Chapter – 4

Organ and Organ Systems in Animals

Choose the correct answer

Question 1.
The clitellum is a distinct part in the body of earthworm Lampito mauritii, it is found in ……..
(a) Segments 13 – 14
(b) Segments 14 – 17
(c) Segments 12 – 13
(d) Segments 14 – 16

Answer:
(b) Segments 14 -17

Question 2.
Sexually, earthworms are ……..
(a) Sexes are separate
(b) Hermaphroditic but not self-fertilizing
(c) Hermaphroditic and self-fertilizing
(d) Parthenogenic

Answer:
(b) Hermaphroditic but not self-fertilizing

Question 3.
To sustain themselves, earthworms must guide their way through the soil using their powerful muscles. They gather nutrients by ingesting organic matter and soil, absorbing what they need into their bodies. Say whether the statement is true or false: The two ends of the earthworm can equally ingest soil.
(a) True
(b) False

Answer:
(b) False

Question 4.
The head region of Cockroach pairs of and shaped eyes occur.
(a) One pair, sessile compound and kidney shaped
(b) Two pairs, stalked compound and round shaped
(c) Many pairs, sessile simple and kidney shaped
(d) Many pairs, stalked compound and kidney shaped

Answer:
(a) One pair, sessile compound and kidney shaped

Question 5.
The location and numbers of malpighian tubules in Periplaneta ……
(a) At the junction of midgut and hindgut, about 150.
(b) At the junction of foregut and midgut, about 150.
(c) Surrounding gizzard, eight.
(d) At the junction of colon and rectum, eight.

Answer:
(a) At the junction of midgut and hindgut, about 150.

Question 6.
The type of vision in Cockroach is ……
(a) Three dimensional
(b) Two dimensional
(c) Mosaic
(d) Cockroach do not have vision

Answer:
(c) Mosaic

Question 7.
How many abdominal segments are present in male and female cockroaches?
(a) 10, 10
(b) 9, 10
(c) 8, 10
(d) 9, 9

Answer:
(a) 10,10

Question 8.
Which of the following have an open circulatory system?
(a) Frog
(b) Earthworm
(c) Pigeon
(d) Cockroach

Answer:
(d) Cockroach

Question 9.
Buccopharyngeal respiration in frog ……..
(a) is increased when nostrils are closed
(b) stops when there is pulmonary respiration
(c) is increased when it is catching fly
(d) stops when mouth is opened.

Answer:
(b) Stops when there is pulmonary respiration

Question 10.
Kidney of frog is ……
(a) Archinephros
(b) Pronephros
(c) Mesonephros
(d) Metanephros

Answer:
(c) Mesanephros

Question 11.
Presence of gills in the tadpole of frog indicates that ……..
(a) fishes were amphibious in the past
(b) fishes evolved from frog-like ancestors
(c) frogs will have gills in future

(d) frogs evolved from gilled ancestor

Answer:
(d) frogs evolved from gilled ancestor

Question 12.
Choose the wrong statement among the following ……..
(a) In earthworm, a pair of male genital pore is present.
(b) Setae help in locomotion of earthworms.
(c) Muscular layer in the body wall of earthworm is made up of circular muscles and longitudinal muscles.
(d) Typhlosole is part of the intestine of earthworm.

Answer:
(a) In earthworm, a pair of male genital pore is present.

Question 13.
Which of the following are the sense organs of Cockroach?
(a) Antennae, compound eyes, maxillary palps, anal cerci
(b) Antennae, compound eye, maxillary palps, and tegmina
(c) Antennae, ommatidia, maxillary palps, stemumy and anal style
(d) Antennae, eyes, maxillary palps, tarsus of walking legs, and coxa

Answer:
(c) Antennae, ommatidia, maxillary palps, sternumv and anal style

Question 14.
What characteristics are used to identify the earthworms?

Answer:

- Light brown colour.
- Purplish tingle colour at the anterior end.
- Body segments or metameres.
- 14 -17 the clitellum

Question 15.
What are earthworm casts?

Answer:
The undigested particles of food along with earth passed out through the anus of the earthworm are called worm casting.

Question 16.
How do earthworms breathe?

Answer:
In earthworms, respiration takes place through the body wall by the moist skin diffusion, oxygen diffuses through the skin into the blood while carbon dioxide from the blood diffuses out.

Question 17.
Why do you call cockroaches a pest?

Answer:
The cockroaches act as vectors for the transmission of diseases like Cholera, Dysentery Tuberculosis, and Typhoid. Hence it is considered a pest.

Question 18.
Comment on the functions of alary muscles?

Answer:
Alary muscles are the triangular muscles that are responsible for blood circulation in the cockroach. Each segment has one pair and a pumped anteriorly to sinuses again.

Question 19.
Name the visual units of the compound eyes of cockroach.

Answer:

- The photoreceptors of the cockroach consist of a pair of compound eye on the dorsal surface of the head.
- Each eye is formed of about 2000 simple eyes called the ommatidia.

Question 20.
How does the male frog attract the female for mating?

Answer:
The male frog has a pair of vocal sacs and a nuptial pad on the ventral side of the first digit of each forelimb. Vocal sacs assist in amplifying the croaking sound of frogs. It makes a characteristic sound and attracts the female.

Question 21.
Write the types of respiration seen in frogs.

Answer:

- Frog respires both on land and in water. In the water it respires through skin and moist body surface.
- When on land respires through buccal cavity skin and lungs.

Question 22.
Differentiate between peristomium and prostomium in earthworms.

Answer:
Peristomium:
The first segment of the body of earthworms is called peristomium.

Prostomium:
A small flap overhanging the mouth is called prostomium or upper lip.

Question 23.
Give the location of clitellum and spermathecal openings in Lampito Mauritius.

Answer:
In mature earthworms, 14 – 17th segments are swollen with a glandular thickening of the skin called the clitellum. Permathecal openings are three pairs of small ventrolateral apertures lying intersegmental between the grooves of the segment 6 / 7, 7 / 8 and 8 / 9.

Question 24.
Differentiate between tergum and a sternum

Answer:
Tergum:
Tergum is the covering each segment of the cockroach on the dorsal side.

Sternum:
The sternum is the covering of each segment of the cockroach on the ventral side.

Question 25.
Head of cockroach is called hypognathous. Why?

Answer:

- The head of cockroach is small triangular one.
- It lies right angle to the longitudinal body axis.
- The mouthparts are directed downwards so it is hypognathous.

Question 26.
How respiration takes place in cockroach?

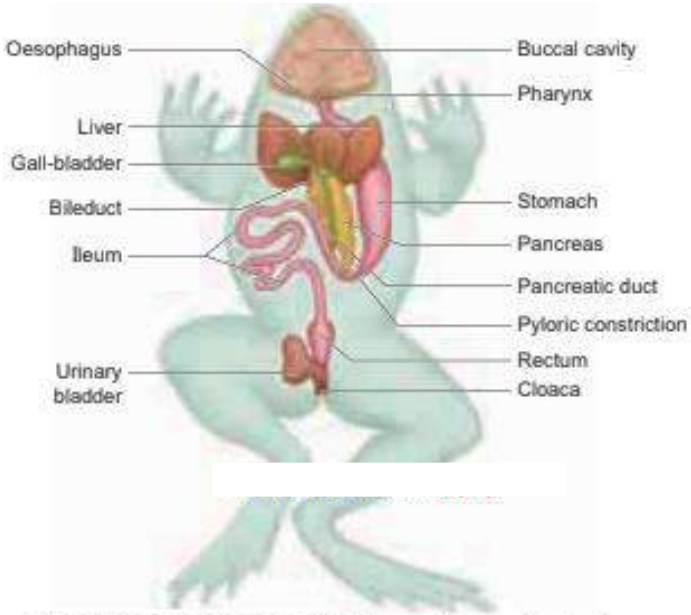
Answer:
In cockroach, respiration occurs through spiracles – a small opening on the sides of its body. When air through external openings, enters into its respiratory system, spiracles serve as muscular valves paving way to the internal respiratory system. The respiratory organ of cockroach is referred to as tracheae.

Question 27.
What are the components of blood in frogs?

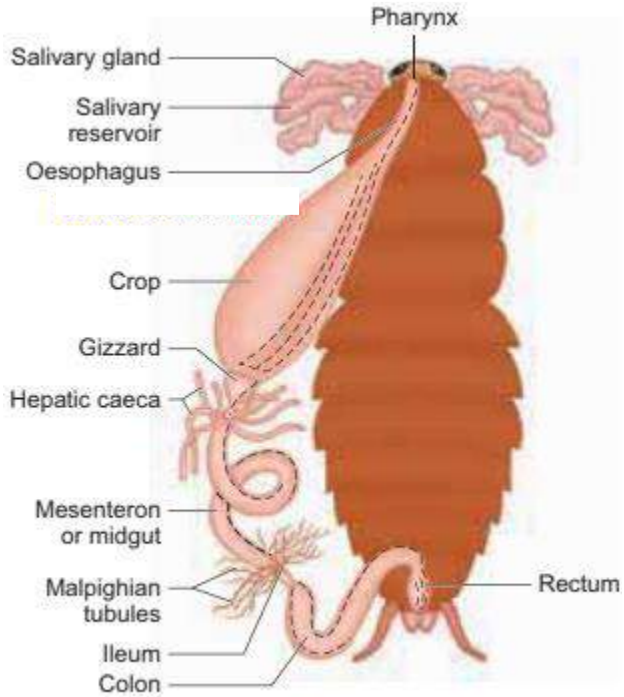
Answer:
The blood consists of plasma [60%] and blood cells [40%], red blood cells, white blood cells, and platelets. RBCs are loaded with red pigment, nucleated and oval in shape. Leucocytes are nucleated, and circular in shape.

Question 28.
Draw a neat labeled diagram of the digestive system of frog.

Answer:



Digestive System of *Rana hexadactyla*

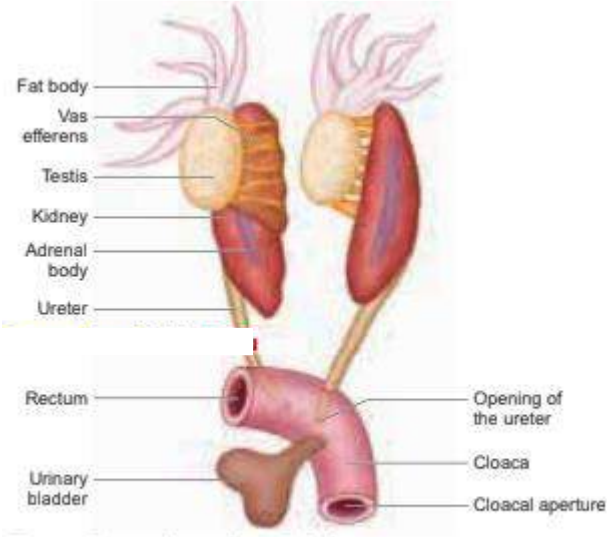


Periplaneta americana: Digestive system

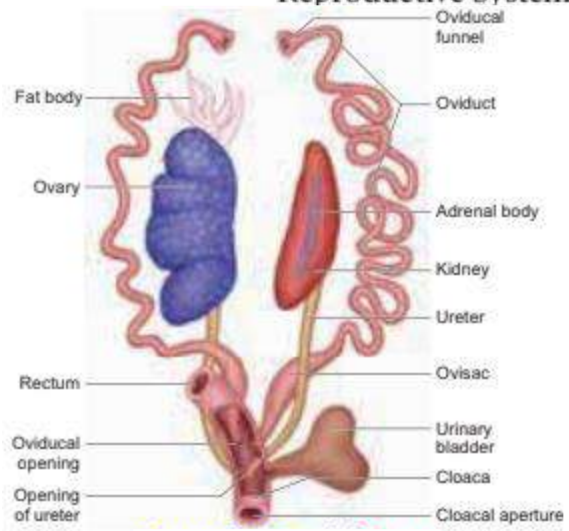
Question 29.
Explain the reproductive system of frog.

Answer:

The male frog has a pair of testes which are attached to the kidney and the dorsal body wall by folds of peritonium called mesorchium. Vasa efferentia arise from each testis. They enter the kidneys on both side and open into the bladder canal. Finally, it communicates with the urinogenital duct that comes out of the kidneys and opens into the cloaca (Fig. 1).



Rana hexadactyla - Male Reproductive System



Rana hexadactyla - Female Reproductive System

Female reproductive system (Fig. 2) consists of paired ovaries, attached to the kidneys, and dorsal body wall by folds of peritoneum called mesovarium. There is a pair of coiled oviducts lying on the sides of the kidney. Each oviduct opens into the body-cavity at the anterior end by a funnel like opening called

ostia. Unlike the male frog, the female frog has separate genital ducts distinct from ureters. Posteriorly the oviducts dilated to form ovisacs before they open into cloaca. Ovisacs store the eggs temporarily before they are sent out through the cloaca.