iii), (R-i), (S-iv)
58. Matrix of bone and cartilage can be distinguished by the presence of : (Orrisa 2010)  
 (A) Lacuna (B) Chromatophores (C) Haversian canals (D) Adipose cells
59. Which type of tissue forms glands : (MPPMT 2010)  
 (A) Epithelial (B) Muscular (C) Nervous (D) Connective
60. Which of the following blood cells help in blood coagulation. (Orrisa 2010)  
 (A) RBCs (B) Lymphocytes (C) Thrombocytes (D) Basophils
61. Fibroblasts macrophages and mast cells are present in : (Kerala 2010)  
 (A) Cartilage tissue (B) Areolar tissue  
 (C) Adipose tissue (D) Glandular epithelium
62. Which type of epithelium is involved in a function to move particles or mucus in specific direction : (HPPMT 2010)  
 (A) Squamous epithelium (B) Cuboidal epithelium (C) Columnar epithelium (D) Ciliated epithelium
63. Which of these is not found in connective tissue : (MPPMT 2010)  
 (A) Collagen fibres (B) Basement membrane (C) Hyaluronic acid (D) Fluid

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64. Multi-lobed nucleus and granular cytoplasm are characteristics of which of the WBCs : (Orissa 2010)  
 (A) Neutrophils (B) Monocytes (C) Lymphocytes (D) Eosinophils
65. Which one of the following plasma proteins is involved in the coagulation of blood. (CBSE 2011)  
 (A) globulin (B) Fibrinogen (C) albumin (D) Serum amylase
66. Which of the following is not a connecting tissue. (CPMT 2010)  
 (A) Blood (B) bone (C) Lymph (D) Nerve
67. The ciliated columnar epithelial cells in humans are known to occur in. (CBSE 2011)  
 (A) Bile duct and oesophagus  
 (B) Fallopian tubes and urethra  
 (C) Eustachian tube and stomach lining  
 (D) Bronchioles and fallopian tubes
68. Which of the following is correct for (1), (2), (3) labelled in the given diagram ?



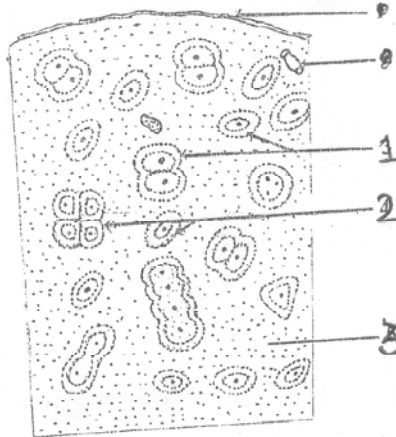
- (A) (1) Nucleus, (2) Basement membrane, (3) Free polygonal surface  
 (B) (1) Free polygonal surface, (2) Basement membrane, (3) Nucleus  
 (C) (1) Nucleus, (2) Free polygonal surface, (3) Basement membrane  
 (D) (1) Basement membrane, (2) Nucleus, (3) Free polygonal surface
69. Which of the following is correct for (1), (2), (3) and (4) in the given diagram ?



- (A) (1) Matrix (2) Chondrocyte (3) Lacunae (4) Collagen fibre  
 (B) (1) Lacunae (2) Matrix (3) Collagen fibre (4) Chondrocyte  
 (C) (1) Chondrocyte (2) Matrix (3) Collagen fibre (4) Lacunae  
 (D) (1) Collagen fibre (2) Lacunae (3) Chondrocyte (4) Matrix

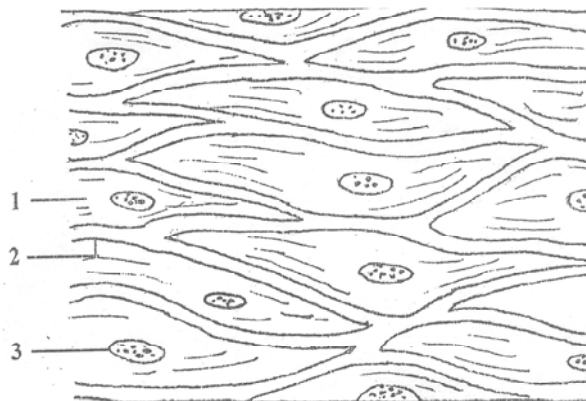
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70. Which of the following is correct for (1), (2) and (3) in the given diagram ?



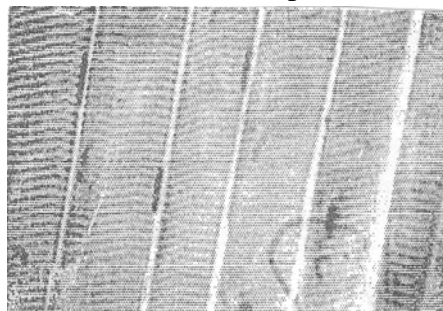
- (A) (1) Lacunae (2) Chondrin Matrix (3) Chondrocytes
- (B) (1) Chondrocytes (2) Lacunae (3) Chondrin Matrix
- (C) (1) Chondrocytes (2) Lacunae (3) Chondrin Matrix
- (D) (1) Chondrin matrix (2) Chondrocytes (3) Lacunae

71. Which of the following is correct for (1), (2), (3) in the given diagram ?



- (A) (1) Sarcoplasm (2) Sarcolemma (3) Nucleus
- (B) (1) Nucleus (2) Sarcoplasma (3) Sarcolemma
- (C) (1) Sarcolemma (2) Nucleus (3) Sacroplasm
- (D) (1) Sarcoplasm (2) Sarcolemma (3) Nucleus

72. In the following diagram the thin filament is made up of.

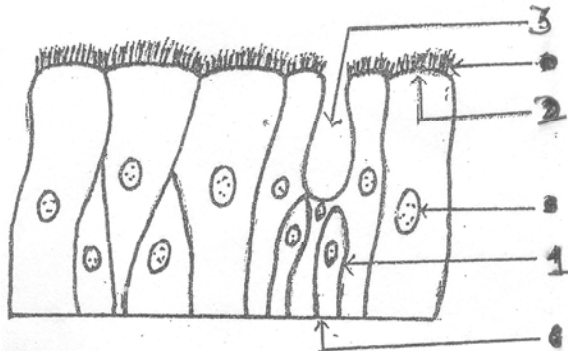


- (A) Only myosin
- (B) Actin, tropomyosin, troponin
- (C) H-line, troponin
- (D) Myosin, actin and tropomyosin



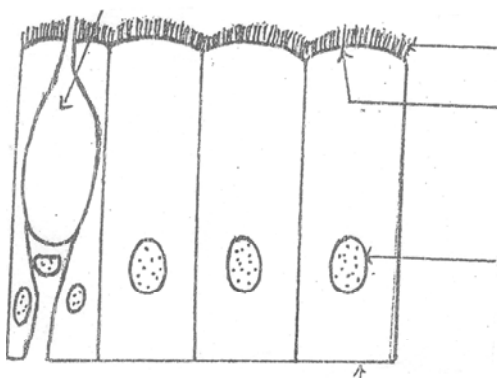
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73. Which of the following is correct for (1), (2), (3) in the given diagram ?



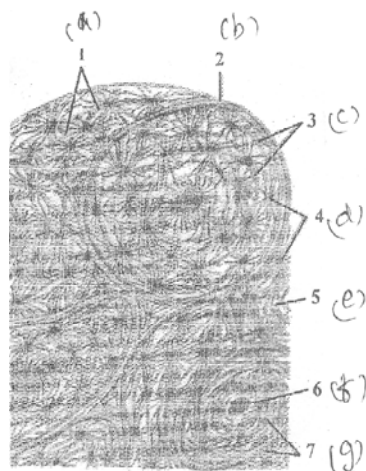
- (A) (1) Basal granule (2) Supporting cells (3) Mucus secreting cells
- (B) (1) Supporting cells (2) Mucus secreting cell (3) Basal granule
- (C) (1) Supporting cells (2) Basal granule (3) Mucus secreting cell
- (D) (1) Mucus secreting cell (2) Supporting cells (3) Basal granule

74. Write location of the following diagram.



- (A) Gall bladder
- (B) Lungs
- (C) Thyroid gland
- (D) Uterine tube

75. In the diagram of the section of bone tissue given below, certain parts have been indicated by alphabets, choose the answer in which these alphabets have been correctly matched with the parts which they indicate.



- (A) A = Interstitial lamellae, B = Laemaellae with osteocytes, C = Blood vessels, D = Nerve, E = Canaliculi, F = Naversian canal, G = Lamellae

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(B) A = Interstitial lamellae, B = Haversian system, C = Concentric lamellae, D = Lacuna with bone cells, E = Matrix, F = Haversian canal, G = Canaliculi

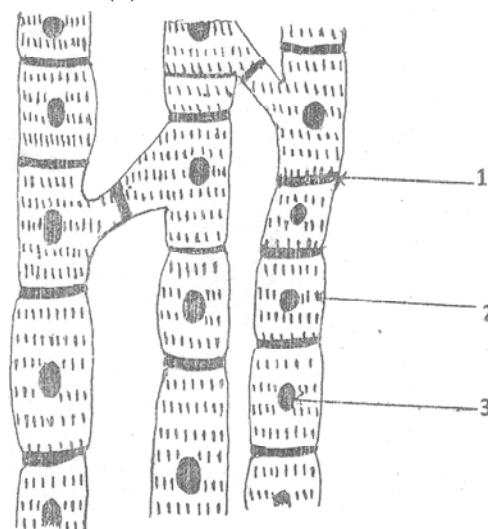
(C) A = Interstitial lamellae, B = Osteocytes, C = Nerve, D = Blood vessels, E = Canaliculi, F = Haversian system, G = Lamellae

(D) A = Interstitial lamellae, B = Osteocytes, C = Nerve, D = Blood vessels, E = Lamellae, F = Haversian canal, G = Canaliculi

76. Which of the following is correct for (1), (2), (3) in the given diagram ?

(A) (1) Nucleus (2) Bands (discs) (3) Intercalated disc

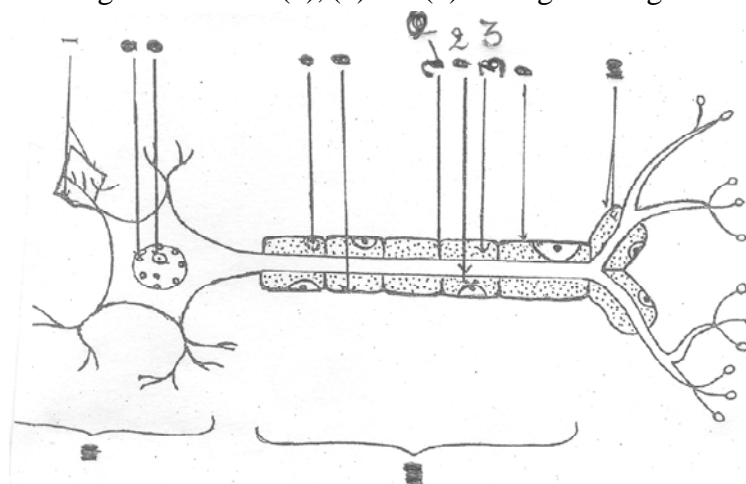
(B) (1) Bands (disc) (2) Nucleus (3) Intercalated disc



(C) (1) Nucleus (2) Intercalated disc (3) Bands (discs)

(D) (1) Intercalated disc (2) Bands (discs) (3) Nucleus

77. Which of the following is correct for (1), (2) and (3) in the given diagram ?



(A) (1) Neuroaxon (2) Myelin sheath (3) Dendron

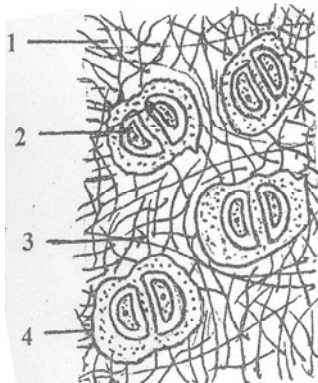
(B) (1) Myelin sheath (2) Neuroaxon (3) Dendron

(C) (1) Dendron (2) Neuroaxon (3) Myelin sheath

(D) (1) Myelin sheath (2) Dendron (3) Neuroaxon

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78. Which of the following is correct for (1), (2) and (3) in the given diagram ?



- (A) (1) Elastic fibre (2) Lacunae (3) Matrix (4) Chondrocytes  
 (B) (1) Matrix (2) Chondrocytes (3) Lacunae (4) Elastic fibre  
 (C) (1) Chondrocytes (2) Matrix (3) Elastic fibre (4) Lacunae  
 (D) (1) Lacunae (2) Elastic fibre (3) Matrix (4) Chondrocytes

79. Which tissue indicated by given diagram ?

- (A) Calcified cartilage (B) Hyaline cartilage  
 (C) White fibre cartilage (D) Yellow elastic cartilage

## ANSWER KEY

1. (B)	2. (C)	3. (C)	4. (B)
5. (A)	6. (C)	7. (A)	8. (C)
9. (D)	10. (A)	11. (B)	12. (C)
13. (C)	14. (D)	15. (C)	16. (D)
17. (B)	18. (C)	19. (A)	20. (B)
21. (A)	22. (A)	23. (B)	24. (B)
25. (B)	26. (A)	27. (B)	28. (D)
29. (A)	30. (B)	31. (D)	32. (A)
33. (B)	34. (A)	35. (B)	36. (B)
37. (B)	38. (A)	39. (A)	40. (B)
41. (B)	42. (B)	43. (A)	44. (A)
45. (B)	46. (D)	47. (B)	48. (A)
49. (C)	50. (B)	51. (C)	52. (D)
53. (C)	54. (C)	55. (D)	56. (D)
57. (A)	58. (C)	59. (A)	60. (C)
61. (B)	62. (D)	63. (B)	64. (A)
65. (B)	66. (D)	67. (D)	68. (C)
69. (D)	70. (C)	71. (A)	72. (D)
73. (C)	74. (D)	75. (D)	76. (D)
77. (C)	78. (A)	79. (D)	