

NCERT Solutions for 11th Class Biology:Chapter 7- Structural Organisation in Animals



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NCERT Solutions for 11th Class Biology: Chapter 7-Structural Organisation in Animals

Class 11: Biology Chapter 7 solutions. Complete Class 11 Biology Chapter 7 Notes.

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Exercises

1. Answer in one word or one line:

(i) Give the common name of *Periplaneta americana*.

► American cockroaches.

(ii) How many spermatheca are found in earthworms?

► Four pairs

(iii) What is the position of ovaries in a cockroach?

► Between 12th and 13th abdominal segments

(iv) How many segments are present in the abdomen of cockroaches?

► Ten segments

(v) Where do you find Malpighian tubules?

► Malpighian tubules are the main excretory organs of the cockroach.

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2. Answer the following:

(i) What is the function of nephridia?

(ii) How many types of nephridia are found in earthworms based on their location?

Answer

(i) Nephridia regulates the volume and composition of the body fluids.

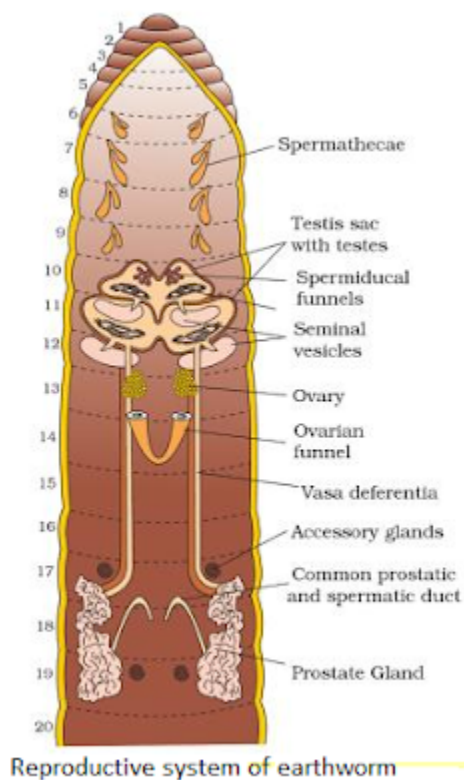
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(ii) There are three types of nephridia found in earthworm:

- Septal nephridia: present on both the sides of intersegmental septa of segment 15 to the last that open into intestine
- Integumentary nephridia: attached to lining of the body wall of segment 3 to the last that open on the body surface
- Pharyngeal nephridia: present as three paired tufts in the 4th , 5th and 6th segments.

3. Draw a labelled diagram of the reproductive organs of an earthworm.

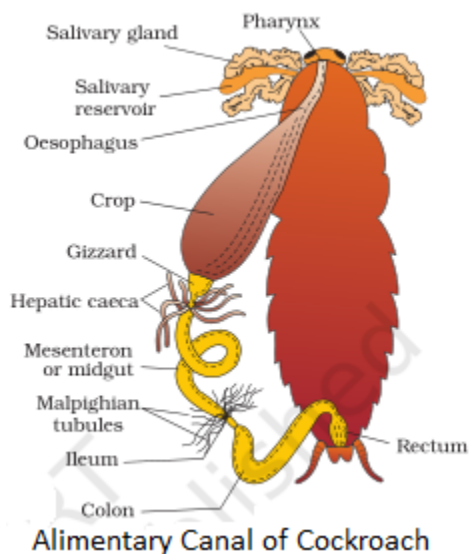
Answer



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4. Draw a labelled diagram of the alimentary canal of a cockroach.

Answer



5. Distinguish between the following

(a) Prostomium and peristomium

(b) Septal nephridia and pharyngeal nephridium

Answer

(a)

Prostomium	Peristomium
Prostomium is a small fleshy lobe, which overhangs the mouth of an earthworm. It helps the organism push into the soil and is sensory in	The first body segment in the earthworm is called the peristomium. It surrounds the mouth

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function.

opening.

(b)

Septal nephridium

They are present on both sides of intersegmental septa behind the 15th segment. They open into the intestines.

Pharyngeal nephridium

They are present as three paired tufts in the fourth, fifth, and sixth segments.

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6. What are the cellular components of blood?

Answer

The cellular components of blood are red blood cells (RBC), white blood cells (WBC) and platelets.

7. What are the following and where do you find them in animal body

(a) Chondrocytes

(b) Axons

(c) Ciliated epithelium

Answer

(a) Chondrocytes are cells of cartilages and are present in small cavities within the matrix secreted by them.

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(b) Axons are long, slender projections of neurons that help in carrying nerve impulses from the neuron body. Axons aggregate in bundles which make up the nerves.

(c) Ciliated epithelium are columnar or cuboidal cells that bear cilia on their free surface. They are mainly present in the inner surface of hollow organs like bronchioles and fallopian tubes.

8. Describe various types of epithelial tissues with the help of labelled diagrams.

Answer

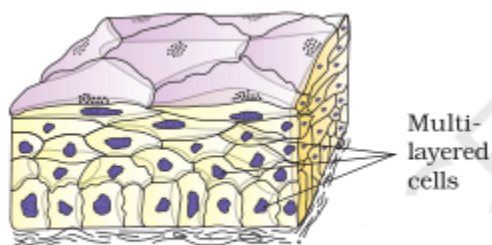
Epithelial tissue lines the surface of a body and forms a protective covering. Epithelium cells are packed tightly together with little intercellular matrices. Epithelial tissue in the body is of two types.

→ Simple epithelium: It consists of a single layer of cells where cells are in direct contact with the basement membrane. It is further subdivided into the following types:

- Simple squamous epithelium: It consists of a single layer of flat cells with irregular boundaries. It is found in the walls of the blood vessels and in the lining of alveoli.
- Simple cuboidal epithelium: It consists of a single layer of cube-like cells. It is present in regions where secretion and absorption of substances takes place such as the proximal convoluted tubule region of the nephron.
- Simple columnar epithelium: It consists of a single layer of tall, slender cells with their nuclei present at the base of the cells. They may bear microvilli on the free surfaces. Columnar epithelium forms the lining of the stomach and intestines, and is involved in the function of secretion and absorption.

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- **Ciliated epithelium:** It consists of columnar or cuboidal cells with cilia on their free surfaces. They are present in bronchioles and oviducts from where they direct mucus and eggs in specific directions.
 - **Glandular epithelium:** It consists of columnar or cuboidal cells involved in the secretion of substances. Glands are of two types, unicellular glands (goblet cells of the alimentary canal) and multicellular glands (salivary glands). They can be classified as exocrine (ductless glands) and endocrine glands (duct glands) by the method through which they release enzymes.
- **Compound epithelium:** It consists of many layers of cells. It is involved mainly in the function of providing protection and has a limited role in secretion and absorption. Examples of compound epithelium include the dry surface of the skin or moist inner lining of the buccal cavity, pharynx, pancreatic ducts, and the inner lining of ducts of salivary glands.



Compound Epithelium

9. Distinguish between

- (a) Simple epithelium and compound epithelium.
- (b) Cardiac muscle and striated muscle
- (c) Dense regular and dense irregular connective tissues
- (d) Adipose and blood tissue
- (e) Simple gland and compound gland

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Answer

(a)

Simple epithelium

- It is composed of only one layer of cells.
- It is mainly involved in the function of absorption and secretion.
- It is present in the lining of the stomach, intestine.

Compound epithelium

- It is composed of many layers of cells.
- It is mainly involved in the function of protection and has a limited role in absorption and secretion.
- It is present in the lining of the pharynx and buccal cavity.

(b)

Cardiac muscles

- They are involuntary in function.
- They are multinucleate and branched.
- They are found only in the heart.

Striated muscles

- They are voluntary in function.
- They are multinucleate and unbranched.
- They are found only in triceps, biceps, and limbs.

(c)

Dense regular connective tissues**Dense irregular connective tissues**

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- In dense regular connective tissues, collagen fibres are present in rows between parallel boundless fibres. • They are present in tendons and ligaments.
- In dense irregular connective tissues, fibres are arranged irregularly. • They are present in the skin.

(d)

Adipose tissue

- It is composed of collagen fibres, elastin fibres, fibroblasts, macrophages, and adipocytes. • It helps in the synthesis, storage, and metabolism of fats.
- It is present beneath the skin.

Blood tissue

- It is composed of RBCs, WBCs, platelets, and plasma. • It helps in the transportation of food, wastes, gases, and hormones. • It is present in the blood vessels.

(e)

Simple glands

- They contain isolated glandular cells. • They are unicellular. • Examples include goblet cells of the alimentary canal.

Compound glands

- They contain a cluster of secretory cells. • They are multicellular. • Examples include salivary glands.

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10. Mark the odd one in each series:

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(a) Areolar tissue; blood; neuron; tendon

► Neuron, because it is an example of neural tissue while all others are connective tissue.

(b) RBC; WBC; platelets; cartilage

► Cartilage, as all others are components of blood.

(c) Exocrine; endocrine; salivary gland; ligament

► Neuron, because it is an example of neural tissue while all others are connective tissue.

(d) Maxilla; mandible; labrum; antennae

► Neuron, because it is an example of connective tissue while all others are examples of simple glandular epithelium.

(e) Protonema; mesothorax; mesothorax; coxa

► Antennae, as it is not a masticating part of cockroach

11. Match the terms in column I with those in Column II:

Column I	Column II
(a) Compound epithelium	(i) Alimentary canal
(b) Compound eye	(ii) Cockroach
(c) Septal nephridia	(iii) Skin
(d) Open circulatory system	(iv) Mosaic vision
(e) Typhlosole	(v) Earthworm
(f) Osteocytes	(vi)

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- (g) Genitalia Phallomere
(vii) Bone

Answer

Column I	Column II
(a) Compound epithelium	(iii) Skin
(b) Compound eye	(iv) Mosaic vision
(c) Septal nephridia	(v) Earthworm
(d) Open circulatory system	(ii) Cockroach
(e) Typhlosole	(i) Alimentary canal
(f) Osteocytes	(vii) Bone
(g) Genitalia	(vi) Phallomere

12. Mention briefly about the circulatory system of earthworm

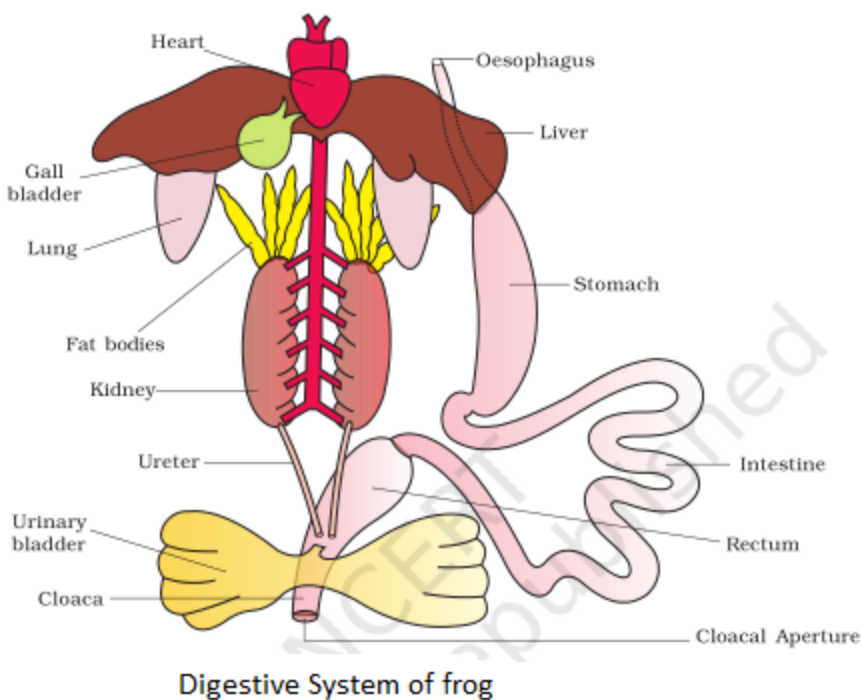
Answer

Earthworms exhibit a closed type of blood vascular system. It consists of blood vessels, capillaries and heart. Due to a closed circulatory system, blood is confined to the heart and blood vessels. Contractions keep blood circulating in one direction. Smaller blood vessels supply the gut, nerve cord and body wall. Blood glands are present on the 4th, 5th and 6th segments. They produce blood cells and haemoglobin which is dissolved in blood plasma. Blood cells are phagocytic in nature.

13. Draw a neat diagram of the digestive system of frogs.

Answer

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14. Mention the function of the following

(a) Ureters in frog

(b) Malpighian tubules

(c) Body wall in earthworm

Answer

(a) Ureters in frogs: A ureter acts as a urinogenital duct, which carries sperms along with urine in male frogs.

(b) Malpighian tubules: Malpighian tubules are excretory organs in cockroaches.

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(c) Body wall in earthworms: In earthworms, the body wall consists of muscle layers. It helps in movement and burrowing.

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- Chapter 2: Biological Classification
- Chapter 3: Plant Kingdom
- Chapter 4: Animal Kingdom
- Chapter 5: Morphology of Flowering Plants
- Chapter 6: Anatomy of Flowering Plants
- Chapter 7: Structural Organisation in Animals
- Chapter 8: Cell-The Unit of Life
- Chapter 9: Biomolecules
- Chapter 10: Cell Cycle and Cell Division
- Chapter 11: Transport in Plants
- Chapter 12: Mineral Nutrition
- Chapter 13: Photosynthesis in Higher Plants
- Chapter 14: Respiration in Plants
- Chapter 15: Plant - Growth and Development
- Chapter 16: Digestion and Absorption
- Chapter 17: Breathing and Exchange of Gases
- Chapter 18: Body Fluids and Circulation
- Chapter 19: Excretory Products and Their Elimination
- Chapter 20: Locomotion and Movement
- Chapter 21: Neural Control and Coordination
- Chapter 22: Chemical Coordination and Integration

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