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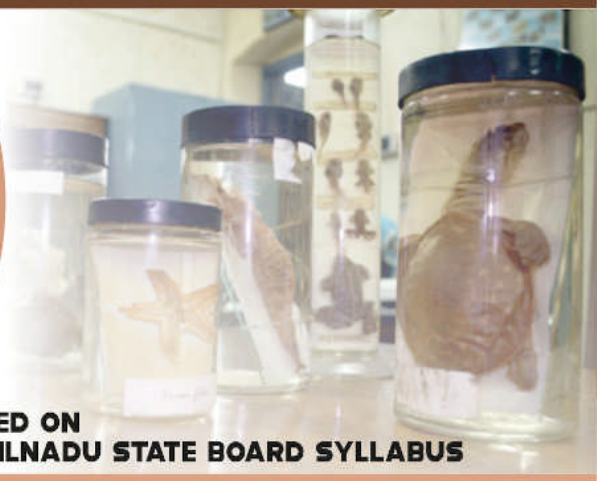

BASED ON
TAMILNADU STATE BOARD SYLLABUS

Bio-Zoology

N. Arumugam T. Selva Mohan M.G. Ragunathan

Volume 1 and 2

Only Book having Questions framed line by line from the Text Book

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3 Tissue Level of Organisation

Book Back Solved Questions - 1 Mark

1. The main function of the cuboidal epithelium is
   a. Protection b. Secretion
   c. Absorption
   d. Both (b) and (c)

2. The ciliated epithelium lines the
   a. Skin b. Digestive tract
   c. Gall bladder d. Trachea

3. What type of fibres are found in connective tissue matrix?
   a. Collagen b. Areolar
   c. Cartilage d. Tubular

4. Prevention of substances from leaking across the tissue is provided by
   a. Tight junction
   b. Adhering junction
   c. Gap junction
   d. Elastic junction

5. Non-shivering thermogenesis in neonates produces heat through
   a. White fat b. Brown fat
   c. Yellow fat d. Colourless fat

Additional Solved Questions - 1 Mark

1. The study of tissues is called ——

2. ———— are spaces containing bone cells

3. ———— connective tissue contains irregular patterns of fibre orientation.

4. Fine fibrils are called ————

5. Most of the cells in areolar tissue are
   a. Fibroblasts b. Macrophages
   c. Mast cells
   d. All the above

6. Reticular connective tissue is found in
   a. Liver b. Spleen
   c. Kidneys d. Skin

7. Collagen is
   a. Lipid b. Carbohydrate
   c. Globular protein
   d. Fibrous

---

1. (d) 2. (d) 3. (a) 4. (a) 5.(b) 1. Histology 2. Lacunae
3. Dense irregular 4. Myofibrils 5. (d) 6. (b) 7. (d)

8. The tissue that lines and covers the body is ———

a. Epithelium b. Connective
c. Nervous d. Muscle

9. Connective tissue develops from —

a. Endoderm b. Ectoderm
c. Mesoderm
d. Endomesoderm

10. Cartilage and bone are types of

a. Muscular tissue
b. Connective tissue
c. Meristematic tissue
d. Complex tissue

11. Match the following and choose the correct option.

A. Adipose tissue	- (i) Nose
B. Stratified epithelium	- (ii) Blood
C. Cartilage	- (iii) Skin
D. Fluid connective tissue	- (iv) Fat storage

Options

a. A – i, B – ii, C – iii, D – iv
b. A – iv, B – iii, C – i, D – ii
c. A – iii, B – i, C – iv, D – ii
d. A – ii, B – i, C – iv, D – iii

12. Which one of the following types of cell is involved in making of the inner walls of blood vessels?

a. Cuboidal epithelium
b. Columnar epithelium
c. Squamous epithelium
d. Stratified epithelium

13. Which one of the following is not a connective tissue?

a. Bone b. Cartilage
c. Blood
d. Muscles

14. Below the skin, the fat is in the form of

a. Lipoproteins
b. Adipose tissue
c. Mucous layer
d. Lymphoid tissue

15. Which one of the following has mast cells?

a. Adipose tissue
b. Areolar tissue
c. Yellow fibrous tissue
d. White fibrous tissue

16. The tissue present in the lining of kidney tubules ducts and secretory portions of glands.

a. Squamous epithelium
b. Glandular epithelium
c. Cuboidal epithelium
d. Columnar epithelium

17. Which of the following made of several layers of cells?

a. Ciliated epithelium
b. Stratified epithelium
c. Cuboidal epithelium
d. Columnar epithelium

18. Which of the following is arranged in a single layer?

8. (a) 9. (c) 10. (b) 11. (b) 12.(c) 13. (d) 14. (b) 15. (b)
16. (c) 17. (b) 18. (c)

a. Stratified epithelium
b. Pseudo – Stratified epithelium
c. Ciliated epithelium
d. Transitional epithelium

19. Which type of tissue correctly matched with its location?

Tissue	Location
a. Cuboidal epithelium	- Lining of stomach
b. Smooth muscle	- Wall of intestine
c. Areolar tissue	- Tendons
d. Transitional epithelium	- Tip of nose

20. Smooth muscles are

a. Involuntary, Cylindrical, Striated
b. Voluntary, Spindle shaped, Uninucleate
c. Involuntary, Fusiform, Non – Striated
d. Voluntary, Multinucleate, Cylindrical

21. Which one of the following is not a function of epithelial tissue?

a. Respiration b. Protection
c. Absorption d. Secretion

22. What is the role of an exocrine gland?

a. To secrete substances into lymph
b. To secrete hormones
c. To secrete and release the substances through ducts.
d. To secrete substances into the blood

23. Which of the following is not an example of connective tissue?

a. Blood b. Cartilage
c. Areolar d. Transitional

24. Brown fat found in

a. Females
b. Males
c. Neonates
d. None of the above

25. Which one of the following is not a simple epithelium

a. Squamous epithelium
b. Cuboidal epithelium
c. Stratified epithelium
d. Columnar epithelium

26. Transitional epithelium is found in

a. Buccal cavity
b. Ducts of glands
c. Digestive tract
d. Urinary bladder

27. Select the correct sequence

a. Molecules →Tissues → Cells→ Organ systems→ organs →organisms
b. Molecules → cells→ Tissues →Organs→ organ system →organisms

19. (b) 20. (c) 21. (a) 22. (c) 23.(d) 24. (c) 25. (c) 26. (d) 27. (b)

c. Cells →molecules →Organs →Tissues→Organ systems→organisms

d. Organisms →Organs →Organ system →cells →Tissues →Molecules

28. Which one of the following is a specialized connective tissue?

a. Bone b. Mast cells
c. Fibres d. Lymphocytes

29. Osteocytes are

a. Bone cells b. Blood cells
c. Nerve cells d. Lymph cells

30. Osteocytes are present in the spaces called

a. Intercellular space
b. Lacunae c. Diaphragm
d. Tight junction

31. What level of organisation is made up of a group of similar cells that perform a specific function?

a. Tissue b. Organ
c. Organelle d. Organ system

32. The most basic unit of organization in animals is the

a. Cell b. Tissue
c. Organelle d. Organ system

33. The shape of smooth muscle is

a. Cylindrical b. Spindle
c. Fusiform d. Napiform

34. Palmaris muscle is important for —— and —— in primates

a. Running and Swimming
b. Hanging and climbing
c. Flying and Jumping
d. Eating and Drinking

Book Back Solved Questions - Descriptive

6. Some epithelia are pseudostratified. What does this mean?

1. Pseudostratified epithelium is ***single layered***.

2. But it appears to be ***multilayered*** like stratified epithelium

3. Because the ***nuclei lie*** at ***different levels*** in ***different cells.***

4. So, they are called pseudostratified.

7. Differentiate white adipose tissue from brown adipose tissue

Brown Adipose tissue	White adipose tissue
1. Brown fat	White fat
2. Thermogenic	Non-Thermogenic
3. Many mitochondria	Few mitochondria
4. Warms the body	Stores nutrients
5. Multilocular	Unilocular

8. Why blood is considered as a typical connective tissue?

1. Blood develops from the ***mesoderm*** of the ***embryo.***

28. (a) 29. (a) 30. (b) 31. (a) 32. (a) 33. (c) 34.(b)

2. It connects all the ***organ systems*** of the body by transporting the following:

** Oxygen * Hormones, etc.*

** Nutrients*

3. It is a ***fluid connective tissue.***

9. Differentiate between elastic fibres and elastic connective tissue

Elastic fibres	Elastic connective tissue
1. A ***component*** of connective tissue	1. A type of ***dense connective tissue***
2. It provides elasticity to the elastic connective tissue.	2. It gets elasticity from elastic fibres.
3. Allows recoil of tissues following stretching.	3. Can recoil to its original shape after stretching.

10. Name any four important functions of epithelial tissue and provide atleast one example of a tissue that exemplifies each functions.

1. Protection - Pseudo stratified epithelium
2. Absorption- Columnar epithelium
3. Filtration - Squamous epithelium
4. Excretion - Squamous epithelium
5. Secretion - Cuboid epithelium
6. Sensory reception - Stratified squamous epithelium

11. Write the classification of connective tissue and their functions

1. The connective tissue is classified into three main classes. They are:
   1. *Loose connective tissues*
   2. *Dense connective tissues*
   3. *Specialised connective tissues*

Connective Tissues

Loose Connective Tissues	Dense Connective Tissues	Specialised Connective Tissues
1. Areolar Tissue	1. Dense Regular	1. Cartilage
2. Adipose Tissue	2. Dense Irregular	2. Bone
3. Reticular Tissue	3. Elastic	3. Blood

Functions

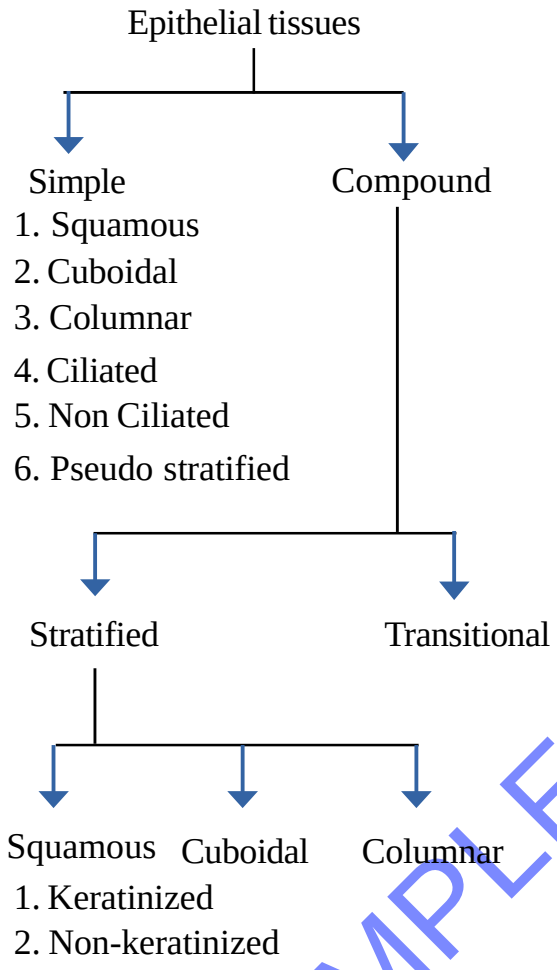
1. *Binding*
2. *Support*
3. *Protection*
4. *Insulation*
5. *Transportation*

12. What is an epithelium ? Enumerate the characteristic features of different epithelia

Epithelium is a sheet of;

1. *Covering of the body*
2. *Lining of body cavity*
3. *Gland*

Epithelium is classified as follows



Characteristic features

Simple epithelium

1. Composed of ***single layer*** of cells
2. Found in the organs of the following

Absorption Filtration Secretion

Squamous epithelium

1. Thin layered ***flattened*** cells.
2. Has ***irregular*** boundaries
3. Found in the following
   * Kidney glomeruli
   * Air sacs of lungs
   * Lining of heart
   * Lining of Blood vessels
   * Lining of Lymphatic vessels

Cuboidal epithelium

1. ***Cube*** like cells
2. Some of them get specialized for ***secretion***
3. Found in the following:
   * Kidney tubules
   * Ducts of small glands
   * Secretory portions of small glands
   * Surface of the ovary

Columnar epithelium

1. ***Tall*** cells
2. Some of them get specialized for ***secretion***.
3. Round to ***oval nuclei*** at the base
4. Lines the ***digestive tract*** from the stomach to the rectum
5. Has two modifications. They are:
   1. *Microvilli*
   2. *Goblet cells*

Ciliated epithelium

1. ***Long*** cells
2. Bear ***cilia*** on their free surfaces
3. Propels ***mucus*** by ciliary actions
4. Lines the following:
   * *Trachea*
   * *Bronchioles*
   * *Upper respiratory tract*
   * *Fallopian tubes*
   * *Uterus*

Non-ciliated type

1. Cilia are absent
2. Lines the following:
   * *Digestive tract*
   * *Gall bladder*

* *Secretory ducts of glands*
* *Epididymis*

Pseudo-Stratified epithelium

1. Unequal ***columnar*** cells.
2. Appears ***like multi layered***
3. Nuclei lie at different levels in different cells.

Compound epithelium

1. Made of ***multi-layered*** cells
2. Has limited role in ***secretion*** and ***absorption***.
3. Covers the following
   * Dry surface of the skin
   * Moist surface of buccal cavity
   * Pharynx
   * Inner lining of ducts of salivary glands
   * Inner lining of pancreatic ducts

Stratified squamous epithelium

1. Keratinized epithelium

Forms the ***dry epidermis*** of the skin

2. Non keratinized epithelium

Forms the following:

* *Moist lining of the Oesophagus*
* *Moist lining of the mouth*
* *Conjunctiva of the eyes*
* *Vagina*

Stratified cuboidal epithelium

Found in the following:

* *Ducts of sweat glands*
* *Ducts of mammary glands*

Stratified columnar epithelium

1. Has limited distribution
2. Found in the following:
   * *Lumen of the pharynx*
   * *Male urethra*
   * *Lining of some glandular ducts*

Transitional epithelium

1. Found in the following:
   * *Ureters* * *Part of the urethra*
   * *Urinary bladder*

Additional Solved Questions - Very Short Answers: 2 Marks

1. Why tissues are called as 'living fabrics'?

1. Tissues are ***organized*** in specific proportions and ***patterns*** to form organs like Heart, Lungs, stomach, kidneys, etc.
2. Hence the tissues are called ***'living fabrics'***.

2. What is organ system?

Two or more organs ***work together*** and perform the common ***functions***.

Eg.1. Digestive system
2. Respiratory system, etc.

3. How animal tissues are classified?

1. The animal tissues are classified according to the
   1. *Size*
   2. *Shape*
   3. *Function of the cells*

4. Write the basic tissue types of animal tissue

1. *The epithelial tissue*
2. *The connective tissue*
3. *The muscle tissue*
4. *The nervous tissue*

5. What are the functions of Pseudo-stratified epithelium

1. Protection 3. Absorption
2. Secretion

6. Write some important epithelial tissue disorders

1. Eczema
2. Psoriasis
3. Epithelial carcinoma
4. Severe asthma

7. What is glandular epithelium?

Cuboid or columnar cells of secreting surface of the ***glands***

2. It has two types they are:

1. Unicellular glandular-epithelium - Goblet cells of the alimentary canal

2. Multi cellular glandular epithelium - salivary glands.

8. What are exocrine glands?

1. The glands secrete and release their products through ***ducts*** or ***tubes***.

2. They secrete the following:

* Mucus * Milk
* Ear wax *Digestive enzymes
* Oil * Cell products

3. Eg. *Salivary gland*
Sweat gland etc.

9. What are endocrine glands?

1. ***Ductless glands.***

2. They secrete the ***hormones***

3. Hormones are secreted directly into the fluid bathing the gland.

4. Eg. *Pituitary gland*
Thyroid gland

10. What is connective tissue?

1. A type of animal tissue that binds supports, protects, insulates and transports the substances.

2. It develops from the ***mesoderm***

11. What are dense connective tissues?

The connective tissues which ***contain compactly packed fibres*** and ***fibroblasts.***

12. What are the three types of dense connective tissues?

1. Dense regular connective tissues
2. Dense irregular connective tissues
3. Elastic connective tissues.

13. What is dense regular connective tissue?

Orientation of fibres show a ***regular pattern***.

14. What are the types of specialized connective tissues?

1. Cartilages 2. Bones 3. Blood

15. Write the levels of structural Organisation

1. Molecular level
2. Cellular level
3. Tissue level
4. Organ level
5. Organ system level
6. Organismal level.

16. What type of connective tissue is damaged when one get cut on his index finger accidentally?

Areolar connective tissue.

17. Define Biopsy

An ***examination of tissue*** or ***liquid removed from a living body*** to discover the presence, cause or extent of a ***disease.***

18. Define Autopsy

1. Autopsy is ***post-mortem***.
2. It is the ***dissection*** of a dead body.
3. It is the examination to discover the ***cause of death*** or the extent of ***disease.***

19. Write the importance of Forensic science

Histological techniques to trace out ***crimes.***

20.What are the important connective tissue disorders

1. Ehlers – Danlos syndrome
2. Stickler Syndrome
3. Rhabdomyosarcoma

21. What are the disorders of autoimmune connective tissue?

1. Rheumatoid arthritis
2. Sjogren's syndrome

22. Write short notes on stickler syndrome

1. A ***connective tissue disorder.***
2. It affects ***collagen.***
3. It results in ***facial abnormalities.***

23. Write short notes on Rhabdomyosarcoma.

1. A ***connective tissue*** disorder.
2. A soft ***tissue tumour.***
3. The tumour occurs in the following parts,
   1. *Head*
   2. *Neck*
   3. *Urogenital tract*
4. It is life ***threatening***.

24. Write short notes on Rheumatoid arthritis

1. An ***autoimmune connective tissue disorder.***
2. The immune cells ***attack*** the following organs
   1. *Inflammation of joints*
   2. *Heart*
   3. *Lungs*
   4. *Eyes*

25. Write short notes on sjogren's syndrome

1. An ***autoimmune connective*** tissue disorder.
2. Inability to secrete ***saliva*** and ***tears.***

26. You are looking at a slide of a tissue through the compound microscope and you see striped branching cells that connect with one another. What type of muscle are you viewing

Skeletal muscle tissue

27. Write short notes on palmaris muscle

1. A ***long narrow*** muscle used for ***hanging*** and ***climbing*** of primates and some humans.
2. It runs from the ***elbow*** to the ***wrist.***
3. It is missing in 11% of humans.

Additional Solved Questions - Short Answers : 3 Marks

1. Write short notes on ciliated type epithelium

1. The ***columnar epithelial cells*** bear ***cilia*** on their free surfaces.
2. It ***propels*** mucus by ***ciliary actions***.
3. It lines the following parts:
   1. *Small bronchioles*
   2. *Fallopian tubes*
   3. *Uterus*
   4. *Trachea*
   5. *Upper respiratory tract*

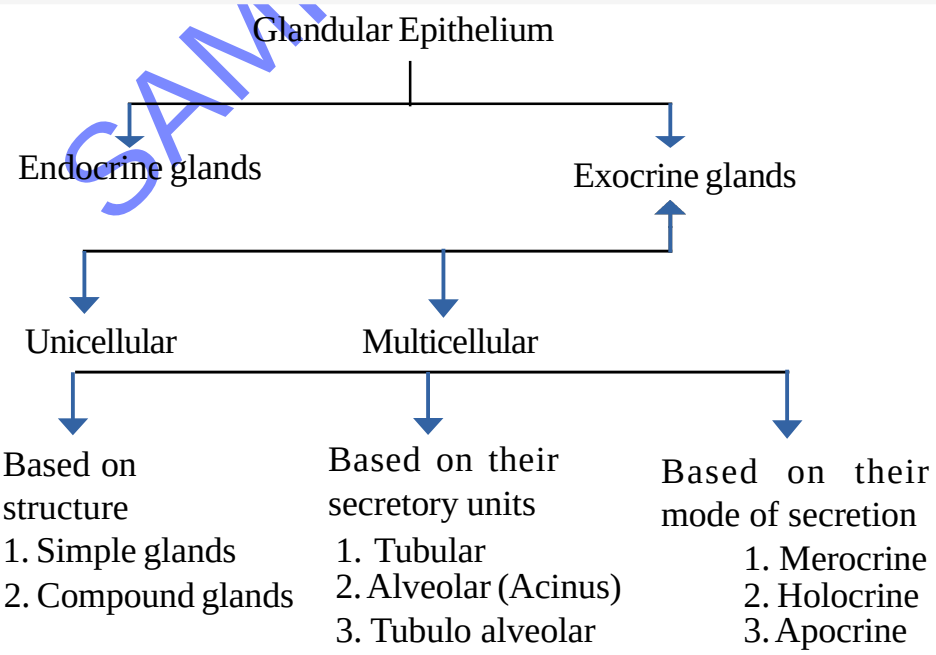
2. Write short notes on non-ciliated type epithelium

1. The columnar epithelial cells do not bear cilia on their free surface.
2. It lines the following parts:
   1. *Digestive tract*
   2. *Gall bladder*
   3. *Secretory ducts of glands*
   4. *Epididymis*
   5. *Large ducts of glands*
   6. *Tracts of male urethra.*

3. Write short notes on Pseudostratified epithelium

1. ***Columnar*** epithelial cells.
2. They are ***unequal*** in ***size***
3. They are ***single layered.***
4. But, they appear to be ***multilayered.***
5. The nuclei lie at ***different levels*** in ***different cells***
6. Hence called ***pseudostratified*** epithelium.

4. Draw the flow chart of classification of Glandular epithelium



5. Write short notes on Areolar connective tissue

1. A ***type*** of ***loose connective tissue.***
2. Found ***beneath*** the ***skin***
3. Acts as a reservoir of ***water*** and ***salts*** for the surrounding body tissues.
4. Hence it is called ***tissue fluid.***
5. It contains the following cells:
   1. *Fibroblasts*
   2. *Macrophages*
   3. *Mast cells*
   4. *Collagen fibres*

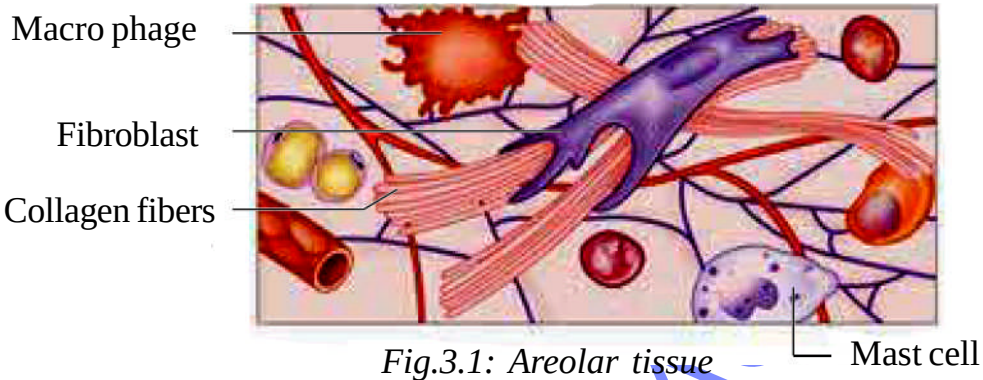


Fig.3.1: Areolar tissue

6. Write notes on Reticular connective tissue

1. A type of ***loose connective tissue***
2. It resembles ***areolar connective tissue.***
3. The matrix is filled with ***fibroblasts*** called ***reticular cells.***
4. It forms an ***internal framework*** called ***stroma.***
5 The stroma supports the ***blood cells*** and lymphocytes in the following parts:
   1. *Lymph Nodes*
   2. *Spleen*
   3. *Bone marrow*

7. Explain elastic connective tissue

1. A type of ***Dense connective tissue.***
2. It contains ***high proportion*** of ***elastic fibres.***
3. It allows
   1. *Recoil of tissues*
   2. *Stretching of tissues*
4. It maintains the ***pulsatile flow*** of ***blood*** through the ***arteries***
5. It maintains the ***passive recoil*** of lungs following ***inspiration***
6. It is found in the following parts.
   1. Walls of ***large arteries***
   2. Ligaments associated with ***vertebral column***
   3. Within the walls of the ***bronchial tubes.***

8. Write short notes on cartilage.

1. A ***specialized*** connective tissue.
2. The intercellular material of cartilage is
   1. *Solid*
   2. *Pliable*
   3. *Resists Compression*
3. Cells of this tissue are called ***chondrocytes.***

4. Chondrocytes are enclosed in small cavities within the ***matrix.***

5. The cartilages in vertebrate embryos are replaced by ***bones*** in adults.

6. It is present in the following parts

1. Tip of Nose
2. Outer ear joints
3. Ear pinna
4. Between adjacent bones of the vertebral column
5. Limbs
6. Hands in adults.

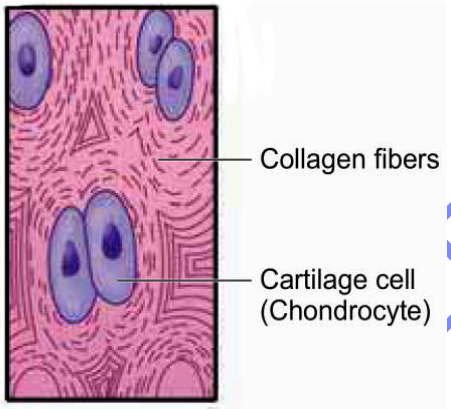


Fig.3.2: Carrtilage

9. The stored lipids are in the form of adipose tissue. Are they coloured? Why?

1. ***Yes.***
2. They occur in two colours they are
   1. *White*
   2. *Brown*

Reason

1. If the ***mitochondria*** are less the adipose tissue is white in colour.
2. If the ***mitochondria*** are abundant it is brown in colour.

10. Write short notes on Ehlers- Danlos syndrome.

1. Ehlers-Danlos syndrome is a connective tissue ***disorder.***
2. It causes defect in the ***synthesis of collagen*** in the following
   1. *Joints*
   2. *Heart Valves*
   3. *Organ walls*
   4. *Arterial walls*

11. Write short notes on skeletal muscle

1. Attached to ***skeletal bones.***
2. ***Striated (striped)*** muscle.
3. It is formed of ***muscle fibres.***
4. Muscle fibres are in ***bundles.***
5. They are arranged in ***parallel*** fashion.
6. Connective tissue sheath encloses many bundles.

Eg. Biceps muscles.

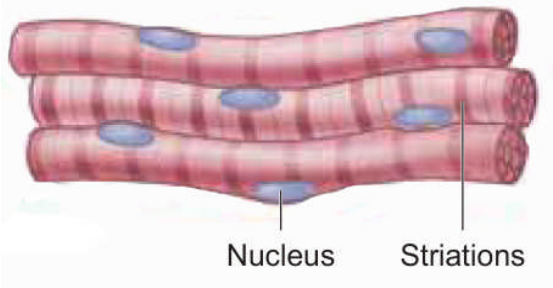


Fig.3.3: Skeletal muscle

12. Write short notes on smooth muscles?

1. The smooth muscle fibres ***taper at both ends*** (fusiform)
2. They do not show ***striations.***
3. They are bundled together by the ***cell junctions.***

4. They are ***'involuntary'*** as their functions cannot be directly controlled

5. The following parts contain this type of muscles.

1. Blood vessels
2. Stomach
3. Intestine

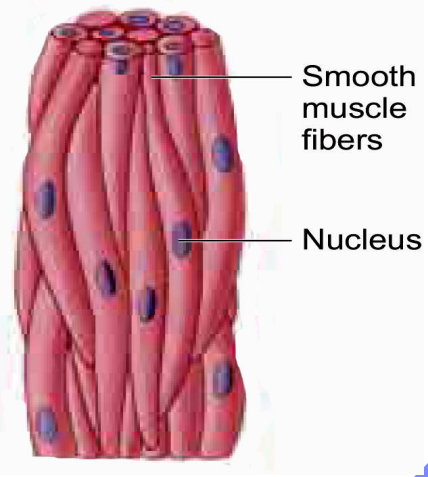


Fig.3.4: Smooth muscle

13. Write short notes on cardiac muscle tissue

1. ***Heart*** muscle tissue
2. ***Contractile*** tissue
3. Unstriped

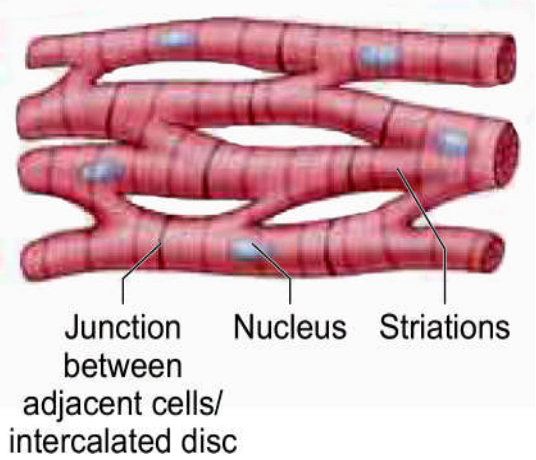


Fig.3.5:Cardiac muscle

4. It's plasma membranes are fused together by ***cell junctions.***

5. ***Contraction*** is not under our control.

6. Communication junctions at some fusion points allow the cells to ***contract*** as a unit.

14. Write short notes on Parkinson's disease

1. The disease of ***nervous system***.
2. Nervous system ***degenerates.***
3. It affects ***movements.***
4. It causes ***tremors***

15. Write short notes on Alzheimer's disease

1. The disease of ***nervous system.***
2. ***Chronic neurodegeneration***
3. It includes the following symptoms:

1. Difficulty in remembering recent events
2. Problems with language
3. Disorientation
4. Mood swings.

16. A player has sustained a severe injury during football practice and was told that he has a torn knee cartilage. Can he expect a quick uneventful recovery? Explain your response.

No, he can
not expect a quick recovery

Reason

1. Cartilage cannot repair
2. It lacks the blood supply
3. It heals very slowly

Additional Solved Questions - Long Answers : 5 Marks

1. Write short notes on Transitional Epithelium.

1. Transitional epithelial cells are held together with little ***inter cellular material.***

2. It is found in the lining of following parts

1. *Ureters*
2. *Urinary bladder*
3. *Part of the urethra*

3. It allows ***stretching***

4. It is ***protective*** in function.

5. ***Specialized junctions*** are present in most of the animal tissues

6. It provides both ***structural*** and ***functional links*** between the individual cells

7. There are three types of cell junctions.

They are

1. *Tight junctions*
2. *Adhering junctions*
3. *Gap junctions*

8. Tight junction helps to ***stop substances*** from leaking across a tissue

9. Adhering junctions cement the ***neighbouring cells together***

10. Gap junctions facilitate the cells to ***communicate*** with each other by the following:

* Connecting the ***cytoplasm*** of adjoining cells.

* Rapid transfer of:

1. *Ions*
2. *Small molecules*
3. *Big molecules*

2. Write short notes on components of connective tissues

1. Connective tissue consists of ***three*** main components

2. They are as follows

1. *Fibres*
2. *Ground substances*
3. *Cells*

3. The fibres of connective tissue provide ***support.***

4. ***Three*** types of ***fibres*** are found in the connective tissue matrix

5. They are

1. *Collagen fibres*
2. *Elastic fibres*
3. *Reticular fibres*

6. Connective tissues are of three types. They are:

1. *Loose connective tissues*
2. *Dense connective tissues*
3. *Specialised connective tissues*

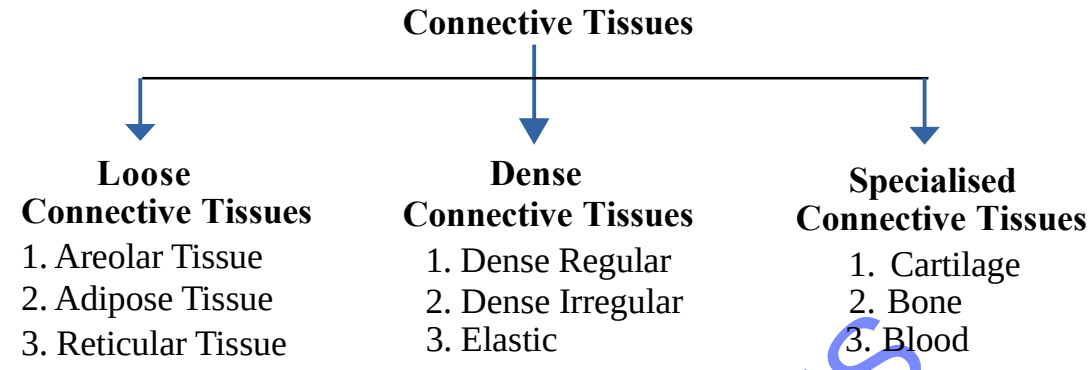
7. Loose connective tissues include

1. Areolar connective tissues
2. Adipose connective tissues.
3. Reticular connective tissues

8. Dense connective tissues include

1. Dense regular connective tissue.
2. Dense irregular connective tissue.
3. Elastic connective tissue.

9. Specialized connective tissues include
1. Cartilage
2. Bone
3. Blood



3. Explain the Adipose tissue

1. A loose ***connective tissue.***
2. Similar to ***areolar tissue*** in ***structure and function***
3. Located in the following regions:
   * *Subcutaneous tissue*
   * *Surrounding the kidneys*
   * *Surrounding the eye ball*
   * *Surrounding the heart etc.*
4. Constitutes ***90%*** of the total tissue mass,
5. Stores fats and ***Excess nutrients.***
6. Richly ***vascularised.***
7. Has high ***metabolic activity.***
8. It is of two types
   1. White fat/white adipose tissue
   2. Brown fat/Brown adipose tissue
9. White fat stores ***nutrients***
10. Brown fat contains ***mitochondria***
11. It is used to ***heat the blood*** stream.
12. It is used to ***warm*** the body.
13. It produces heat by non-***shivering thermogenesis*** in ***neonates***
14. Adipose tissue produces the cells called ***Adipocytes***.
15. Adipocytes are commonly called ***adipose*** or ***fat cells***.
16. During ***fasting,*** these cells supply ***energy*** as ***fuel.***

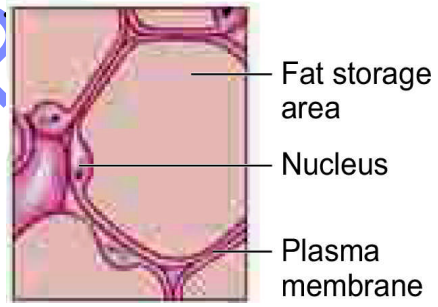


Fig.3.6: Adipose tissue

4. Explain Dense regular connective tissue

1. A type of dense ***connective tissues.***
2. Contains collagen fibres in rows.
3. Located between many ***parallel bundles of tissues*** and a few ***elastic fibres.***
4. It has ***fibroblast.***
5. It attaches ***muscles*** and ***bones.***
6. It withstands great ***tensile stress.***
7. It is present in ***tendons.***

8. The tendons attach ***skeletal muscles*** to ***bones.***

9. The ligaments attach ***one bone*** to ***another.***

5. Explain Dense irregular connective tissues

1. A type of ***Dense connective tissue.***

2. Found in the ***skin*** as ***leathery dermis.***

3. Form ***fibrous capsules*** in the following organs:

1. Kidneys 4. Muscles
2. Bones 5. Nerves
3. Cartilages 6. Joints

4. They have the following

1. Thick collagen fibres
2. Fibroblasts
3. Elastic fibres.

5. Fibroblasts are arranged ***irregularly***.

6. Fibroblasts are able to ***withstand tension*** exerted in ***many directions***.

7. They provide ***structural strength***.

6. Describe the bones

1. A type of ***specialised connective tissue.***

2. Have a ***hard*** and ***non-pliable*** ground substance.

3. The ground substances are rich in ***calcium salts*** and ***collagen fibres.***

4. The bone cells are called ***Osteocytes.***

5. They are present in the spaces called ***lacunae.***

6. Limb bones are the ***long bones.***

7. They interact with skeletal muscles.

8. Bones involve the following functions:

** Provide structural framework*

** Support the soft tissues and organs.*

** Protect the soft tissues and organs.*

** Limb bones serve weight bearing functions.*

7. Write short notes on nervous tissue

1. The component of ***nervous system.***

2. It is also called ***neural tissue.***

3. It controls the ***body functions*** and ***activities.***

4. It is composed of two types of cells. They are;

* ***Neurons*** - excitable cells
* Neuroglia

5. Neurons are the structural and functional ***unit*** of nervous system.

6. An ***electrical disturbance*** is generated by the stimulation of neuron.

7. Electrical disturbances travel along its plasma membrane.

8. Arrival of the disturbance at the neuron's endings, or output zone, triggers the events.

9 This events may cause stimulation or inhibition of adjacent neurons and other cells.

10. ***Neuroglial cells*** constitute the rest of the neural system.

11. They ***protect*** and ***support*** the neurons.

12. They make up more than one-half of the volume of neural tissue in our body.

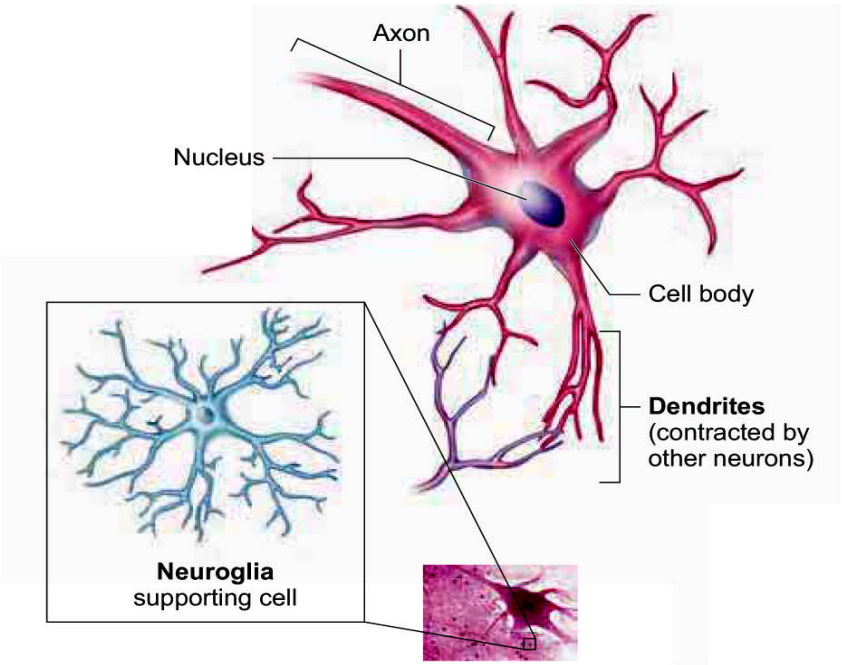


Fig.3.7: Nervous tissues with neuroglia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