

YAKEEN NEET 2.0

2026

STRUCTURAL ORGANISATION IN ANIMALS

ZOOLOGY

Lecture – 09

By- SAMAPTI MAM





Topics to be covered

1 FROG Part-02

2

3

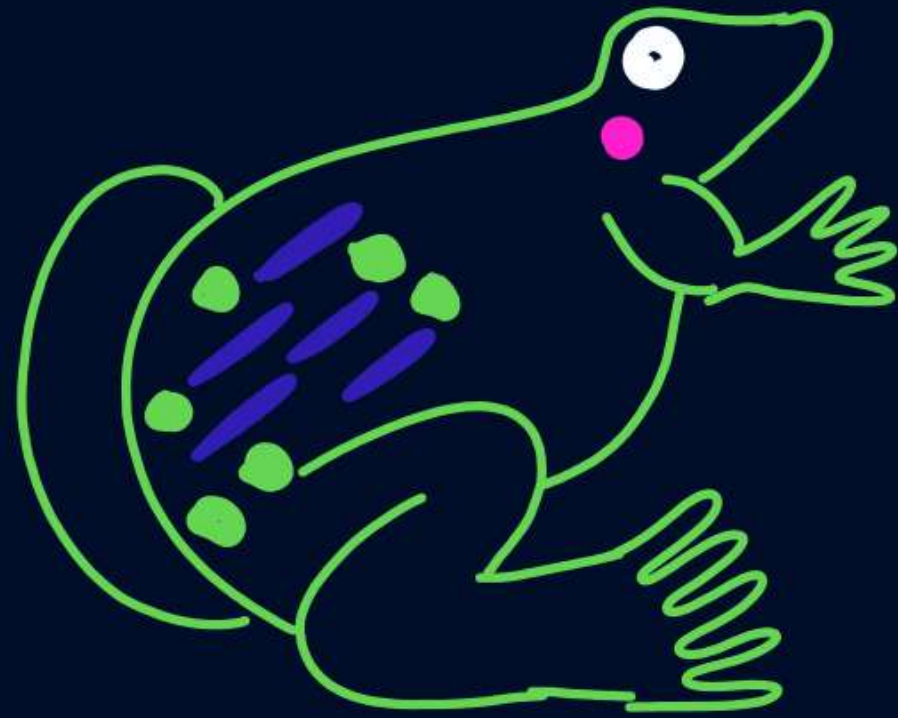
4

A Lampbrush

Neuroglial
✓ Astrocytes: BBB
✓ Microglial
↳ phagocytic



FROG:



Morphology:

3. Skin has no SCALES, it is MOIST & has MUCUS
4. Frog never Drinks water through mouth but absorb through skin
5. Simple eye (single lens), Bulged, Located in orbit of the skull.
6. Nictitating membrane cover their eye to protect it under H₂O.
7. Near eye, membranous fold c/a Tympanum that collects sound vibration is present.

8. Above mouth: 1 pair of external nostrils

9. Limbs

Forelimbs

- ends with  4 digits

• Both helps in WALKING, Burrowing, leaping (Jump) & Swimming

Hindlimbs

- ends with 5 digits

• More muscular & larger compared to forelimb




webbed feet

↓
Swimming

↓
eaten in some countries.

Sexual dimorphism: It is present in frog as a ♂ can be distinguished from a ♀ frog.



♂ frog	♀ frog
<ul style="list-style-type: none">• It has sound producing <u>VOCAL SAC</u> that they use to attract the ♀ during Breeding season.• ♂ has <u>COPULATORY PAD</u> in the first digit of <u>FORELIMB</u> to hold the ♀ during Breeding	<p>X</p>  <p>X</p>



'Vocal sac'



'Copulatory pa'

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

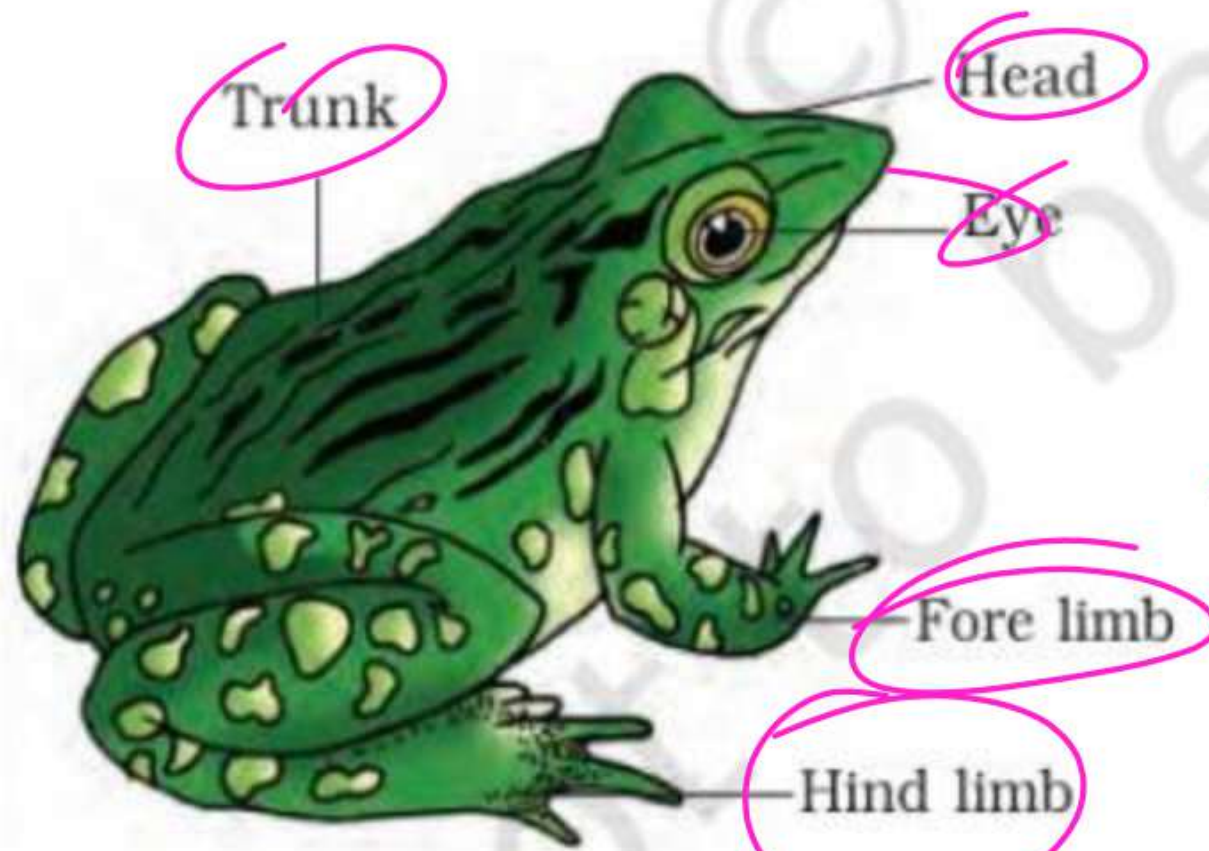



Figure 7.19 External features of frog

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.

Anatomy: In the Body cavity of Frog various system like Digestive, Respiratory, circulatory etc are present.

DIGESTIVE SYSTEM: Alimentary canal + Glands: 2 main glands



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graph TD; Glands --> Liver; Glands --> Pancreas
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The diagram shows the word 'Glands' in a pink cloud-like shape. Two pink arrows point downwards from the bottom of the cloud to the words 'Liver' and 'Pancreas'.

Alimentary Canal

Mouth → Buccal cavity

↓
Pharynx

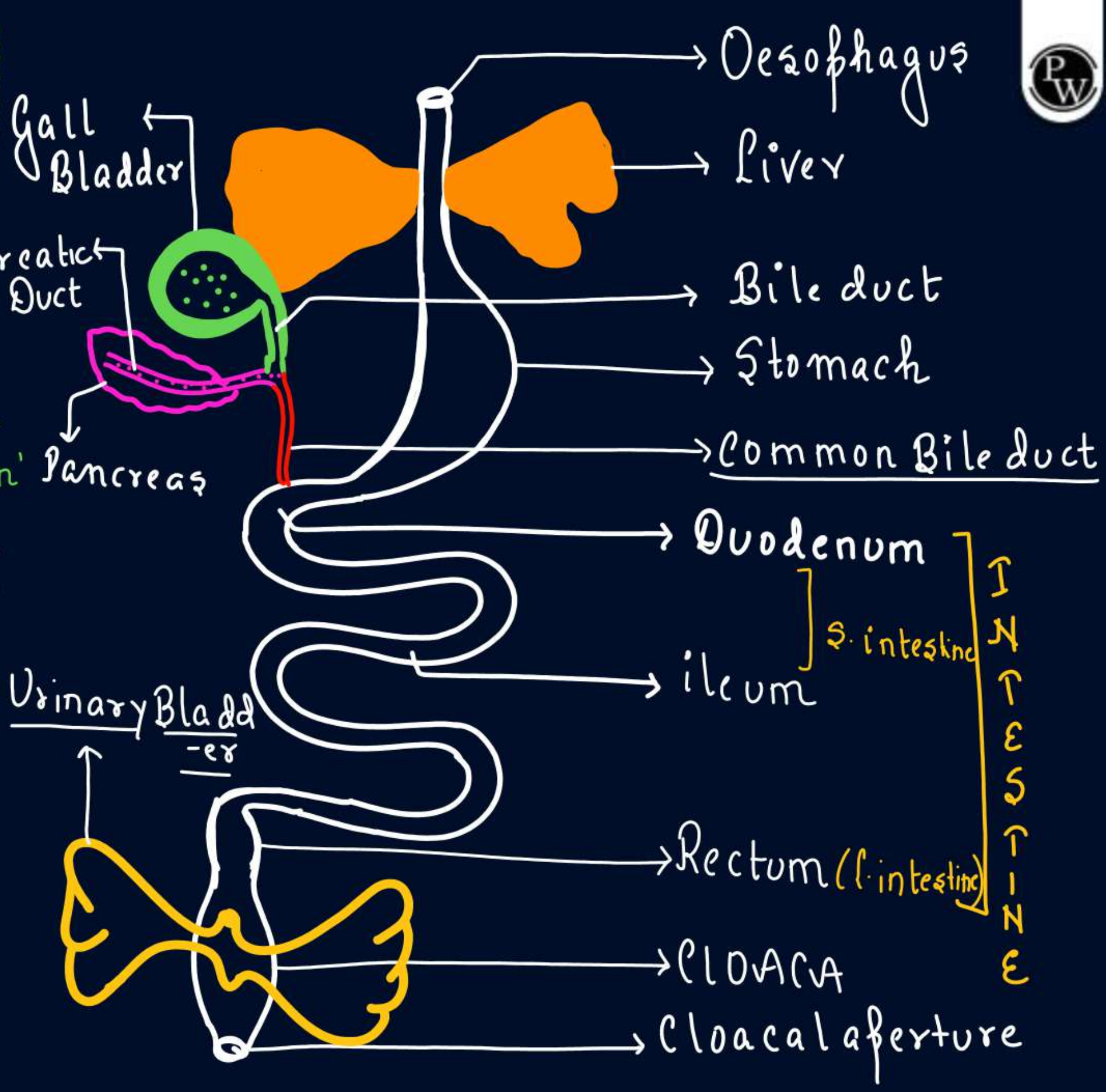
↓
Oesophagus

↓
Stomach → secretes GASTRIC JUICE
↓
HCl + Pepsinogen
(Protein digesting Enzyme)

↓
Intestine → 1) Duodenum
→ 2) ileum
→ 3) Rectum

↓
CLOACA

↓
Opens outside via Cloacal APERTURE

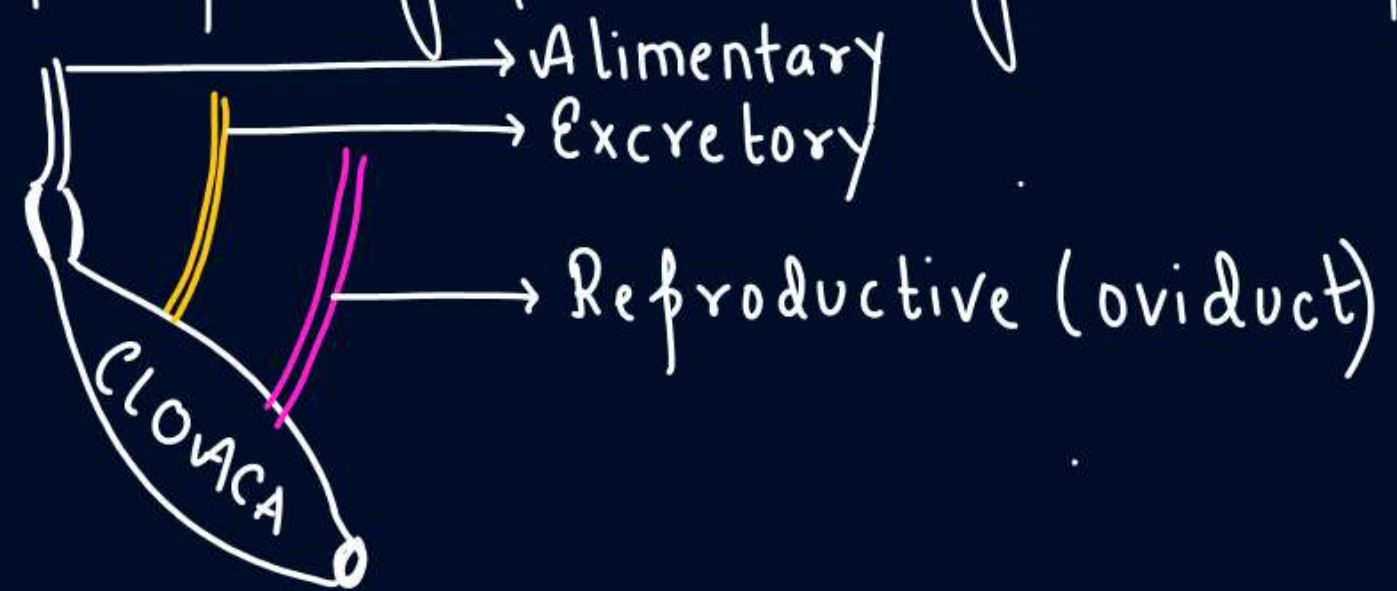


Note • Liver: Synthesises BILE, GALL BLADDER: Stores BILE
(3 lobes)

• Gall Bladder: Bile duct
Pancreas : Pancreatic duct } use: **Common Bile Duct**
↓ opens into Duodenum
↳ Pancreatic juice

• FROG: **CARNIVORES** (eat insects): Alimentary canal (Intestine) is short as they have to digest CELLULOSE.
↳ do not

• CLOACA: A common chamber for opening of Alimentary canal, reproductive canal & Excretory canal



Mechanism of Digestion:

Food is captured with the help of BILOBED tongue  2 lobes
(Pre-hensile) \rightarrow movement forward-backward

DIGESTION

Breaking of Complex food
into simple absorbable
form

Buccal cavity

Stomach

Food + HCl : k/a CHYME

Digestion begins in the stomach

Pepsin (active enzyme) Digest Protein

INTESTINE

① Partially Digested food reaches the first
part of intestine k/a 'DUODENUM'

② BILE + PANCREATIC JUICE (present here via
Common Bile duct)

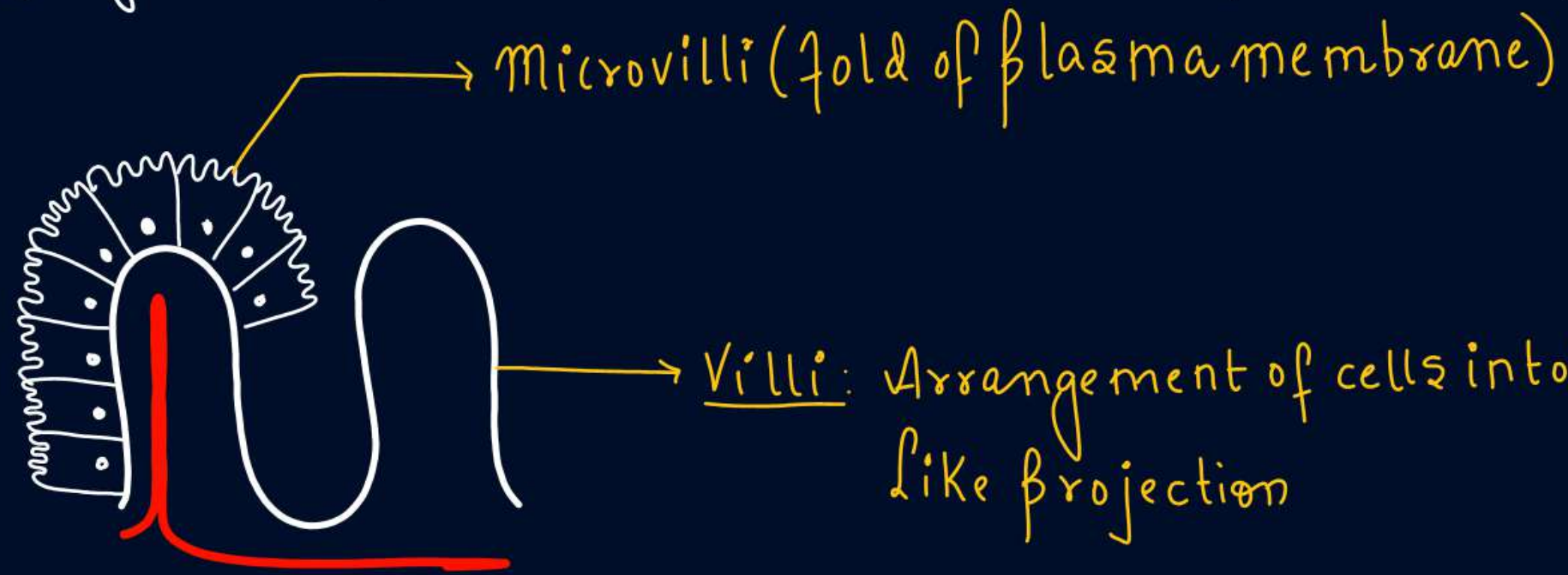
③ BILE : Emulsification of fat.


Large fat Droplet \rightarrow Small fat droplet

Pancreatic enz-
ymes helps in
Protein & Carbohydrate
Digestion

Final Digestion ⑤
takes place in Intestine.

Absorption: Maximum absorption occurs in ILEUM as it has finger like projections c/a VILLI & MICROVILLI: ↑ surface area for absorption

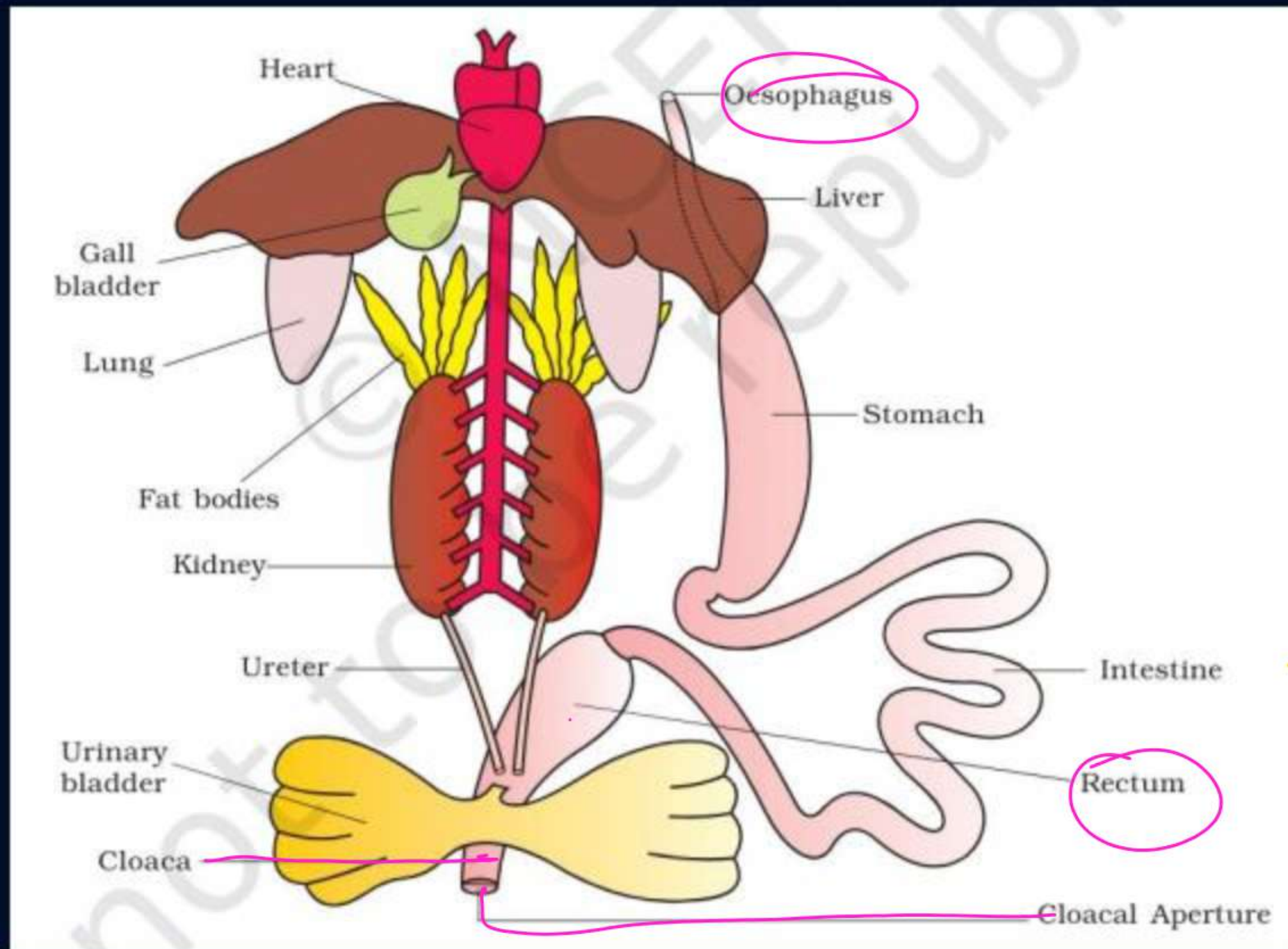


Egestion: Undigested & unabsorbed: FAECAL matter removed via Rectum → CLOACA
↓
Cloacal aperture

7.2.2 Anatomy

The body cavity of frogs accommodate different organ systems such as digestive, circulatory, respiratory, nervous, excretory and reproductive systems with well developed structures and functions (Figure 7.2).

The digestive system consists of alimentary canal and digestive glands. The alimentary canal is short because frogs are carnivores and hence the length of intestine is reduced. The mouth opens into the buccal cavity that leads to the oesophagus through pharynx. Oesophagus is a short tube that opens into the stomach which in turn continues as the intestine, rectum and finally opens outside by the cloaca. Liver secretes bile that is stored in the gall bladder. Pancreas, a digestive gland produces pancreatic juice



containing digestive enzymes. Food is captured by the bilobed tongue. Digestion of food takes place by the action of HCl and gastric juices secreted from the walls of the stomach. Partially digested food called chyme is passed from stomach to the first part of the small intestine, the duodenum. The duodenum receives bile from gall bladder and pancreatic juices from the pancreas through a common bile duct. Bile emulsifies fat and pancreatic juices digest carbohydrates and proteins. Final digestion takes place in the intestine. Digested food is absorbed by the numerous finger-like folds in the inner wall of intestine called villi and microvilli. The undigested solid waste moves into the rectum and passes out through cloaca.



Homework

- REVISE CLAASNOTES / ZOOLOGY MED EASY

MODULE HW

Module -2

Prarambh exercise 1- 15-18

Ncert catalyst (H.W)

Q-1. READ THE FOLLOWING STATEMENT AND CHOOSE THE CORRECT ANSWER

STATEMENT 1- frog shows sexual dimorphism

STATEMENT 2- Above the mouth , a nostril is present

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.

ASSERTION– **frogs have short alimentary canal**

REASON – frogs are carnivores

- 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.

Q-1. READ THE FOLLOWING STATEMENT AND CHOOSE THE CORRECT ANSWER

STATEMENT 1- The mouth opens into the buccal cavity that leads to the pharynx through oesophagus.

STATEMENT 2- Oesophagus is a short tube that opens into the stomach which in turn continues as the intestine, rectum that opens outside VIA cloaca

- 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.

STATEMENT- Frog have the ability to change color to hide from enemy

STATEMENT 2- during peak summer and winter they undergo hibernation and aestivation respectively

- 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.

Samapti Sinha Mahapatra

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