

UNIT – 13

STRUCTURAL ORGANISATION OF ANIMALS



I. Choose the correct answer

- In leech locomotion is performed by
a) Anterior sucker b) Parapodia c) Setae d) **Contraction and relaxation of muscles**
- The segments of leech are known as
a) **Metameres (somites)** b) Proglottids c) Strobila d) All the above
- Pharyngeal ganglion in leech is a part of
a) Excretory system b) **Nervous system** c) Reproductive system d) Respiratory system
- The brain of leech lies above the
a) Mouth b) Buccal Cavity c) **Pharynx** d) Crop
- The body of leech has
a) 23 segments b) **33 segments** c) 38 segments d) 30 segments
- Mammals are _____ animals.
a) cold blooded b) **warm blooded** c) poikilothermic d) all the above
- The animals, which give birth to young ones, are
a) Oviparous b) **Viviparous** c) Ovoviviparous d) All the above

II. Fill in the blanks

- The posterior sucker is formed by the fusion of the **last seven** segments.
- The existence of two sets of teeth in the life of an animal is called **diphyodont** dentition.
- The anterior end of leech has a lobe-like structure called **anterior sucker**.
- The blood sucking habit of leech is known as **sanguivorous**. [PTA – 5]
- Kidney** separate nitrogenous waste from the blood in rabbit.
- 37 pairs** spinal nerves are present in rabbit.

III. True or False. (If false give the correct statement)

- An anticoagulant present in saliva of leech is called heparin. [False]
* An anticoagulant present in saliva of leech is called **hirudin**.
- The vas deferens serves to transport the ovum. [PTA – 6] [False]
* The vas deferens serves to transport the **sperm**.
- Diastema is a gap between premolar and molar teeth in rabbit. [False]
* Diastema is a gap between **incisors and premolar** teeth in rabbit.
- The cerebral hemispheres of rabbit are connected by band of nerve tissue called corpora quadrigemina. [PTA – 6] [False]
* The cerebral hemispheres of rabbit are connected by band of nerve tissue called **corpus callosum**.

IV. Match columns I, II and III correctly

[PTA – 2]

Answer :

Organs	Membranous Covering	Location
1. Brain	<i>meninges</i>	<i>cranial cavity</i>
2. Kidney	<i>capsule</i>	<i>abdominal cavity</i>
3. Heart	<i>pericardium</i>	<i>mediastinum</i>
4. Lungs	<i>pleura</i>	<i>enclosed in thoracic cavity</i>

V. Answer in a sentence

1. Give the common name of the <i>Hirudinaria granulosa</i> .	Leech
2. How does leech respire? [PTA – 1]	Through skin
3. Write the dental formula of rabbit. [MDL – 19]	$(I \frac{2}{1}, C \frac{0}{0}, PM \frac{3}{2}, M \frac{3}{3})$
4. How many pairs of testes are present in leech?	11 pairs
5. How is diastema formed in rabbit? [PTA – 6]	Canines are absent. This gap forms diastema.
6. What organs are attached to the two bronchi?	Two lungs
7. Which organ acts as suction pump in leech?	Pharynx
8. What does CNS stand for?	Central Nervous System.
9. Why is the teeth of rabbit called heterodont? [PTA – 4]	Because of its four types of teeth.
10. How does leech suck blood from the host? [PTA – 2]	Leech makes Y shaped incision and sucks blood by muscular pharynx.

VI. Short answer questions

1. Why are the rings of cartilages found in trachea of rabbit? [PTA – 4, SEP – 2020]

The rings of cartilages are found in trachea of rabbit to help in free passage of air.

2. List out the parasitic adaptations in leech. [MDL – 19]

- ❖ Blood is sucked by pharynx.
- ❖ Anterior and posterior suckers helps to attach to the host.
- ❖ Three jaws, causes painless Y-shaped wound in the host.
- ❖ For continuous blood supply, Hirudin is produced to prevent blood to coagulate.
- ❖ Parapodia and setae are absent.
- ❖ Blood is stored in crop and gives nourishment for several months.

VII. Long answer questions

1. How is the circulatory system designed in leech to compensate the heart structure?

- ❖ Circulation happens by haemocoelic system.
- ❖ Blood vessels are replaced by haemocoelic canals filled with blood like fluid.
- ❖ Coelomic fluid contains haemoglobin.
- ❖ There are four longitudinal channels
 - One above (dorsal) and one below (ventral) the alimentary canal.
 - Other two on either (lateral) side of alimentary canal. This serves as heart.
- ❖ Channels are connected posteriorly in 26th segment.

2. How does locomotion take place in leech?

[PTA – 5]

Locomotion in leech takes place by,

Looping or crawling movement:

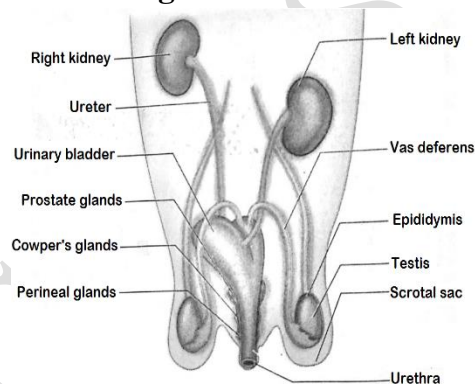
- ❖ It occurs by contraction and relaxation of muscles.
- ❖ The two suckers are used for attachment during movement.

Swimming movement:

- ❖ Leeches swim very actively and perform undulating movements in water.

3. Explain the male reproductive system of rabbit with a labelled diagram.

- ❖ It consists of a pair of testes, ovoid in shape.
- ❖ Testes are enclosed by scrotal sacs.
- ❖ Each testis consists of seminiferous tubules.
- ❖ This forms epididymis, which leads to vas deferens.
- ❖ Vas deferens joins in the urethra and then into penis.
- ❖ **Accessory glands:** Prostate, Cowper's and Perineal gland. Its secretion helps in reproduction.



VIII. Higher Order Thinking Skills (HOTS)

1. Arjun is studying in tenth standard. He was down with fever and went to meet the doctor. As he went to the clinic, he saw a patient undergoing treatment for severe leech bite. Being curious, Arjun asked the doctor why leech bite was not felt as soon as it attaches to the skin? What would have been the reply given by the doctor? (or) Why do the host doesn't feel bite of a leech.

When leeches bite they inject an anesthetic substance that prevent the host from feeling its bite. Thus, the host doesn't feel the bite of a leech.

2. Shylesh has some pet animals at his home. He has few rabbits too, one day while feeding them he observed something different with the teeth. He asked his grandfather, why is it so? What would have been the explanation of his grandfather?

Rabbit has diphyodont and heterodont dentition.

IX. Value based questions

1. Leeches do not have an elaborate secretion of digestive juices and enzymes - Why?

In leeches, blood is stored in crop. It gives nourishment for several months. Thus, they do not have an elaborate secretion of digestive juices and enzymes.

2. How is the digestive system of rabbit suited for herbivorous mode of feeding? [PTA –3]

- ❖ Teeth helps to cut, tear and grind food.
- ❖ Diastema helps in mastication and chewing of food.
- ❖ Secretions of digestive glands helps in digestion of food.
- ❖ Bacteria in small and large intestine helps in digestion of cellulose.