YAKEEN NEET 2.0

2026

28·5·2025

STRUCTURAL ORGANISATION IN ANIMALS

ZOOLOGY | Lecture – 04

By- SAMAPTI MAM

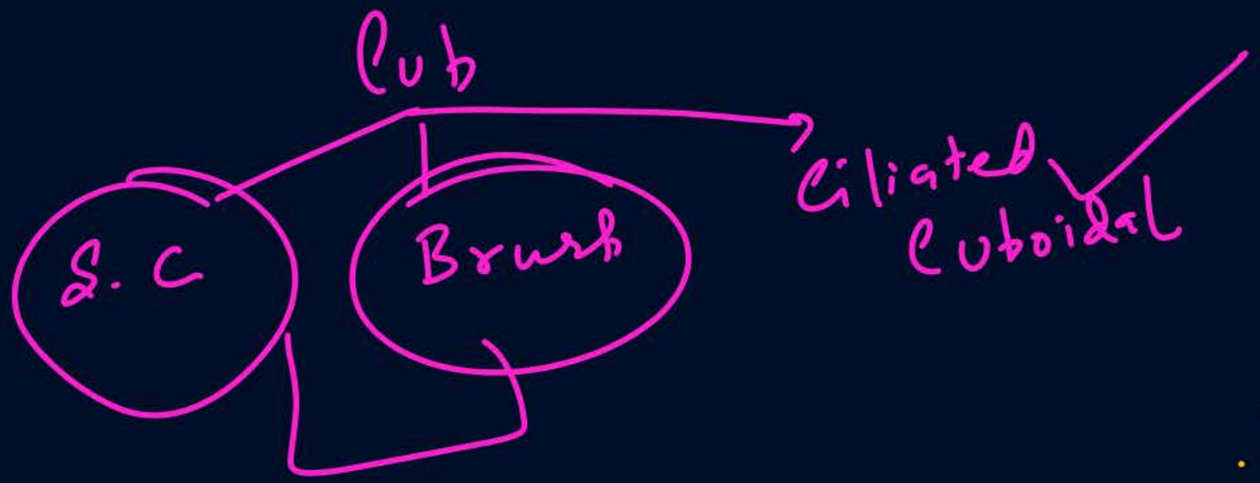
Topics to be covered

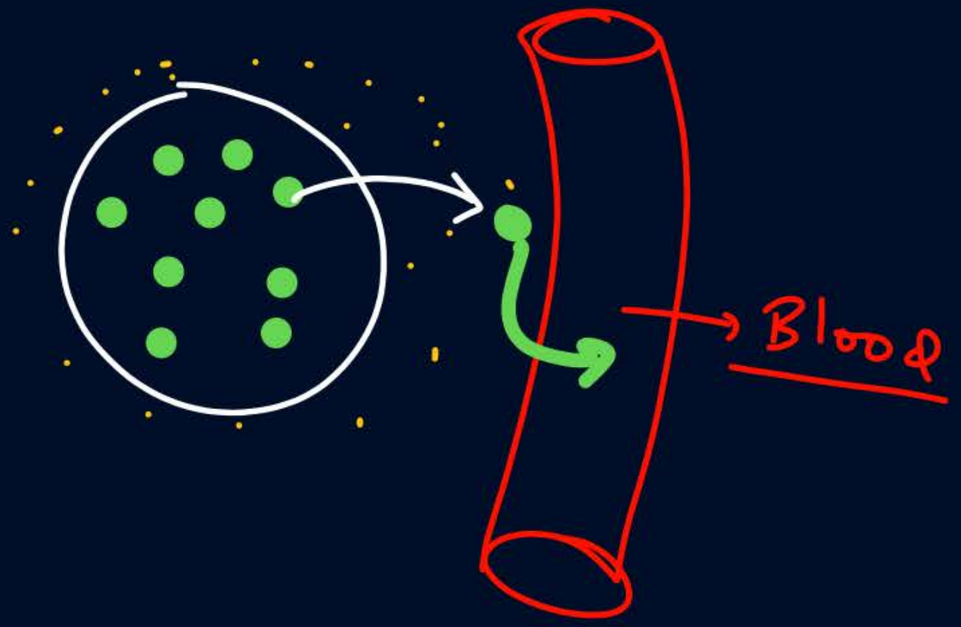
1. Compound epithelium, cell junctions
2.
3.
4.

MY TELEGRAM

'Audio - Podcast'

#Damagetheexpress





Ncert Calalyst

How

Given below are two statements: one is labelled as Assertion A and the other is labelled as Reason R.

Assertion A: Columnar or cuboidal cells bear cilia on their free surface and forms compound epithelium.

Reason R: Ciliated epithelium acts by moving particles or mucus in a specific direction over the epithelium.

In the light of above statements, choose the **correct** answer from the options given below:

(1) Both A and R are true and R is the correct explanation of A.

(2) Both A and R are true but R is NOT the correct explanation of A.

(3) A is true but R is false.

(4) A is false but R is true.

The organ that possesses epithelium composed of flattened, plate-like cells with irregular boundaries in its walls is:

(1) air sacs of lungs.

(2) nephrons of kidney.

(3) fallopian tubes.

(4) salivary glands.

Q2 (1)

Read the below given statements and choose the **correct** option.

I. The nuclei are present at the base.

II. They are composed of a single layer of tall and slender cells.

III. Free surface may have microvilli.

(1) Compound epithelium

(2) Simple squamous epithelium

(3) Simple columnar epithelium

(4) Simple cuboidal epithelium

Q-3 (3)

Which of the following options is **correct** w.r.t the location of squamous epithelium?

(1) Walls of blood vessels

(2) Intestine

(3) Bronchioles

(4) Nephrons

Q-4 (1)

In human beings, ciliated epithelium is mainly present in:

(1) salivary duct.

(2) pancreatic duct.

(3) alveoli.

(4) bronchioles.

Q-5 (4)

Question

BRUSH BORDERED cuboidal epithelium is found in:

Q-6

A

A PCT

B DCT

C AIR SAC

D BLOOD VESSEL

Question

Pavement epithelium is

Q-7 D

A. Squamous epithelium

B. Found in air sac

C. Has irregular boundaries

D. All of the above

Question

Ciliated epithelium is found in

Q-8
D

A PCT

B FALLOPIAN TUBE ✓

C BRONCHIOLES ✓

D BOTH B AND C

Question

WHICH OF THE FOLLOWING STATEMENT IS INCORRECT ABOUT SIMPLE COLUMNAR EPITHELIUM

Q-9 (B)

A TALL, SLENDER CELL

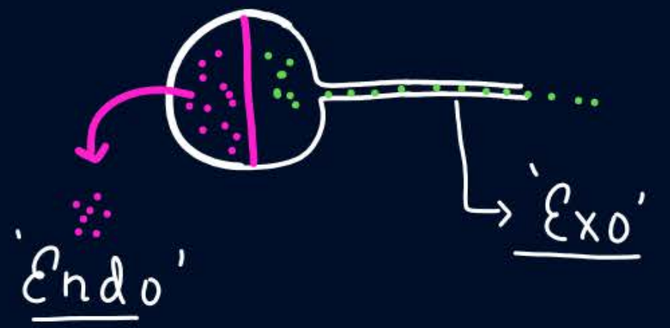
B NUCLEUS IS OVAL AND FOUND IN CENTRE

C FOUND IN THE GI TRACT

D MAY HAVE MODIFICATION ON FREE SURFACE LIKE MICROVILLI OR CILIA

Note **Heterocrine/Mixed/Composite:**

- Glands that has both 'Exocrine' as well as 'Endocrine' part.



eg: • Pancreas

- 'Endo' → islets of langerhans (hormone)
- 'Exo' → cell of acini (Digestive enzymes)

• Gonads: Ovary, testis
- 'Exo': gamete
- 'Endo': hormones

COMPOUND EPITHELIUM:

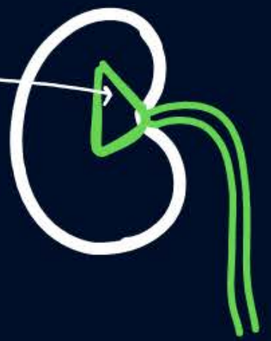
- Multilayered
- Major role: Covering & Protection , Less role in secretion & Absorption

Compound Epithelium

i) Strechable / Transitional (अतिरिक्त Gyaan)

- It can be stretched (very thin basement (Basement Absent)

eg: Urinary Bladder, Ureter, Renal Pelvis



(ii) Non-stretchable / Stratified epithelium

- Non stretchable.

☆ As per NCERT, Compound epithelium (Stratified) is present in DRY & MOIST surfaces of Body:

(a) 'DRY'

→ 'Keratin' protein deposited on top making the surface Dry & impermiable for H_2O

(b) 'MOIST' : NO KERATIN

'Dry'

- SKIN
  - ↳ Keratinised Stratified Epithelium

'Moist' (Non-Keratinised)

eg: Pharynx, Buccal cavity, oesophagus, Vagina, Larger duct of Glands.

(Pancreatic duct, salivary duct)

Compound epithelium is made of more than one layer (multi-layered) of cells and thus has a limited role in secretion and absorption (Figure 7.3). Their main function is to provide protection against chemical and mechanical stresses. They cover the dry surface of the skin, the moist surface of buccal cavity, pharynx, inner lining of ducts of salivary glands and of pancreatic ducts.

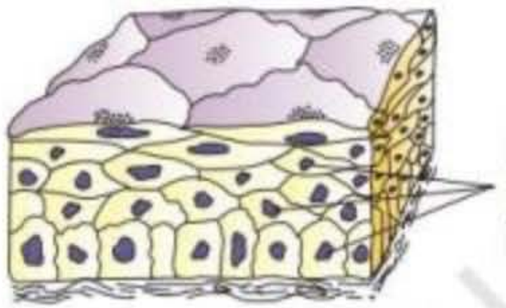
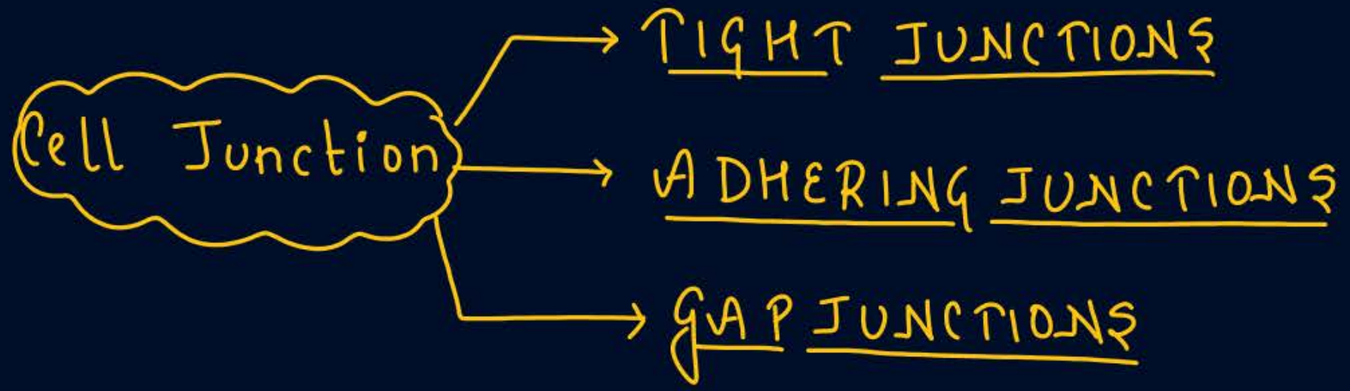


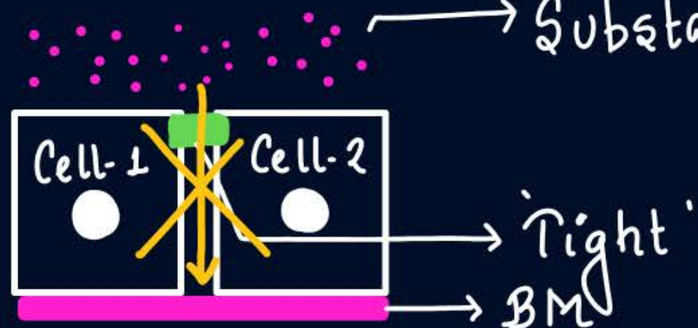
Figure 7.3 Compound epithelium

CELL JUNCTIONS: These are the structural & functional connection b/w cells.

- Epithelial tissue maximum cell junction compared to other tissues.

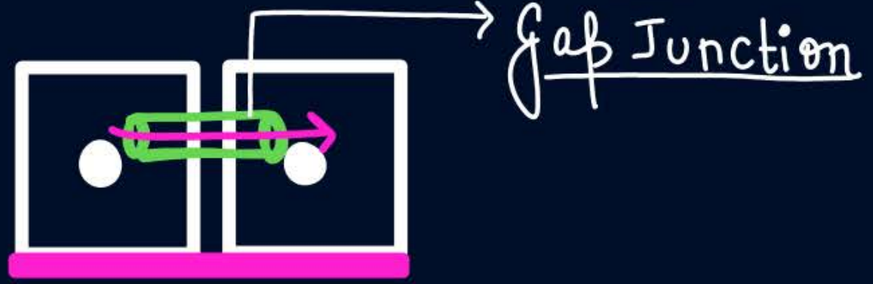


(i) Tight Junction: Prevents Leakage across the tissue.



(eg: Blood-testis-Barrier)
Blood-Brain-Barrier
(अतिरिक्त Gyaan)

(ii) Gap Junction: Connects the cytoplasm of adjacent cells & by transfer of ions, small molecules & sometimes even bigger molecules, they can Communicate: 'COMMUNICATION JUNCTIONS'



eg: Smooth muscle.

(iii) Adhering Junction: help in 'CEMENTING' B/w cells.

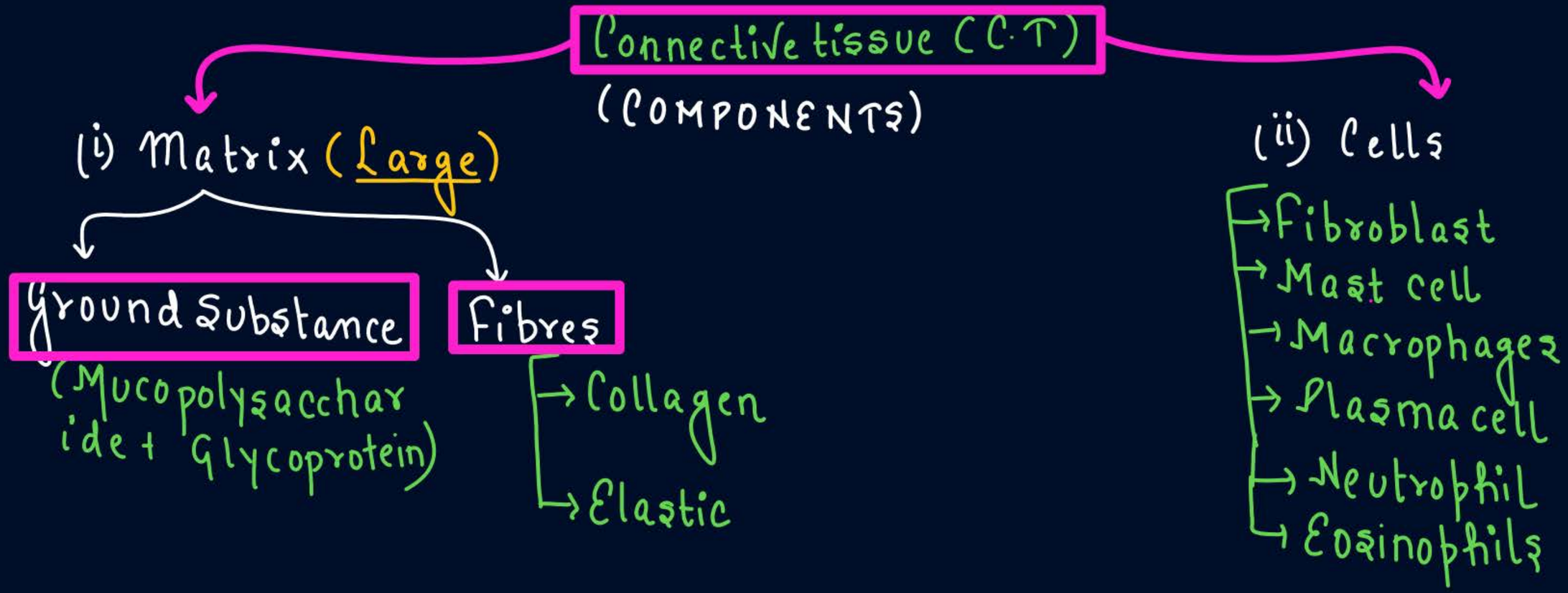
eg: Cardiac muscle

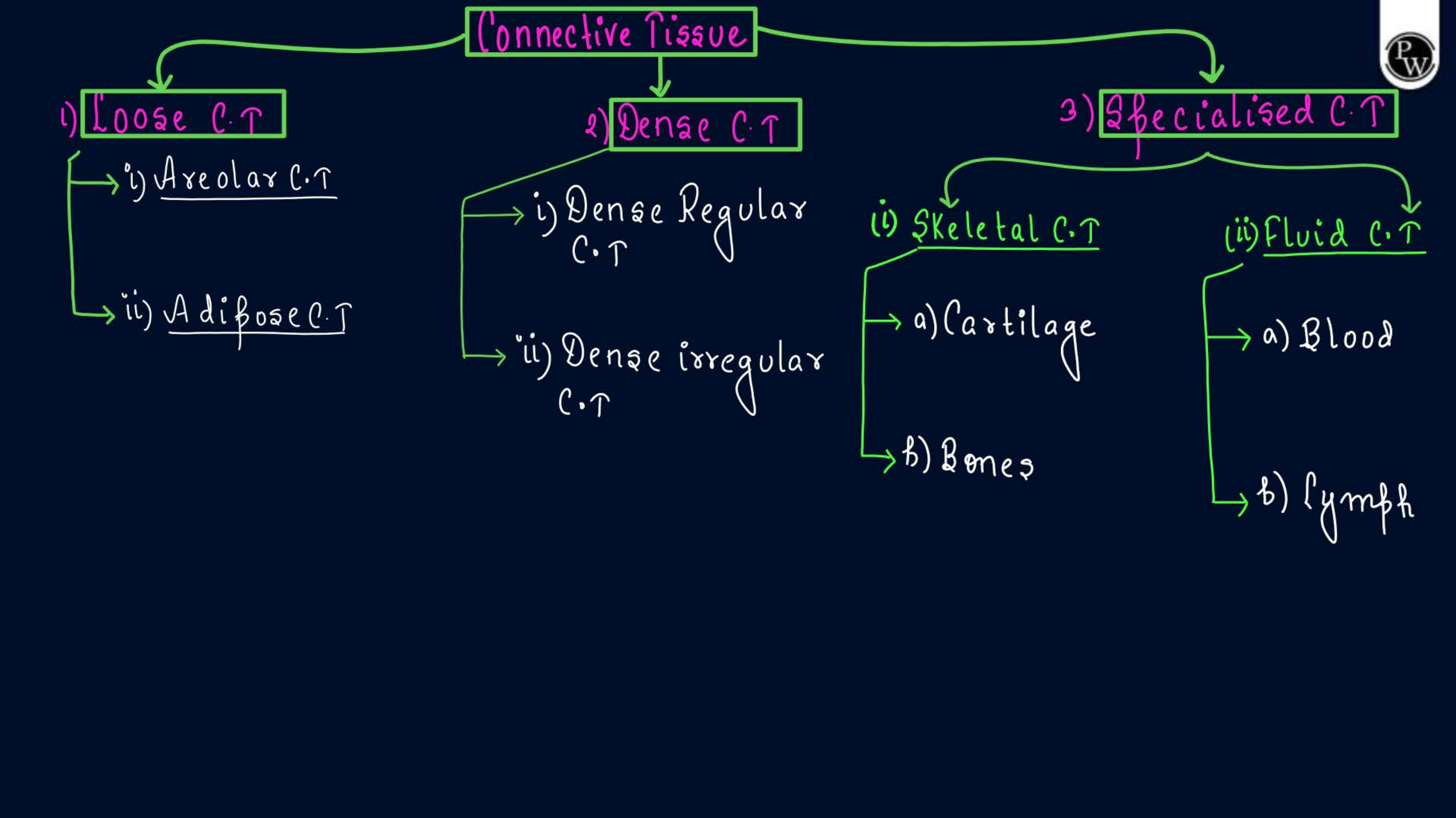
Intercalated disc
(Gap + Adhering)

All cells in epithelium are held together with little intercellular material. In nearly all animal tissues, specialised junctions provide both structural and functional links between its individual cells. Three types of cell junctions are found in the epithelium and other tissues. These are called as tight, adhering and gap junctions. **Tight junctions** help to stop substances from leaking across a tissue. **Adhering junctions** perform cementing to keep neighbouring cells together. **Gap junctions** facilitate the cells to communicate with each other by connecting the cytoplasm of adjoining cells, for rapid transfer of ions, small molecules and sometimes big molecules.

CONNECTIVE TISSUE:

- Origin: MESODERMAL
- The most abundant & widely distributed tissue in the Body.
- Basic Function: SUPPORT & LINKAGE.




Connective Tissue
1) Loose C.T
i) Areolar C.T
ii) Adipose C.T
2) Dense C.T
i) Dense Regular C.T
ii) Dense irregular C.T
3) Specialised C.T
(i) Skeletal C.T
a) Cartilage
b) Bones
(ii) Fluid C.T
a) Blood
b) Lymph

i) Loose C.T:

- Cells & fibres are loosely aggregated in the SEMI-FLUID Matrix.
- Matrix is more

a) Areolar C.T :

Areolae → 'SPACE'

7.1.2 Connective Tissue

Connective tissues are most abundant and widely distributed in the body of complex animals. They are named connective tissues because of their special function of linking and supporting other tissues/organs of the body. They range from soft connective tissues to specialised types, which

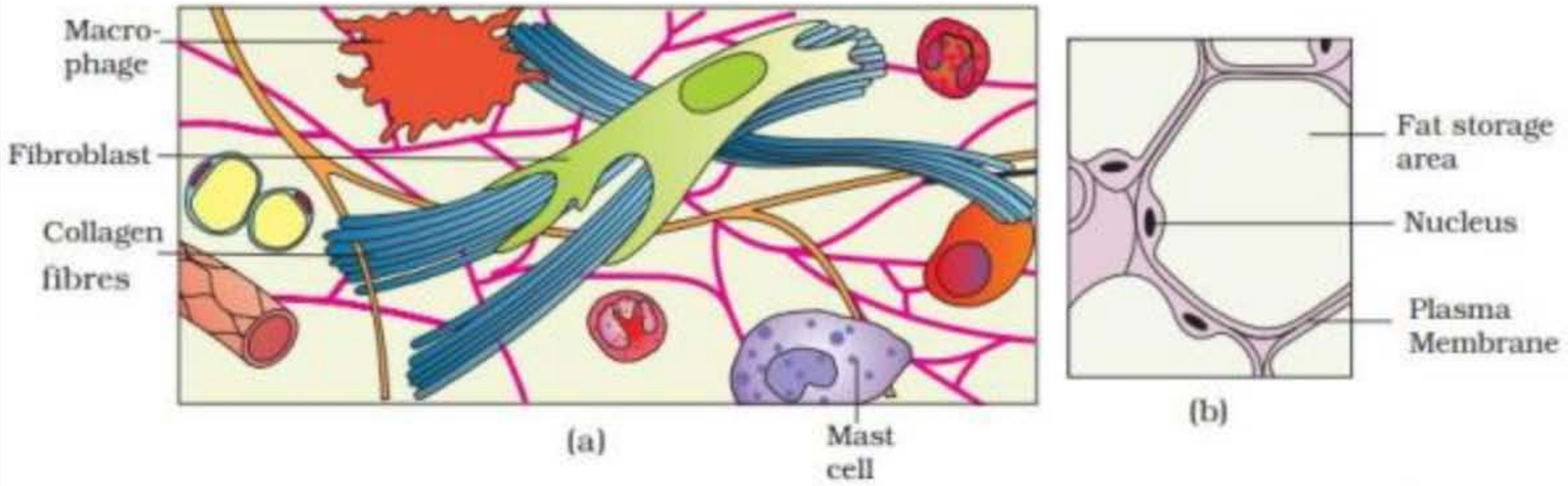


Figure 7.4 Loose connective tissue : (a) Areolar tissue (b) Adipose tissue

Ncert Catalyst (How)

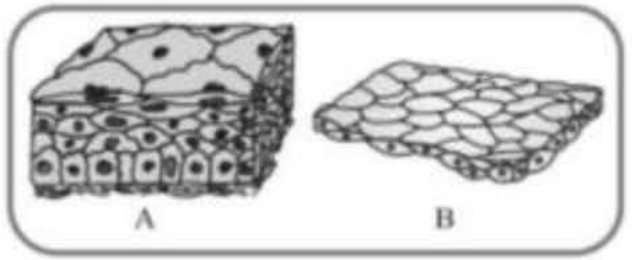
Match the **Column-I** with **Column-II**.

	Column-I		Column-II
(a)	Tight junctions	(i)	Cement neighbouring cells together to form sheet
(b)	Adhering	(ii)	Transmit information junctions through chemical to another cells
(c)	Gap junctions	(iii)	Establish a barrier to prevent leakage of fluid across epithelial cells
(d)	Synaptic junctions	(iv)	Cytoplasmic channels to facilitate communication between adiacent cells

Choose the **correct** answer from the following options:

(A) (a)-(iv) (b)-(iii) (c)-(i) (d)-(ii)
(B) (a)-(ii) (b)-(iv) (c)-(i) (d)-(iii)
(C) (a)-(iv) (b)-(ii) (c)-(i) (d)-(iii)
(D) (a)-(iii) (b)-(i) (c)-(iv) (d)-(ii)

Identify the **correct** option with respect to the figures (A & B) given below.



(A) A: provide protection against chemical and mechanical stresses: Stomach.

(B) A: secrete mucus, saliva, earwax, oil, milk, digestive enzymes: Stomach.

(C) B: found in the walls of blood vessels and air sacs of lungs : diffusion boundary.

(D) B: mainly present in the inner surface of hollow organs: Secretion and absorption.

Read the following statements and choose the correct option.

I. Cells of germinal epithelium are cuboidal.

II. Main function of stratified squamous epithelium is protection.

III. Ciliated epithelium is found in trachea and fallopian tubes.

(A) Only I & II are correct.

(B) Only II & III are correct.

(C) Only I & III are correct.

(D) I, II and III are correct

Fill in the blanks by option for the correct combination of A to E

I. Endocrine glands secrete _____A_____.

II. The columnar epithelium is composed of a single layer of_____B_____ and_____C_____cells.

III. _____D_____covers dry surfaces of the skin.

IV. _____E_____ performs cementing to keep neighbouring cells together.

(A) A-Mucus, B-Cuboidal, C-Flattened, D-Compound epithelium, E-Tight junction

(B) A-Hormones, B-Tall, C-Slender, D-Compound epithelium, E-Adhering junction

(C) A-Oil and sweat, B-Oval, C-Round D-Squamous epithelium, E-Gap junction

(D) A-Saliva, B-Rounded, C-Tall, D-Cuboidal epithelium, E-Mucus

Directions: In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R). Mark the correct choice as:

Assertion (A): Urinary bladder can considerably expand to accommodate urine.

Reason (R): It is lined by stretchable squamous epithelium.

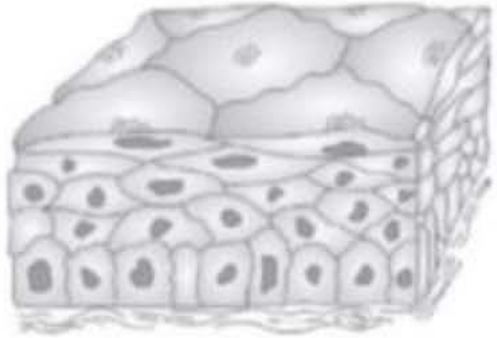
(A) Assertion (A) is true, Reason (R) is true; Reason (R) is a correct explanation for Assertion (A).

(B) Assertion (A) is true, Reason (R) is true; Reason (R) is not a correct explanation for Assertion (A).

(C) Assertion (A) is true, Reason (R) is false.

(D) Assertion (A) is false, Reason (R) is true.

2 Read the following statements and find out how many of these are related to given figure.



(A) Multilayered epithelium.
(B) Limited role in secretion and absorption.
(C) Main function is to provide protection against chemical and mechanical stresses.
(D) They cover the dry surface of skin, moist surface of buccal cavity and pharynx.

(A) 4 (B) 3
(C) 2 (D) 1

Given below are two statements: one is labelled as Assertion A and the other is labelled as Reason R.

Assertion A: The main function of compound epithelium is to provide protection against chemical and mechanical stresses.

Reason R: Compound epithelium is made up of one layer of cells.

In the light of the above statements, choose the **correct** answer from the options given below:

(A) A is true but R is false.

(B) A is false but R is true.

(C) Both A and R true and R is the correct explanation of A.

(D) Both A and R true and R is not the correct explanation of A.

Secretions of exocrine glands does not include

(A) Sebum

(B) Trypsin

(C) Insulin

(D) Sweat

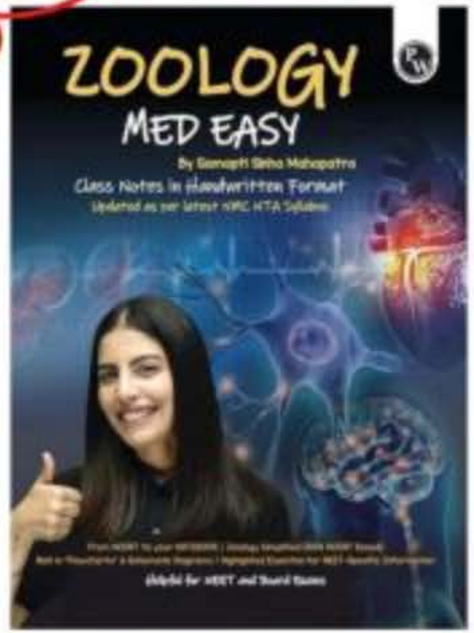
Samapti Sinha Mahapatra

PW Zoology Med Easy For NEET and Board Exams 2024-25 | Flowcharts, Schematic Diagrams Samapti Sinha Mahapatra Handwritten Notes

20 May 2024
ISBN-13: 978-9360345068 ISBN-10: 9360345067

#1 Best Seller n AIIMS & NEET Exams

14% off



Homework

- REVISE CLAASNOTES / ZOOLOGY MED EASY

PRARAMBH EXERCISE 1- 3, 4, 10
PRABAL EXERCISE 2- 14, 16, 7, 17, 19

THANK YOU