

CLASS 11

BIOLOGY

NCERT SOLUTIONS

NCERT Solutions for Class 11 Biology Chapter 7: Structural Organisation in Animals – Free PDF Download

Class 11 Biology Chapter 7, Structural Organisation in Animals, explains how cells, tissues, organs and organ systems combine to divide labour inside a multicellular animal body, and then uses the frog (*Rana tigrina*) as a case study to illustrate this organisation at the level of a whole vertebrate. In the current (...)

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Class 11 Biology Chapter 7, **Structural Organisation in Animals**, explains how cells, tissues, organs and organ systems combine to divide labour inside a multicellular animal body, and then uses the *frog (Rana tigrina)* as a case study to illustrate this organisation at the level of a whole vertebrate. In the current (2023 rationalised) NCERT syllabus this chapter has been trimmed down to just two topics — Organ and Organ System, and the morphology and anatomy of the frog. These Class 11 Biology Chapter 7 solutions are also useful as quick revision notes before exams.

Exercises

Q1. Draw a neat diagram of digestive system of frog.

The digestive system of a frog consists of the **alimentary canal** and associated **digestive glands**. Since the frog is carnivorous, its alimentary canal is comparatively short. While drawing and labelling the diagram, mark the following parts in sequence:

Buccal cavity – receives food captured by the bilobed, sticky tongue; opens into the pharynx.

Pharynx – short region connecting the buccal cavity to the oesophagus.

Oesophagus – a short tube that leads food into the stomach.

Stomach – a wide, curved organ where gastric juice and HCl secreted by its walls digest food; the partly digested food here is called chyme.

Duodenum – the first part of the small intestine; receives bile from the gall bladder and pancreatic juice from the pancreas through a common bile duct.

Small intestine (ileum) – the main site of digestion and absorption; its inner wall has finger-like folds called **villi** and **microvilli** that increase the surface area for absorption.

Rectum – collects undigested solid waste from the intestine.

Cloaca – a common chamber that opens to the exterior through the cloacal aperture, releasing faecal matter (along with urine and gametes).

The associated digestive glands to label alongside the canal are the **liver** (secretes bile, which is stored in the **gall bladder**) and the **pancreas** (secretes pancreatic juice containing digestive enzymes that act on carbohydrates and proteins, while bile emulsifies fats).

Q2. Mention the function of the Ureters in frog.

In a frog, the **ureters** are ducts that emerge from the kidneys and carry excretory waste towards the cloaca, but their exact function differs between the sexes:

In the **male frog**, the ureter functions as a combined **urinogenital duct**. Sperms released from the testes travel through the vasa efferentia into the kidney, enter Bidder's canal, and then pass into the ureter, which therefore carries both urine and sperm to the cloaca.

In the **female frog**, the ureter carries only urine to the cloaca, since the ova travel through a

separate duct, the oviduct, which opens independently into the cloaca.

In both sexes, the thin-walled **urinary bladder** lies ventral to the rectum and also opens into the cloaca, temporarily storing urine before it is voided.

Class 11 Biology Chapter 7 – Notes and Extra Questions

Chapter 7 currently carries only **2 exercise questions** in the NCERT textbook, both centred on the frog's digestive and excretory systems — a sharp reduction from the 14 questions found in the pre-2023 edition. As part of the 2023 rationalisation, NCERT removed the entire “Animal Tissues” section (epithelial, connective, muscular and neural tissue, along with their labelled diagrams) as well as the full “Earthworm” and “Cockroach” case-study sections from this chapter; only “7.1 Organ and Organ System” (a short introductory passage) and “7.2 Frogs” (morphology and anatomy) remain. For exams, focus on being able to draw and label the frog's digestive system neatly, understand the difference between cutaneous (skin) and pulmonary (lung) respiration, and know the male–female difference in how the ureter is used, since these are the concepts the surviving exercises test directly. Note that the tissue-level concepts (epithelial, connective, muscular, neural tissue) many students still expect from this chapter are, in the current syllabus, no longer part of Chapter 7's assessed content.

How many exercise questions are there in the current Class 11 Biology Chapter 7?

Only **2 questions** remain in the “Exercises” section of the current (2023 rationalised) NCERT textbook: one asking students to draw the digestive system of a frog, and one asking about the function of the ureters in a frog. Older editions and several uncorrected online solution sets still show up to 14 questions, including ones on tissue types, earthworms and cockroaches — these belong to the pre-2023 syllabus and are no longer examinable from this chapter.

Have the topics of epithelial, connective, muscular and neural tissue been removed from Chapter 7?

Yes. The entire “7.1 Animal Tissues” section, covering epithelial tissue, connective tissue, muscle tissue and neural tissue, was dropped from this chapter in the 2023 NCERT rationalisation. This chapter now opens directly with a brief “Organ and Organ System” passage before moving into the frog case study.

Are the Earthworm and Cockroach sections still part of this chapter?

No. The “Earthworm” and “Cockroach” sections (covering their morphology and anatomy) have both been removed from Chapter 7 in the current syllabus. The frog is now the only representative organism studied in this chapter.

What is the difference between cutaneous and pulmonary respiration in a frog?

Cutaneous respiration occurs through the frog's moist, mucus-covered skin, which is richly supplied with blood vessels; it is the main mode of gas exchange when the frog is in water. **Pulmonary respiration** occurs through the lungs, a pair of elongated, pink, sac-like structures in the upper trunk, and is used mainly when the frog is on land, with air entering through the nostrils and buccal cavity. During aestivation (summer sleep) and hibernation (winter sleep), gaseous exchange is carried out entirely through the skin.

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