

Chapter 13

Structural Organisation of Animals

I. Choose the best Answer:

Question 1.

In leech locomotion is performed by:

- (a) Anterior sucker
- (b) Posterior sucker
- (c) Setae
- (d) None of the above

Answer:

- (a) Anterior sucker

Question 2.

The segments of leech are known as ____.

- (a) Metameres (somites)
- (b) Proglottids
- (c) Strobila
- (d) All the above.

Answer:

- (a) Metameres (somites).

Question 3.

Pharyngeal ganglion in leech is a part of:

- (a) Excretory system
- (b) Nervous system
- (c) Reproductive system
- (d) Respiratory system

Answer:

- (b) Nervous system

Question 4.

The brain of leech lies above, the ____.

- (a) Mouth
- (b) Buccal Cavity
- (c) Pharynx
- (d) Crop.

Answer:

- (c) Pharynx

Question 5.

The body of leech has:

- (a) 23 segments
- (b) 33 segments
- (c) 38 segments
- (d) 30 segments

Answer:

- (b) 33 segments

Question 6.

Mammals are animals.

- (a) Cold blooded
- (b) Warm blooded
- (c) Poikilothermic
- (d) All the above

Answer:

- (b) Warm blooded

Question 7.

The animals which give birth to young ones are ____.

- (a) Oviparous
- (b) Viviparous
- (c) Ovoviviparous
- (d) All the above.

Answer:

- (d) All the above

II. Fill in the blanks:

1. The posterior sucker is formed by the segments.
2. The existence of two sets of teeth in the life of an animal is called dentition.
3. The anterior end of leech has a lobe-like structure called
4. The blood sucking habit of leech is known as
5. separate nitrogenous waste from the blood in rabbit.
6. spinal nerves are present in rabbit.

Answer:

1. last seven
2. diphyodont
3. anterior sucker
4. sanguivorous
5. Nephrons (kidney)
6. 37 pair

III. Identify whether the statements are True or False. Correct the false statement:

1. An anticoagulant present in saliva of leech is called heparin.
2. The vas deferens serves to transport the ovum.
3. The rabbit has a third eyelid called tympanic membrane which is movable.
4. Diastema is a gap between premolar and molar teeth in rabbit.
5. The cerebral hemispheres of rabbit are connected by band of nerve tissue called corpora quadrigemina.

Answer:

1. True
2. False – Vas deferens serves to transport the sperm.
3. True
4. False – The gap between the incisors and premolars.
5. False – The cerebral hemispheres of rabbit are connected by band of nerve tissue called corpora corpus callosum.

IV. Match columns I, II and III correctly:

| Organs | Membranous Covering | Location |
|--------|---------------------|-----------------------------|
| Brain | pleura | abdominal cavity |
| Kidney | capsule | mediastinum |
| Heart | meninges | enclosed in thoracic cavity |
| Lungs | pericardium | cranial cavity |

Answer:

| Organs | Membranous Covering | Location |
|--------|---------------------|-----------------------------|
| Brain | meninges | cranial cavity |
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| Lungs | pleura | mediastinum |

V. Answer in a sentence:

Question 1.

Give the common name of the Hirudinaria granulosa.

Answer:

The common name of *Hirundinaria granulosa* is Indian Cattle Leech.

Question 2.

How does leech respire?

Answer:

Leech respire through the skin.

Question 3.

Write the dental formula of rabbit.

Answer:

The dental formula of rabbit is $\frac{2033}{1023}$

Question 4.

How many pairs of testes are present in leech?

Answer:

There are 11 pairs of testes are present in Leech.

Question 5.

How is diastema formed in rabbit?

Answer:

Diastema is due to the absence of canine. It is a gap between incisors and premolars in the upper jaw and lower jaw.

Question 6.

What organs are attached to the two bronchi?

Answer:

The organs attached to the two bronchi are lungs.

Question 7.

Which organ acts as a suction pump in leech?

Answer:

The Pharynx acts as a suction pump in Leech.

Question 8.

What does CNS stand for?

Answer:

The full form of CNS is Central Nervous System.

Question 9.

Why is the teeth of rabbit called heterodont?

Answer:

The dentition of rabbit is called heterodont, as they have different types of teeth (Incisors, premolars and molars).

Question 10.

How does leech suck blood from the host?

Answer:

The Anterior sucker helps in feeding, while both the suckers, help in attachment and locomotion.

VI. Short Answer Questions:

Question 1.

Why are the rings of cartilages found in trachea of rabbit?

Answer:

The wall of larynx which serves as the voice box is supported by 4 cartilaginous plates. When the air passes the vocal cord, it vibrates resulting in sound production.

Question 2.

List out the parasitic adaptations in the leech.

Answer:

Leeches lead a parasitic mode of life, by sucking the blood of vertebrates. The adaptations are

- Blood is sucked by the pharynx.
- Anterior and Posterior Suckers are provided, by which the animal attaches itself to the body of the host.
- The three Jaws, inside the mouth, causes a painless Y – shaped wound in the skin of the host,
- The salivary glands produce Hirudin, which does not allow the blood to coagulate. So, the continuous supply of blood is maintained.
- Parapodia and Setae are absent.
- Blood is stored in the crop. It gives nourishment to the leech for several months. So there is no elaborate secretion of the digestive juices and enzymes.

VII. Long Answer Questions:

Question 1.

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

Answer:

The circulation in Leech is Haemocoelic system. There are no true blood vessels. The blood vessels are replaced by channels called Haemocoelic channels or canals, filled with blood like a fluid. The coelomic fluid contains Haemoglobin.

There are four longitudinal channels. One channel lies above (dorsal) to the Alimentary canal, one below (ventral) to the Alimentary canal. The other two channels lie on either (lateral) side of the Alimentary canal, which serves as a heart and have inner valves. All the four channels are connected together posteriorly in the 26th segment. Thus the circulatory system is designed in Leech to compensate the heart structure.

Question 2.

How does locomotion take place in leech?

Answer:

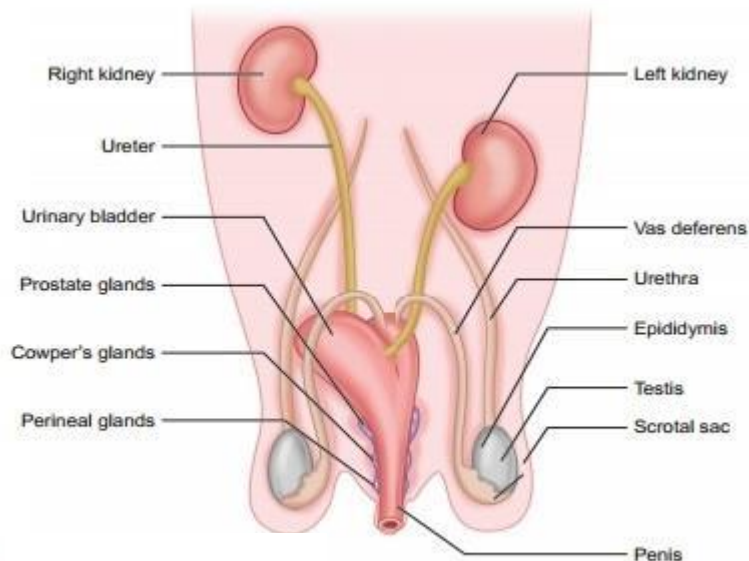
1. Looping or Crawling movement : Looping movement is brought about by the contraction and relaxation of muscles. The two suckers serve for attachment during movement. The animal fixes its posterior sucker on the substratum.
2. Swimming movement : The animal swims in the water by undulating movements of the body.

Question 3.

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

Answer:

The male rabbit has a pair of testes. They are oval in shape. They are kept in two sacs called scrotal sacs hanging down from the abdomen. Each testes is formed of numerous fine tubules called seminiferous tubules. A coiled tubule called epididymis is formed at the end of seminiferous tubules. Epididymis lead into the sperm duct called vas deferens. The vas deferens run forward and enters abdominal cavity through urinary bladder. The urethra runs back and passes into the penis. There are three accessory glands associated with the male reproductive system. They are prostate glands, cowper's gland and perineal glands. Their secretion nourishes and activates the reproduction.



Male reproductive system of Rabbit

VIII. Higher Order Thinking Skills (HOTS).

Question 1.

Arjun is studying in the 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?

Answer:

The doctors would have replied that the leeches inject an anaesthetic substance, that prevents the host from feeling their bite.

Question 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?

Answer:

The rabbit has three types of teeth – Incisors are front teeth used for cutting, premolar and molar are used for grinding. Canine is absent as rabbit are herbivores. The gap between the incisor and premolar is called diastema. It helps in mastication and chewing of food in herbivores animal.

IX. Value-Based Questions:

Question 1.

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

Answer:

The digestion in leeches is very slow. So, the blood stored in the crop gives nourishment to the leech for several months. So there is not elaborate secretion of digestive juices and enzymes.

Question 2.

How is the digestive system of rabbit suited for herbivorous mode of feeding?

Answer:

Rabbit are herbivores which feed on plants. The plant contain cellulose which need cellulose to digest. The laccum of Rabbit contain large number of symbiotic bacteria that helps in digestion of cellulose.