

CLASS 11

BIOLOGY

EXTRA QUESTIONS

Class 11 Biology Chapter 7 Structural Organisation in Animals – Extra Questions with Answers

Extra practice questions for Class 11 Biology Chapter 7 (Structural Organisation in Animals), beyond the textbook. These Class 11 Biology Chapter 7 important questions are handy for last-minute exam practice.

Contents

- Very Short Answer Questions (1 mark)
- Short Answer Questions (2–3 marks)
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Extra practice questions for Class 11 Biology Chapter 7 (Structural Organisation in Animals), beyond the textbook. These Class 11 Biology Chapter 7 important questions are handy for last-minute exam practice.

Very Short Answer Questions (1 mark)

Q1. Name the tissue that connects muscle to bone.

Ans: Tendon.

Q2. What type of muscle is voluntary and attached to bones?

Ans: Striated (skeletal) muscle.

Q3. What is the basic functional unit of neural tissue?

Ans: Neuron.

Q4. Give an example of fluid connective tissue.

Ans: Blood.

Q5. What are intercalated discs and where are they found?

Ans: Specialized junctions found in cardiac muscle, connecting adjacent cardiac muscle cells.

Short Answer Questions (2–3 marks)

Q6. Differentiate between simple and compound epithelium.

Ans: Simple epithelium has a single layer of cells (suited for absorption/filtration/secretion); compound epithelium has multiple layers of cells (suited for protection where wear and tear is high).

Q7. List the three types of muscular tissue with one example location for each.

Ans: Striated (skeletal muscles, e.g. biceps), unstriated (smooth, e.g. gut wall), cardiac (heart).

Q8. What are the components of connective tissue?

Ans: Cells (e.g. fibroblasts) embedded within an extracellular matrix, which may be liquid (blood plasma), gel-like (areolar tissue), or solid (bone).

Higher-Order Thinking / Application Questions

Q9. Explain why cardiac muscle, despite being striated (a feature typically associated with voluntary skeletal muscle), functions involuntarily and continuously throughout an organism's life, connecting this to its unique structural features like intercalated discs and branching.

Ans: Although cardiac muscle shares the striated (banded) appearance of skeletal muscle due to the highly organized arrangement of actin and myosin filaments within its cells, it is fundamentally different in its structural organization and functional control. Cardiac muscle cells are branched and interconnected via specialized junctions called intercalated discs, which contain gap junctions that allow electrical signals (action potentials) to pass rapidly and directly from one cardiac muscle cell to adjacent cells, enabling the entire heart muscle to contract in a coordinated, synchronized wave rather than as independent, separately-controlled units (unlike skeletal muscle fibres, which are typically activated individually by direct neural stimulation via the somatic/voluntary nervous system). Additionally, cardiac muscle possesses its own intrinsic pacemaker cells (in the sinoatrial node) that can generate rhythmic electrical impulses automatically, without requiring conscious neural input, allowing the heart to beat continuously and rhythmically throughout life even without direct voluntary control — this autonomous, self-generating and self-propagating electrical activity, combined with the interconnected branching structure enabling synchronized contraction, is what allows cardiac muscle to combine the striated appearance of skeletal

muscle with the sustained, involuntary, rhythmic function essential for continuous, lifelong pumping of blood.

Q10. Explain why the earthworm is used as a representative example of “organ system level of organization” in animals, and describe what this level of organization means in terms of coordination between different organ systems, contrasting it with simpler levels of organization (like cellular or tissue level).

Ans: In organisms like sponges (Porifera), the body is organized only at the cellular level, meaning cells perform their functions somewhat independently without forming true, coordinated tissues. In organisms like Hydra (Cnidaria), cells are organized into distinct tissues (tissue level of organization), but these tissues do not combine into larger, coordinated organs. In the earthworm, however, cells are organized into tissues, tissues combine to form distinct organs (like the gut, heart-like pulsatile vessels, nephridia for excretion, and reproductive structures), and crucially, these individual organs are further integrated and coordinated together into functional organ systems (a complete digestive system spanning mouth to anus, a closed circulatory system, a nervous system with a nerve cord and ganglia, an excretory system of nephridia repeated in most segments, and a reproductive system) that work together in a coordinated, interdependent manner to carry out complex life processes for the organism as a whole. This organ-system level of organization represents a significantly higher degree of structural and functional complexity and division of labour compared to the cellular or tissue levels, since it requires not just specialized organs but also mechanisms (nervous and often hormonal coordination) to integrate the activities of multiple organ systems (e.g. coordinating digestion with circulation and excretion) for the survival and proper functioning of the whole organism, which is why the earthworm is considered a good representative example of this more advanced level of biological organization.

Class 11 Biology Chapter 7 – Solutions and Notes

For complete step-by-step answers and a quick summary, check the [Class 11 Biology Chapter 7 Solutions](#) and [Class 11 Biology Chapter 7 Revision Notes](#).

See also: [Chapter 1](#) | [Chapter 2](#) | [Chapter 3](#) | [Chapter 4](#) | [Chapter 5](#) | [Chapter 6](#) | [Chapter 7](#)

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