

Chap 10 (Kingdom Animalia) F.Sc 1st Year Biology

Notes

Chapter 10: Kingdom Animalia

(Short Questions Answers)

How insects damage fruits and crops?

The larvae of the insects damage fruits and the crops resulting in economy loss to farmers. The locusts that move in large numbers from country to country cause damage to standing crops etc.

How insects are beneficial to man? or Give beneficial effects of insects. or Write note on useful insects.

The useful insects are the Honey Bee that provides man with honey and also wax. The silk worm gives us silk from which cloth is made. There are some insects that are predaceous on other harmful insects. Some insects are scavengers and they eat up dead animal and vegetable matter. Insect larva are source of food for fish.

What is radula? or What do you know about Radula?

In the mouth cavity of many molluscs there is a rasping tongue-like radula provided with many horny teeth.

Name classes of Phylum Mollusca.

Gastropoda, Bivalvia (Pelecypoda) and Cephalopoda are classes of Phylum Mollusca.

Give examples of class Gastropoda, or with two examples discuss class Gastropoda or What are gastropods?

Helix aspersa and *Limax* (slug) are examples of class Gastropoda.

- These are asymmetrical and their body is covered with usually coiled one piece shell. The animals can withdraw into the shell.
- The aquatic species have gills while in land forms the mantle cavity is converted into lungs e.g., snail.

Give examples of class Bivalvia (Pelecypoda), or Write characters and examples of class bivalvia.

Mytilus (marine mussel) *Anodonta* (freshwater mussel) and *Ostrea* (oyster) are examples of class Bivalvia. They bilaterally symmetrical aquatic molluscs. The body is laterally compressed and is enclosed by two pieces of shell, so these are commonly called bivalves. They respire by plate-like gills. Conical foot and mouth with tentacles. Sexes separate. Trochophore larva present.

Give examples of parasitic Platyhelminthes.

The most common examples of parasitic Platyhelminthes are tapeworm (*Taenia solium*), liver flukes (*Fasciola hepatica*), and blood flukes (*Schistosoma*).

What are flame cells?

The excretory system of Platyhelminthes consists of branching tubes ending in bulb-like cells, the flame cells.

Give examples of flatworms.

Dugesia (Planaria), Fasciola (liver fluke), and Tuena (tape worm) are common examples of flatworms.

What are proglottids?

The body of tape worm is ribbon-like and divided into segments called proglottids which contain mainly sex organs.

How reproduction occurs in Platyhelminthes?

The Platyhelminthes reproduce both by sexual and asexual means of reproduction. Asexual reproduction is by fission. The sexually reproducing species are hermaphrodite, i.e., both male and female reproductive organs are present in the same individual. Larval form is sometimes present.

Give two / four adaptations for parasitic mode of life in Platyhelminthes (flatowrms).

- The epidermis is absent and there is formation of resistant cuticle for protection.
- They have developed adhesive organs, such as hooks and sucker, for attachment to the host.
- There is degeneration of muscular system and nervous system.
- The digestive system has become simplified due to increased dependency on host.

What is Fasciola (liver-fluke)?

It is an endoparasite in sheep and occasionally in human beings. It has suckers used for attachment to host tissue. It completes its life cycle in two hosts, a snail, sheep or man. It lives in the bile duct of its hosts.

What are most common arthropods, on the earth?

Insects (cockroaches, grasshoppers, butterflies, mosquitoes) are most : common arthropods, on the earth.

Why arthropods are believed to have common origin with annelids?

The arthropods are believed to have common origin with annelids because both have some common characteristics such as segmented body, appendages and cuticle.

What are jointed appendages?

These are the legs found in the members of Phylum Arthropoda which are composed of pieces attached with moveable joints.

What is haemocoel?

The body cavity of arthropods is called haemocoel because blood flows through it

What are Malpighian tubules?

A well developed excretory system comprising of Malpighian tubules is present in arthropods. Malpighian tubules absorb wastes from haemocoel and drop them in hindgut. The nitrogenous wastes are excreted in the form of – solid uric acid

How respiration or exchange of gases occurs in arthropods?

Most arthropods possess an extensive system formed of air tubes called trachea for the exchange of gases. Main tracheal tubes open to the exterior. through openings called spiracles. Aquatic arthropods respire through gills and book lungs.

Why blood is colourless in arthropods?

In arthropods, blood is colourless as it is without haemoglobin.

Describe exoskeleton of arthropods.

The skeleton is external, i.e., exoskeleton. It is in the form of an outer covering, the cuticle, light in weight and formed chiefly of chitin. It provides a surface for the attachment of muscles which help in locomotion.

How locomotion occur in Aschelminthes?

Locomotion is by undulating waves of contraction and relaxation of muscles. The muscular layer is dividend into four longitudinal parts, two dorso-lateral and two ventro-lateral. The circular muscles are absent therefore the bending is dorso-ventral only.

What is importance of Enterobius vermicularis?

Enterobius vermicularis, commonly known as pin worm is cosmopolitan (found everywhere) but more common in Europe and America. Pinworms are parasites in the human caecum, colon and appendix Their movement cause intense itching of anus,

inflammation of mucous membrane of colon and appendix resulting in insomnia (sleepless condition) and loss of appetite (hunger).

What is importance of *Acychlostoma duodenale* (hook worm)? or Describe briefly about hook worm. Or What are hook worms?

Acychlostoma duodenale is commonly known as hook worm. It is a parasite of human small intestine in Asia, North Africa and Europe. It is a very dangerous because it holds the villi of intestine and sucks blood and body fluid during feeding. It produces an anticoagulant to prevent clotting of blood and after feeding leaves the wound bleeding. In children it can cause severe anaemia and retard physical and mental growth.

What is prostomium?

In annelids, the mouth is overhung by a lobed structure, the prostomium.

Differentiate between closed and open circulatory systems.

A system in which a circulatory fluid called blood flows in a network of vessels . known as blood vessels and whole blood never comes out of the vessels is called closed circulatory system e.g., annelids and chordates. While a system in which whole blood comes out of the blood vessels, bathes the body organs and then returned to the heart is called open circulatory system e.g, in arthropods. The body of annelids is metamerically segmented.

Explain or What is term metameric segmentation?

The body becomes divided transversely into a number of similar parts or segments which originate in mesoderm. The subdivisions may be indicated externally by constrictions of the body surface. Internally the segments are separated from each other by septa extending across the coelom.

What are nephridia?

In annelids excretion takes place by specialized structures called nephridia which are ciliated organs present in each segment in the body cavity.

How locomotion occurs in Annelida?

The locomotion is brought by the interaction of muscles and hydrostatic skeleton. Contraction of circular muscles produces a pressure in the coelomic fluid that forces the body to elongate. Similarly contraction of longitudinal muscles, produce a pressure in

the coelomic fluid that would cause the body to widen. Most annelids possess chitinous cheatae or setae embedded in sacs (earthworm) or parapodia present in the body wall (Nereis).

What is trochophore?

It is the free-swimming larva of annelids and molluscs.

What are organs of locomotion in Polychaeta and Oligochaeta?

The organs of locomotion of class Polychaeta are parapodia while organs of locomotion in class Oligochaeta are setae.

Give examples of class Polychaeta.

Nereis and Chaetopterus are important examples of Polychaeta.

Name various classes of Phylum Annelida.

Polychaeta, Oligochaeta, and Hirudinea are classes of Phylum Annelida.

Give examples of class Oligochaeta.

Lumbricus terrestris, and Pheretima posthuma are examples of class Oligochaeta.

What are annuli?

Each segment in Hirudinea has additional circular rings or markings called annuli.

Why earthworm is termed as natural plough?

Earthworm is perhaps most active segmented worm in churning the soil, therefore it is commonly termed as natural plough

What is agricultural importance of earthworms?

Burrowing activity of earthworms permits greater penetration of air into the soil, and improves drainage capacity of the soil. It also enables root to grow downwards through the soil more easily. Mixing and churning of the soil is brought about when earth which contains inorganic particles is brought up to the surface from lower regions.

What are most common arthropods, on the earth?

Insects (cockroaches, grasshoppers, butterflies, mosquitoes) are most common arthropods, on the earth.

Why arthropods are believed to have common origin with annelids?

The arthropods are believed to have common origin with annelids because both have some common characteristics such as segmented body, appendages and cuticle.

What are jointed appendages?

These are the legs found in the members of Phylum Arthropoda which are composed of pieces attached with moveable joints.

What is haemocoel?

The body cavity of arthropods is called haemocoel because blood flows through it.

What are Malpighian tubules?

A well developed excretory system comprising of Malpighian tubules is present in arthropods. Malpighian tubules absorb wastes from haemocoel and drop them in hindgut. The nitrogenous wastes are excreted in the form of solid uric acid.

How respiration or exchange of gases occurs in arthropods?

Most arthropods possess an extensive system formed of air tubes called trachea for the exchange of gases. Main tracheal tubes open to the exterior through openings called spiracles. Aquatic arthropods respire through gills and book lungs.

Why blood is colourless in arthropods?

In arthropods, blood is colourless as it is without haemoglobin.

Describe exoskeleton of arthropods.

The skeleton is external, i.e., exoskeleton. It is in the form of an outer covering, the cuticle, light in weight and formed chiefly of chitin. It provides a surface for the attachment of muscles which help in locomotion.

What is carapace?

In Crustacea, on the dorsal side of the body the exoskeleton is in the form of a covering called carapace.

Give examples of crustaceans.

Each segment in Hirudinea has additional circular rings or markings called annuli.

Why earthworm is termed as natural plough?

Earthworm is perhaps most active segmented worm in churning the soil, therefore it is commonly termed as natural plough.

What is agricultural importance of earthworms?

Burrowing activity of earthworms permits greater penetration of air into the soil, and improves drainage capacity of the soil. It also enables root to grow downwards through the soil more easily. Mixing and churning of the soil is brought about when earth which contains inorganic particles is brought up to the surface from lower regions.

What is carapace?

In Crustacea, on the dorsal side of the body the exoskeleton is in the form of a covering called carapace.

Give examples of crustaceans.

Daphnia, Cyclops, Crabs, Lobsters, Prawn. Wood louse, etc. are examples. class Crustacea.

What are different regions of body in insects.

The body in insects has three distinct regions: head, thorax and abdomen. Head, is usually vertical to the body and jaws are ventrally placed. A pair of antennae and compound eyes are present on head. The thorax has three segments in which are present three pairs of jointed legs and in many one or two pairs of wings. Abdomen has varying number of segments.

How locomotion occurs in arthropods?

The arthropods show active and swift movements. They swim, crawl or fly depending upon the habitat they occupy. The organs of locomotion are paired legs and paired wings.

What is metamorphosis? or Define the term metamorphosis.

This is an abrupt change of form or structure during the life cycle of insects during which egg passing through different stages becomes adult. There are two types of

metamorphosis. Complete and incomplete In complete metamorphosis, the egg develops into larva which is converted into motionless pupa that develops into an adult e.g., house fly. If any stage (larva / pupa) is missed, then it is called incomplete metamorphosis. e.g., cockroach.

What is nymph? or Describe incomplete metamorphosis.

In some primitive insects (Cockroach) the metamorphosis is incomplete. The larva resembles adult and is called nymph or instar. It lives in the same habitat as adult.

Give examples of class Insecta.

House fly, mosquito, butterflies, moths, wasps and beetles etc. are examples of class Insecta.

What are Arachnida? Give examples of class Arachnida.

Arachnids are arthropods with two body segments eight legs no wings or antennae and are not able to chew. Scorpions, spiders, mites and ticks are examples of class Arachnida.

Give examples of class Myriapoda.

Centipedes and millipedes are examples of class Myriapoda.

What are two of the main achievements of arthropods?

Two of the main achievements of arthropods are the chitinous exoskeleton and locomotory mechanism.

What is moulting or ecdysis? How it is beneficial to arthropods? or Explain term ecdysis.

The process of shedding skeleton is called moulting or ecdysis. In the young arthropods as in the insect larvae chitin is shed from time to time, allowing growth of the larva.

How insects are involved in the spread of diseases? or Describe briefly two harmful insects. Give examples.

Female mosquito of genus *Anopheles* transmits plasmodium that causes 'malaria fever' in man. The Tsetse fly of African countries transmits *Trypanosoma*, the cause of sleeping sickness and skin diseases. Common House Fly carries disease causing organisms to contaminate food etc., and causes cholera, hepatitis etc.

Give examples of class Cephalopoda.

Loligo, Sepia and Octopus are examples of class Cephalopoda.

Differentiate between haemoglobin and haemocyanin

Haemoglobin is a respiratory pigment red in colour, found in the word of annelids and chordates while haemocyanin is also a respirator, pigmooit blue in colour, present in the blood of molluscs.

Differentiate between Cephalopoda and Gastropoda.

Cephalopoda and Gastropoda are classes of Phylum Mollusca. Gastopcds are asymmetrical and their body is covered with usually coileci one pie shell. Cephalopods are bilaterally symmetrical with dorso-ventral body. The shell is much reduced and internal.