



DR. R. N. INTERNATIONAL SCHOOL

**UNDER THE AGIS OF S. S. SITARAMSINGH EDUCATIONAL AND CHARITABLE
TRUST**

MOHANPUR, SITAMARHI- 843302

4. Skeletal System

Word Meanings

1. Skeletal System (कंकाल प्रणाली)
2. Bone (हड्डी)
3. Joint (जोड़)
4. Cartilage (उपास्थि)
5. Ligament (स्नायुबंधन)
6. Tendon (कंडरा)
7. Muscle (मांसपेशी)
8. Skull (खोपड़ी)
9. Backbone (रीढ़ की हड्डी)
10. Vertebrae (कशेरुका)
11. Rib cage (पसली पिंजरा)
12. Humerus (प्रगंडिका)
13. Femur (उरु-अस्थि)

- 14. Tibia (पैर की बड़ी हड्डी)
- 15. Fibula (पैर की बाहरी हड्डी)
- 16. Bone marrow (अस्थि मज्जा)
- 17. Involuntary (अनैच्छिक)
- 18. Voluntary (ऐच्छिक)
- 19. Cardiac (हृदय संबंधी)
- 20. Posture (आसन या मुद्रा)

A. Tick (✓) the correct option.

- 1. How many bones are there in the adult human body?
 - **Answer:** b) 206
- 2. Which bone is the longest in the human body?
 - **Answer:** b) Femur
- 3. Where is the bone marrow located?
 - **Answer:** b) Inside bones
- 4. What type of muscle is found only in the heart?
 - **Answer:** c) Cardiac muscle
- 5. Which type of joint allows movement in many directions?
 - **Answer:** c) Ball-and-socket joint

B. Fill in the blanks.

- 1. The **skull** protects the brain.
- 2. The human body has over **600** muscles.
- 3. **Involuntary** muscles are found in internal organs and help with functions like digestion.
- 4. **Cardiac** muscle is found only in the heart.

5. **Gliding** joints allow bones to slide over each other.

C. Write T for True statements and F for False statements.

1. The spine is made up of vertebrae. — **T**
2. Bones do not help produce blood cells. — **F** (*Note: Bone marrow inside long bones produces blood cells*)
3. The rib cage protects the heart and the lungs. — **T**
4. Ball and socket joints are found in the wrists and ankles. — **F** (*Note: They are found in shoulders and hips; wrists and ankles have gliding joints*)
5. Hinge joints allow movement in many directions. — **F** (*Note: Hinge joints only allow movement in one direction*)

D. Answer the following questions.

1. Write the main functions of the skeletal system.

The main functions are:

- **Support:** It acts as a framework that keeps us upright and gives shape to our body.
- **Protection:** It safeguards soft internal organs like the brain, heart, and lungs.
- **Movement:** It works alongside muscles to allow our body to move.
- **Production of blood cells:** Bone marrow inside long bones produces red and white blood cells.
- **Storage of minerals:** It stores essential minerals like calcium and phosphorus.

2. What is the role of joints in the human body?

Joints are the specific places where two or more bones meet. Their role is to link our bones together while providing flexibility, allowing our body to bend, turn, and move in different directions.

3. How does the skeletal system protect internal organs?

The skeleton forms hard, protective bony shields around delicate organs. For example, the hard skull encloses and protects the brain, while the cage-like

structure of the rib cage surrounds and protects the heart and lungs from external injury.

4. What are the three types of muscles found in the human body?

The three types of muscles are:

- Voluntary muscles (skeletal muscles we can actively control)
- Involuntary muscles (muscles in internal organs that work automatically)
- Cardiac muscles (special automatic muscles found strictly in the heart)

5. How do muscles work?

Muscles create movement by alternating between contraction (tightening/shortening) and relaxation (expanding back to original length). When the brain sends a signal via nerves, a muscle contracts and pulls on the attached bone, causing that body part to move.

6. Explain the different types of joints and their functions.

Joints are primarily divided into three functional categories:

- **Immovable Joints:** Fixed structures that allow no movement at all, providing maximum protection (e.g., bones of the skull).
- **Slightly Movable Joints:** Structures that permit very limited, restricted movement to balance stability with flexibility (e.g., joints between vertebrae).
- **Movable Joints:** Joints that allow wide ranges of movement. They include:
 - *Hinge joints:* Allow backward and forward movement in a single direction (e.g., elbows and knees).
 - *Ball-and-socket joints:* Allow free rotation and movement in multiple directions (e.g., shoulders and hips).
 - *Pivot joints:* Allow sideways, upward, and downward rotation (e.g., between the head and the first two vertebrae).
 - *Gliding joints:* Allow bones to slide over one another smoothly (e.g., wrists and ankles).

E. Label the joints shown in the picture.

Based on the points indicated on the human skeleton image:

1. **Top right box (pointing to the skull/neck area):** Pivot joint
2. **Middle right box (pointing to the hip joint):** Ball-and-socket joint
3. **Upper left box (pointing to the elbow joint):** Hinge joint
4. **Lower left box (pointing to the wrist joint):** Gliding joint