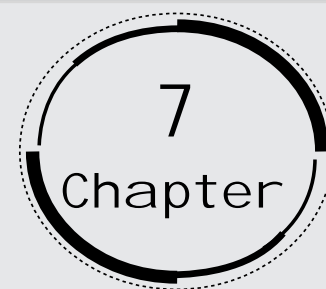


Structural Organisation In Animals



Very Short Answer Questions

Type your text

1 Mark

1. Give the common name of *Periplaneta americana*.

Ans: The common name of *Periplaneta americana* is the American cockroach which is 34-53 cm long in the adult phase.

2. How many spermatheca are found in earthworms?

Ans: There are four pairs of spermatheca present in the earthworms which are located between the sixth and the ninth segments and help in receiving and storing the spermatozoa during copulation.

3. What is the position of the ovaries in the cockroach?

Ans: The ovaries of cockroaches are located between the 12th and 13th abdominal segments and it is present in pairs.

4. How many segments are present in the abdomen of cockroaches?

Ans: There are ten segments present in the abdomen of cockroaches in both the sexes.

5. Where do you find malpighian tubules?

Ans: Malpighian tubules are part of the alimentary canal and it is the main excretory organ.

Short Answer Questions

2 Marks

1. What is the function of nephridia?

Ans: Nephridia are the excretory organ of earthworm which is structurally coiled and segmentally arranged.

2. How many types of nephridia are found in earthworms based on their location?

Ans: There are three types of nephridia present on earthworms.

- (i) Septal nephridia: It is located behind the 15th segment and is present on both sides of the intersegmental septa. As it is present from 15 to the last

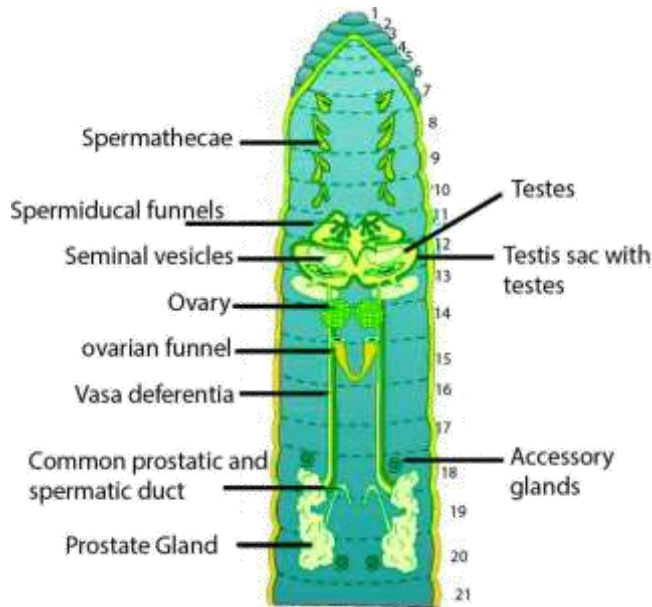
segment therefore it opens into the intestine.

(ii) Integumentary nephridia: These are attached to the body wall lining from the third segment to the last segment which opens on the body surface.

(iii) Pharyngeal nephridia: These nephridia are present on the sixth segment in the paired form of three tufts in the fourth, fifth, and sixth segments.

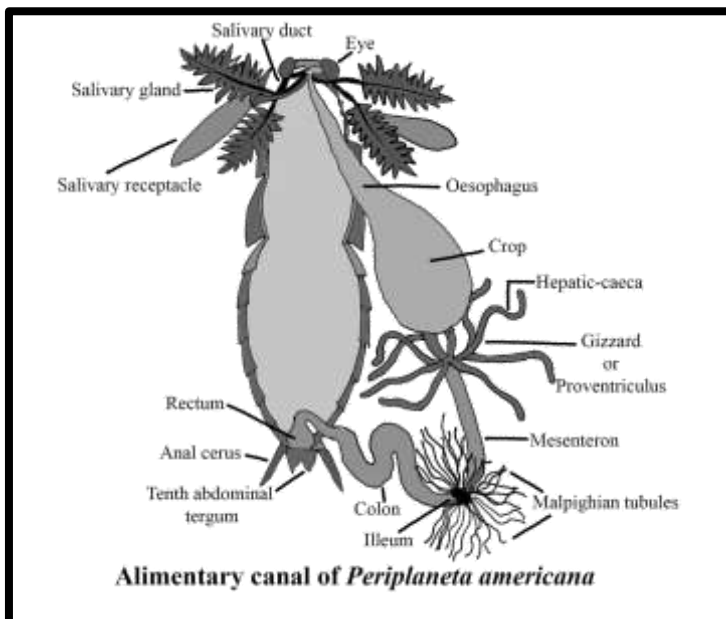
3. Draw a labeled diagram of the reproductive organs of an earthworm.

Ans:



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

Ans:



5. Distinguish between the following

1) Prostomium and peristomium

Ans:

Prostomium	Peristomium
It overhangs on the mouth of an earthworm in form of a small fleshy lobe which helps to push the organisms themselves into the soil and also it is sensory in function.	It is the first body segment present in the earthworm and it also consists of the mouth.

2) Septal nephridium and pharyngeal nephridium

Ans:

Septal nephridium	Pharyngeal nephridium
It is present in pairs on both the sides of inter-segmental septa from the 15 th segment to the last therefore they get open into the intestines.	They are present on the sixth segment in the form of three paired tufts and these segments are the fourth, fifth, and sixth segments.

6. What are the cellular components of blood?

Ans: Erythrocytes (RBCs), leucocytes (WBCs), and thrombocytes (platelets) are the cellular components of blood, which form 45% of the blood and are found in the remaining fluid portion, called plasma.

In mammals, the erythrocytes are biconcave colored cells that are devoid of the nucleus because it makes space for carrying and transporting respiratory gases.

The leukocytes which are known as white blood cells are nucleated cells and are divided into mainly two types, granulocytes (neutrophils, eosinophils, and basophils) and agranulocytes (lymphocytes and monocytes). All these leukocytes mainly help in destroying the foreign particles by their phagocytic nature.

The megakaryocytes of the bone produce thrombocytes which are cell fragments and it helps during blood coagulation.

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

1) Chondrocytes

Ans: Chondrocytes is an intercellular material of cartilages and it is found enclosed in small cavities of cartilages within the matrix.

2) Axons

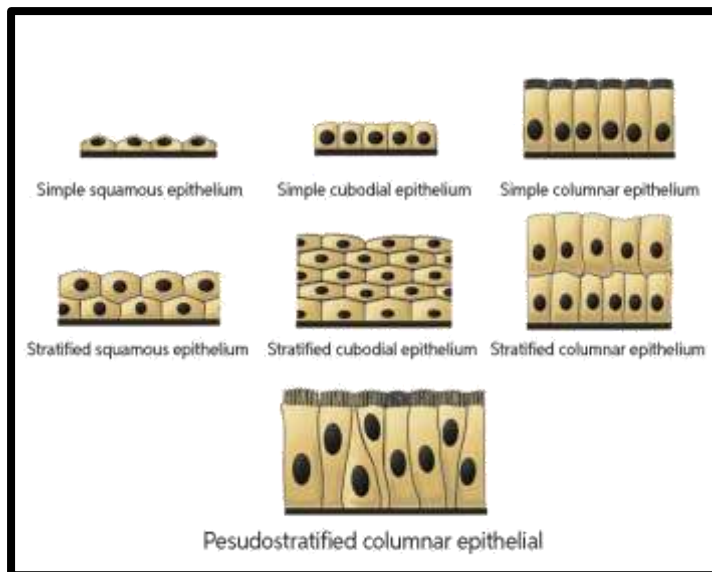
Ans: Axons are part of neurons which are long, slender-like projections that help in carrying the nerve impulse from one neuron body to another.

3) Ciliated epithelium

Ans: Ciliated epithelium is called when the columnar and cuboidal cells bear cilia on their free surface. It is present inside the bronchioles and fallopian tubes.

8. Describe various types of epithelial tissue with the help of a labeled diagram.

Ans:



Epithelial tissues are mainly of two types: simple epithelium and compound epithelium.

1. Simple epithelium is made up of single layers of cells and it is present on the lining of body cavities, ducts, and tubes.
Simple epithelium is again divided into squamous, cuboidal and columnar. The squamous epithelium is single-layered and flat and it is made up of cells with irregular boundaries. It helps in diffusion therefore present in walls of blood vessels and air sacs of lungs.
2. The cuboidal epithelium is made up of cube-shaped cells arranged in a single layer and helps in secretion and absorption in ducts of glands and nephrons of kidneys.
3. The columnar epithelium is long and slender cells present as a single layer that helps in absorption and secretion in the lining of the stomach and intestine. When columnar and cuboidal cells possess cilia they are called ciliated epithelium and that cilia help in the movement of particles.
4. The compound epithelium is made up of two layers or more than two layers of cells and its most important function is to provide protection against chemical and mechanical stress. It covers all the dry surfaces of skin, pharynx surface, ducts of salivary glands, buccal cavity, and pancreatic duct.

9. Distinguish between

1. Simple epithelium and compound epithelium

Ans:

Simple epithelium	Compound epithelium
It is made up of a single layer of cells.	It is made up of two or more layers of cells.
It helps in the absorption and secretion of body fluids and gases.	It helps in protection, absorption, and secretion.
It is present stomach and intestine lining.	It is present in the pharynx, salivary glands, and pancreatic ducts surface.

2. Cardiac muscle and striated muscle

Ans:

Cardiac muscle	Striated muscle
ContractileIt is present in the heart and is a type of tissue.	It is present on skeletal bones in a parallel fashion.
Plasma membrane fuse in cardiac muscle cells and helps in the transmission of signals.	It helps in the movement of long bones.

3. Dense regular and dense irregular connective tissues

Ans:

Dense regular connective tissues	Dense irregular connective tissues
Parallel bundles of fibers are present with collagen fibers in the form of rows.	Fibres and fibroblast are arranged in an irregular fashion.
Tendons and ligaments consist of these tissues.	Skin consists of this type of tissue.

4. Adipose and Blood tissue

Ans:

Adipose tissue	Blood tissue
It is made up of collagen fibers, elastin fibers, fibroblasts, macrophages, and adipocytes.	It is made up of RBCs, WBCs, platelets, and plasma.

It helps in the synthesis, storage, and metabolism of fats.	It mainly helps in the transportation of food, wastes, gases, and hormones throughout the body.
It is present beneath the skin.	It is present in the blood vessels.

5. Simple glands and compound glands

Ans:

Simple glands	Compound glands
It consists of isolated glandular cells and it is unicellular	It is multicellular and made up of clusters of secretory cells.
Examples are goblet cells of the alimentary canal.	Salivary gland is a type of compound gland.

10. Mark the odd one in each series:

1. Areolar tissue; blood; neuron; tendon

Ans: The neuron is the example of neural tissue whereas the rest are the examples of connective tissues.

2. RBC; WBC; platelets; cartilage

Ans: Cartilage is a type of connective tissue whereas RBCs, WBCs, and platelets are the components of blood connective tissue.

3. Exocrine; endocrine; salivary gland; ligament

Ans: The ligament is a type of connective tissue whereas the rest are types of epithelial glands.

4. Maxilla; mandible; labrum; thorax; coxa

Ans: Antennae are present on the head of cockroaches whereas the maxilla, mandible, and labrum are present on the mouth or it is the parts of the mouth region.

5. Protonema; mesothorax; metathorax; coxa

Ans: Protonema is related to the life cycle of moss whereas Mesothorax, metathorax, and coxa are the parts of the legs of a 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) Phallomere
(g) Genitalia	(vii) Bone

Ans:

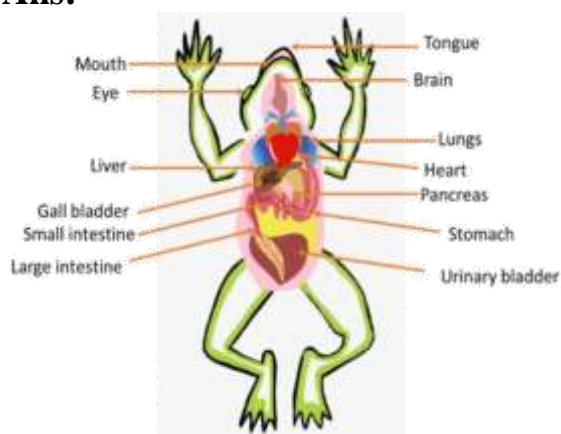
- (a) Compound epithelium is present on the surface of skin therefore skin is an example of compound epithelium.
- (b) The compound eye of cockroaches helps in mosaic vision.
- (c) Septal nephridium is a part of the excretory organ of earthworm nephridia.
- (d) Open circulatory systems are found in cockroaches where therefore blood vessels open into space.
- (e) Typhlosole is an alimentary canal of earthworms and it increases the area of absorption.
- (f) Bone is also known as osteocyte and it is a type of connective tissue.
- (g) Phallomere is the external genitalia of cockroaches.

12. Mention briefly the circulatory system of earthworms.

Ans: The circulatory system of earthworms is of close type with the heart, capillaries, and blood vessels. The fourth, fifth, and sixth segments consist of blood glands and these blood glands produce blood plasma with dissolved blood cells and hemoglobin. The supply of blood takes place from the heart to all body parts by contraction of vessels and heart. In the nerve cord gut and body wall, the supply of blood takes place from small blood vessels.

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

Ans:



14. Mention the function of the following

1. Ureters in frog

Ans: Ureters in frogs: In a male frog the ureter carries both excretory matter and sperm, therefore, it is also known as the urogenital duct which opens into the cloaca whereas in females the ureter only carries excretory material.

2. Malpighian tubules

Ans: Malpighian tubules: It is made up of glandular and ciliated epithelium and helps in the excretion of waste material in cockroaches.

3. Body wall in earthworm

Ans: In earthworms, the body wall is segmented which helps in movement and it also consists of secretory glands.