YAKEEN NEET 2.0

2026

5.06.2025

STRUCTURAL ORGANISATION IN ANIMALS

ZOOLOGY | Lecture – 08

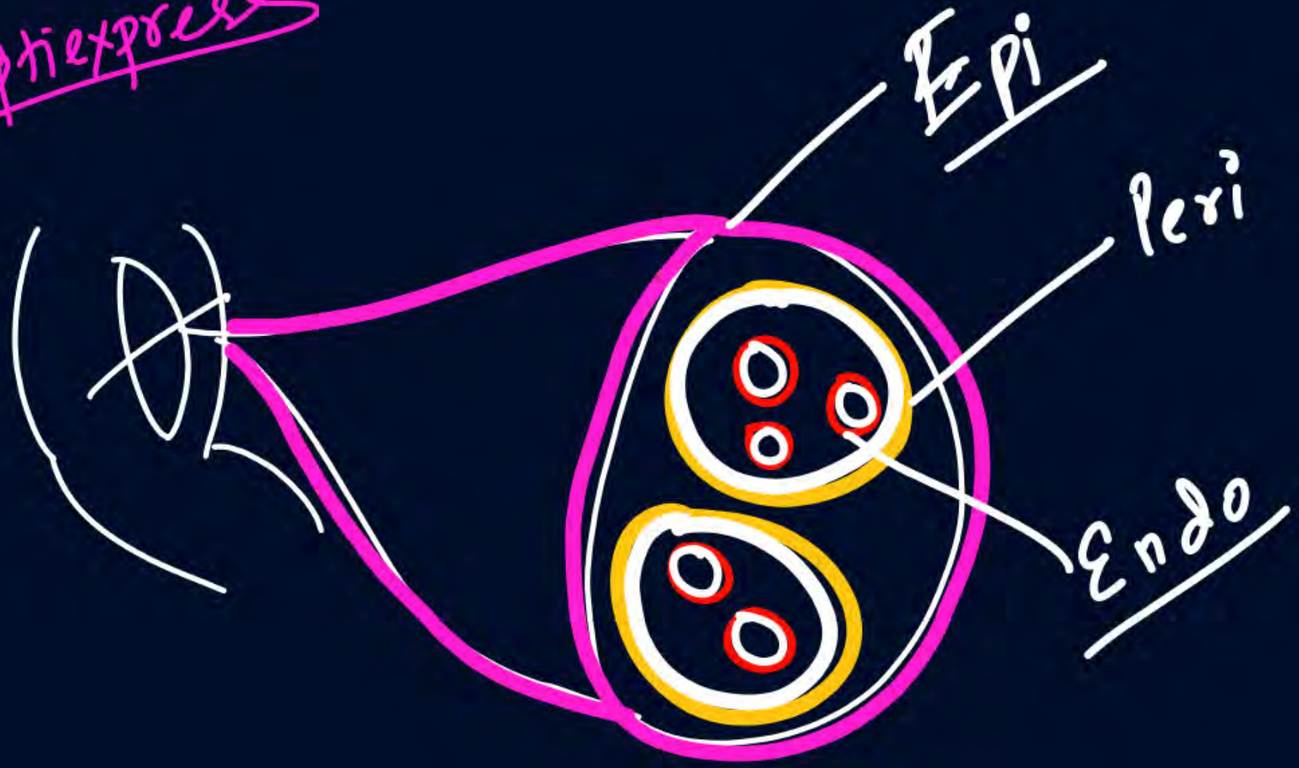
By- SAMAPTI MAM

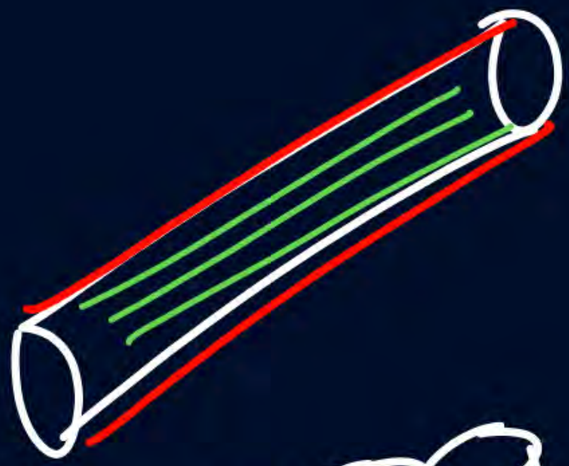
Topics to be covered

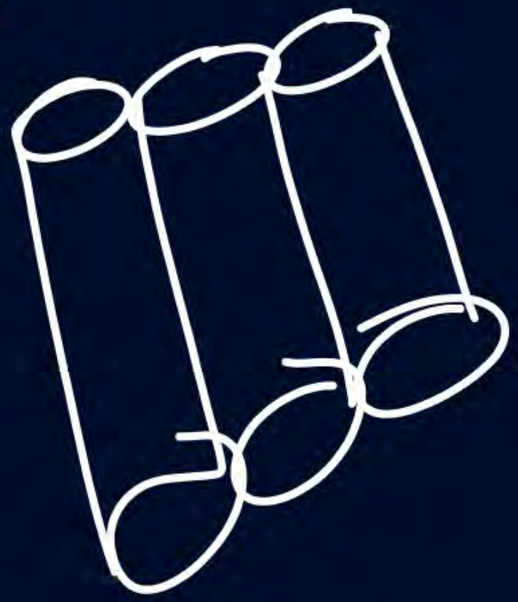
1. Neural TISSUE, FROG Part-01
2.
3.
4.

MY TELEGRAM

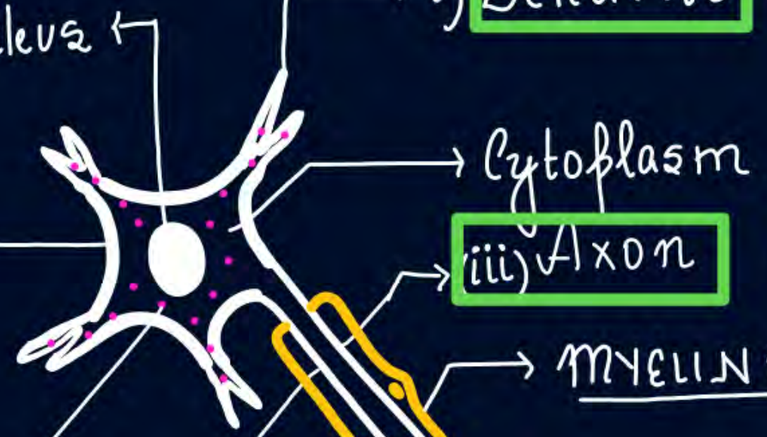
#Samyakexpress







Neuron:



Nucleus

i) Dendrite
- small cytoplasmic extensions that receives information & pass to Cell body

Cytoplasm

(ii) Cell Body / Soma / Cyton / Perikaryon

iii) Axon

MYELIN SHEATH
- Secreted by Schwann cell & Oligodendrocyte
- Lipid enriched, act as INSULATOR
- Free Conduction not possible.

Synaptic Knob

Synaptic Vesicle
- Bags filled with Chemicals c/a Neurotransmitter

Neurotransmitter

Nissl's granule
- RER + Ribosome
- Protein synthesis
- Present in Dendrite & Cell Body.

Nodes of Ranvier
- The gap b/w successive mylein sheath

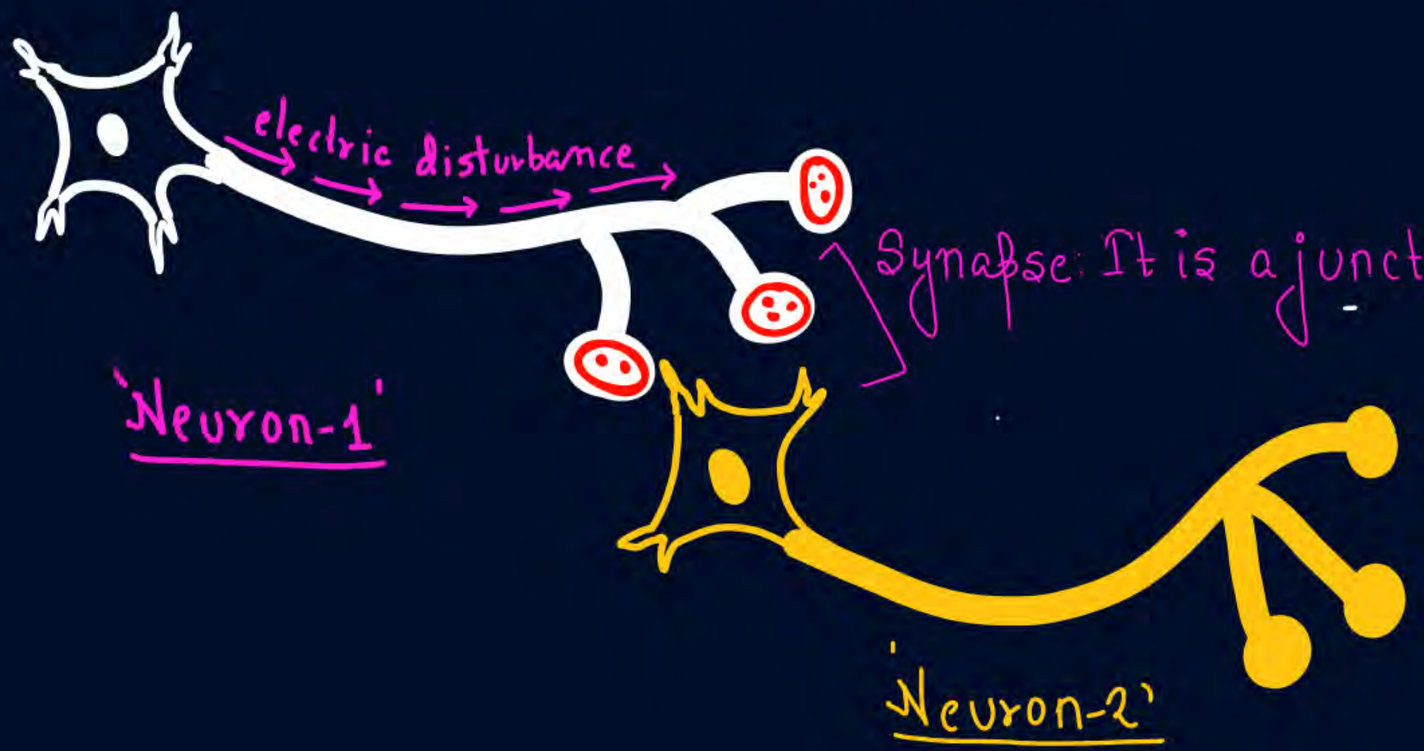
Axolemma
- Plasma membrane of Axon
- Cytoplasm of Axon: Axoplasm

Axon terminal / Telodendrite

- A neuron communicate with other:

Neuron Muscle gland

By forming a junction & releasing the chemicals C/a Neurotransmitter



→ When a Neuron is suitably stimulated, an electric disturbance (Action potential/impulse) is generated ⟶ it swiftly travels along the axonal membrane to reach the Axon terminal

↓

Neurotransmitters Released that may EXCITE or INHIBIT the adjacent Neuron/gland/muscle depending on whether the Neurotransmitter is 'EXCITATORY' or 'INHIBITORY'

7.1.4 Neural Tissue

Neural tissue exerts the greatest control over the body's responsiveness to changing conditions. Neurons, the unit of neural system are excitable cells (Figure 7.8). The neuroglial cell which constitute the rest of the neural system protect and support neurons. Neuroglia make up more than one-half the volume of neural tissue in our body.

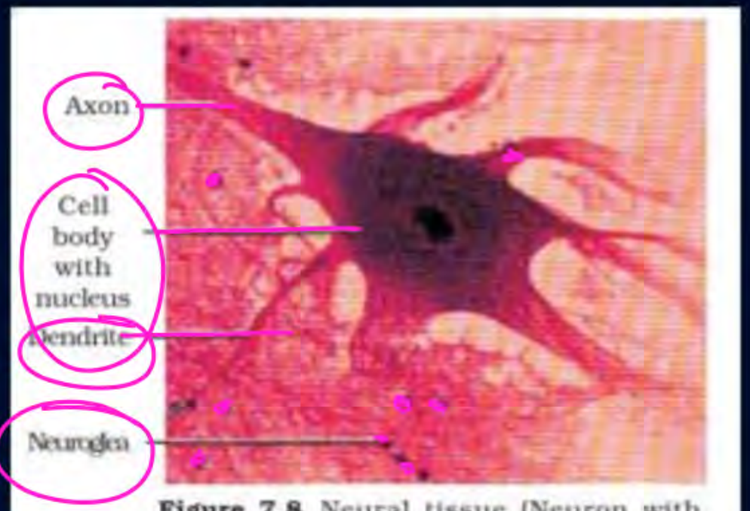


Figure 7.8 Neural tissue (Neuron with neuroglea)

When a neuron is suitably stimulated, an electrical disturbance is generated which swiftly travels along its plasma membrane. Arrival of the disturbance at the neuron's endings, or output zone, triggers events that may cause stimulation or inhibition of adjacent neurons and other cells (You will study the details in Chapter 21).

Axon →

FROG: The most commonly found species of frog in India is 'Rana tigrina'

General Characteristics:

① Belong to 'Amphibia' → 'bios'
dual Life

- 'Freshwater'
- 'Terrestrial'

② They are 'POIKILOTHERMAL' ANIMALS/ COLD-BLOODED : donot have a CONSTANT BODY TEMPERATURE.

③ During PEAK SUMMER & PEAK WINTER frogs are not spotted because they make

CLASSIFICATION:

Kingdom : Animalia
Phylum : Chordate
Sub-Phylum : Vertebrata
Division : Gnathosome
SuperClass : Tetrapoda
Class : Amphibia
Genus : Rana
Species : tigrina

deep Burrows to live as they go into ⟶ Summer Sleep (AESTIVATION) & WINTER SLEEP (HIBERNATION)

4) When on GRASS or on LAND, they can change the color accordingly c/a CAMOUFLAGE. to protect from enemies & this type of protective coloration is c/a 'MIMICRY'

MORPHOLOGY:

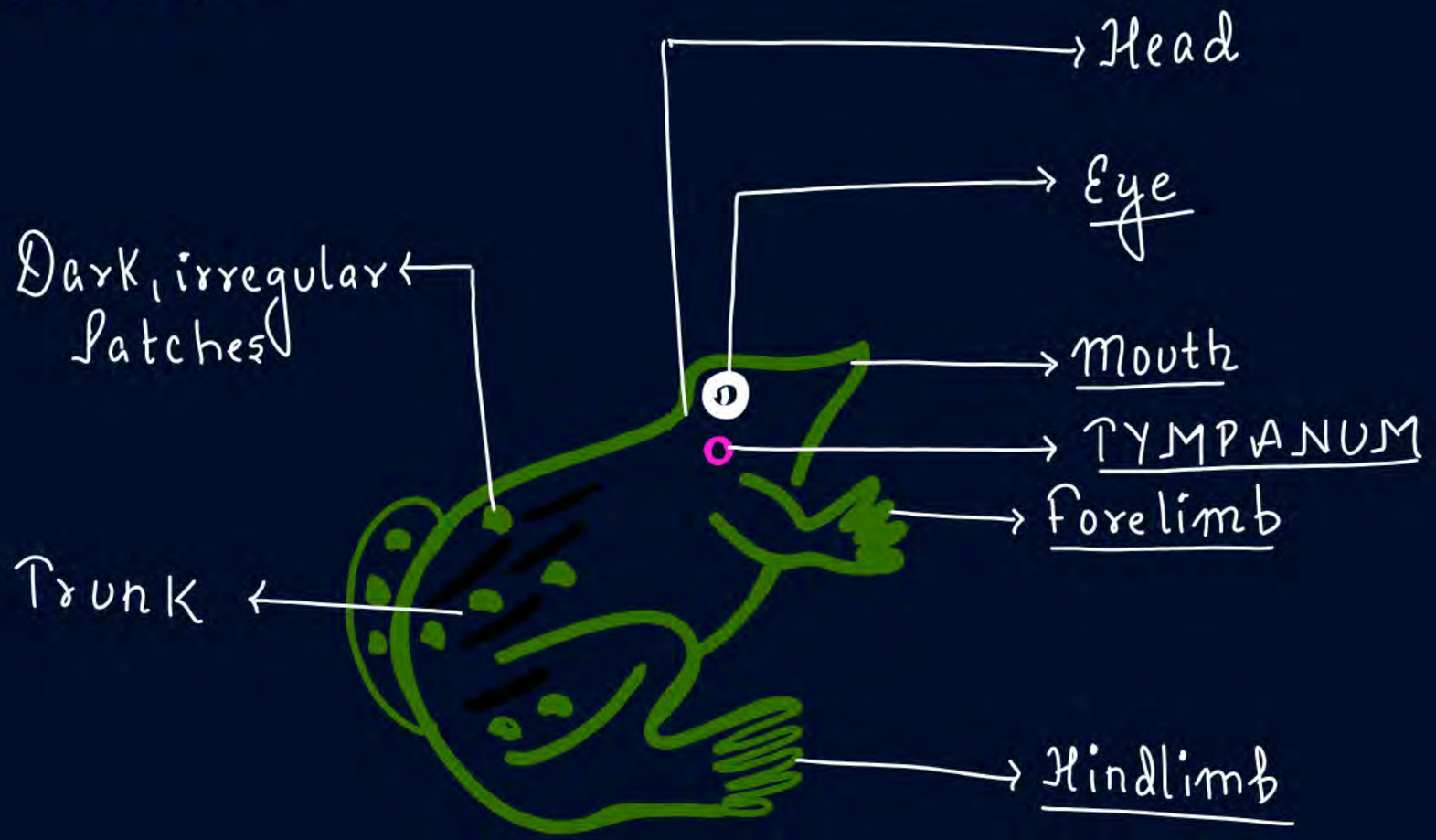


fig: frog

- Body divisible into → Head
  → Trunk
  { No neck, tail)
- Body color → Dorsal : Olive green
  → Ventral : Pale yellow

7.5.1 Morphology

Have you ever touched the skin of frog? The skin is smooth and slippery due to the presence of mucus. The skin is always maintained in a moist condition. The colour of dorsal side of body is generally olive green with dark irregular spots. On the ventral side the skin is uniformly pale yellow. The frog never drinks water but absorb it through the skin.

Body of a frog is divisible into head and trunk (Figure 7.19). A neck and tail are absent. Above the mouth, a pair of nostrils is present. Eyes are bulged and covered by a nictitating membrane that protects them

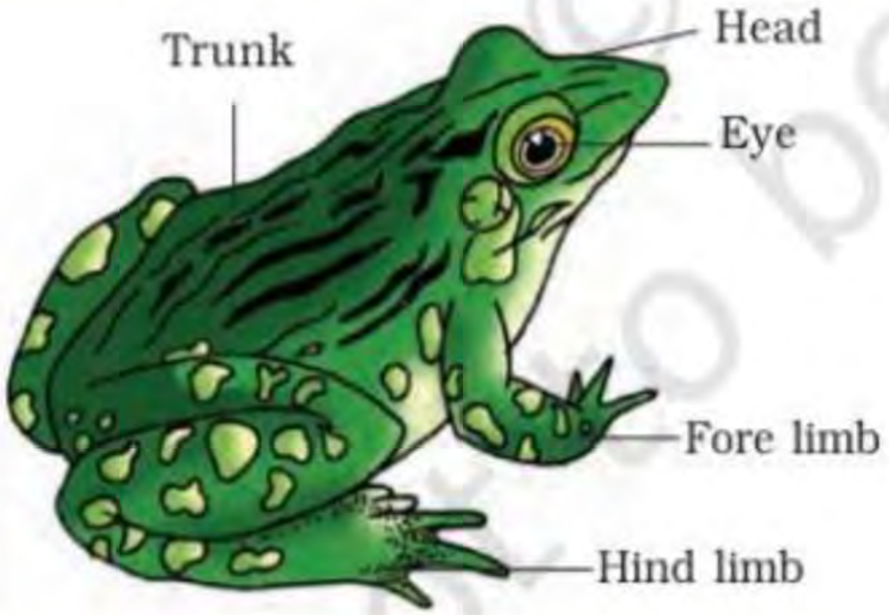


Figure 7.19 External features of frog

while in water. On either side of eyes a membranous tympanum (ear) receives sound signals. The forelimbs and hind limbs help in swimming, walking, leaping and burrowing. The hind limbs end in five digits and they are larger and muscular than fore limbs that end in four digits. Feet have webbed digits that help in swimming. Frogs exhibit sexual dimorphism. Male frogs can be distinguished by the presence of sound producing vocal sacs and also a copulatory pad on the first digit of the fore limbs which are absent in female frogs.

'Ncert - catalyst'

(H.W)

Q-1. Muscles play an active role :

1. To adjust to the changes in environment
2. Maintain positions of various body parts
3. Active role in all the movements of the body
4. All of the above

Q-2. Read the following statement to mark the correct answer

STATEMENT 1- Each muscle is made up of long cylindrical fibres arranged randomly called muscle fibres

STATEMENT 2- Muscle fibre contract and again return to the uncontracted state in a uncoordinated fashion

1. Statement I is correct but Statement II is incorrect.
2. Statement I is incorrect but Statement II is correct.
3. Both Statement I and Statement II are correct.
4. Both Statement I and Statement II are incorrect.

The wall of internal organs such as the blood vessels, stomach and intestine contain ---------- of muscle tissue.

a)involuntary
b)smooth
c)unstriated
d)All of these

ASSERTION- **cardiac muscle fibre contract as a unit**

REASON -at fusion point of cardiac muscle fibre intercalated disc are present

A) Both Assertion (A) and Reason (R) are true, and Reason (R) is a correct explanation of Assertion (A).

B) Both Assertion (A) and Reason (R) are true, but Reason (R) is not a correct explanation of Assertion (A

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

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

The passage highlights the neural tissue's "greatest control over the body's responsiveness to changing conditions." This superior control is a direct consequence of a specific characteristic mentioned in the text. Which option best describes how this characteristic facilitates the mentioned control?

(A) Neuroglial cells' large volume efficiently absorbs environmental stimuli.

(B) Neurons' excitable nature allows them to rapidly initiate and spread precise commands.

(C) The output zone of neurons solely ensures stimulatory effects on target cells.

(D) Neuroglial support ensures the stability required for slow, deliberate responses.

Given below are two statements: one is labelled as Assertion A and the other is labelled as Reason R:
Assertion A: The coordinated movement of food through the stomach and intestine occurs without conscious effort.

Reason R: The walls of the stomach and intestine contain smooth muscle tissue, whose functioning cannot be directly controlled by thinking.
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 are true and R is the correct explanation of A.
(D) Both A and R are true but R is NOT the correct explanation of A.

QUESTION

Select the option with the correct statements for neural tissue.

I. Neurons are excitable cells.

II. The neuroglial cells protect and support neurons.

III. Neuroglia cells make up more than one - half the volume of neural tissue in our body.

IV. When a neuron is suitably stimulated, an electrical disturbance is generated which swiftly travels along its cytosol.

1. I, II and III only
2. I and IV only
3. II and III only
4. I, II, III and IV

Samapti Sinha Mahapatra

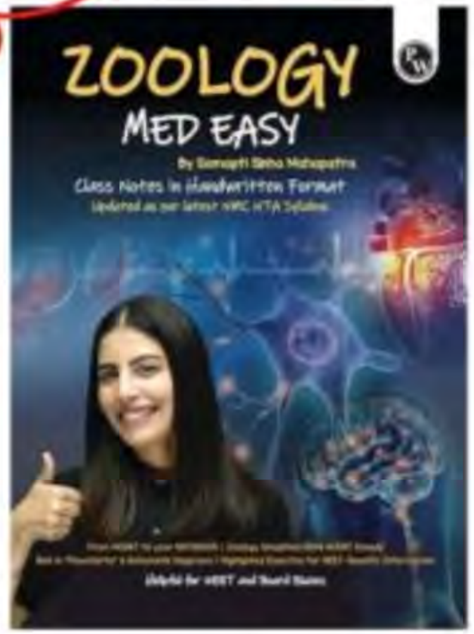
PW Zoology Med Easy For NEET and Board Exams 2024-25 | Flowcharts, Schematic Diagrams Samapti Sinha Mahapatra Handwritten Notes

20 May 2024

ISBN-13: 978-9360345068 ISBN-10: 9360345067

#1 Best Seller n AIIMS & NEET Exams

14% off



DPP-Q

Q13 Which are the characteristics of skeletal muscles?

(A) Cylindrical, striped and branched

(B) Cylindrical, striped and uninucleate

(C) Spindle, unbranched and uninucleate

(D) Cylindrical, syncytial and unbranched

Cytoplasm: Multinucleated

STATEMENT 1- Bone cells are embedded in a hard matrix of calcium and phosphorus.
STATEMENT 2- These minerals provide flexibility to the bone.

T

1 . Statement I is correct but Statement II is incorrect.

2. Statement I is incorrect but Statement II is correct.

3. Both Statement I and Statement II are correct.

4. Both Statement I and Statement II are incorrect.

Homework

- REVISE CLAASNOTES / ZOOLOGY MED EASY

MODULE HW

PYQs : EXERCISE-4

THANK YOU