



UNIQUE STUDY POINT

Body Movements

Question 1: Fill in the blanks:

- (a) Joints of the bones help in the _____ of the body.
- (b) A combination of bones and cartilages forms the _____ of the body.
- (c) The bones at the elbow are joined by a _____ joint.
- (d) The contraction of the _____ pulls the bones during movement.

Answer: (a) Joints of the bones help in the **movement** of the body.

- (b) A combination of bones and cartilages forms the **skeleton** of the body.
- (c) The bones at the elbow are joined by a **hinge** joint.
- (d) The contraction of the **muscles** pulls the bones during movement.

Question 2: Indicate true (T) and false (F) among the following sentences.

- (a) The movement and locomotion of all animals is exactly the same. ()
- (b) The cartilages are harder than bones. ()
- (c) The finger bones do not have joints. ()
- (d) The fore arm has two bones. ()
- (e) Cockroaches have an outer skeleton. ()

Answer: (a) False; Movement and locomotion of animals depend up on their body structure. So, animals with different body structure possess different modes of movement.

- (b) False; Cartilages are not as hard as bones and can be bent easily.
- (c) False; Finger bones also have joints.

(d) True.

(e) True

Question 3: Match the items in Column I with one or more items of Column II.

Column I	Column II
Upper jaw	have fins on the body
Fishes	has an outer skeleton
Ribs	can fly in the air
Snail	is an immovable joint
Cockroach	protect the heart
	shows very slow movement
	have a streamlined body

Answer:

Column I	Column II
Upper jaw	is an immovable joint
Fishes	have a streamlined body; have fins on the body
Ribs	protect the heart
Snail	shows very slow movement
Cockroach	has an outer skeleton; can fly in the air

Question 4: Answer the following:

- (a) What is a ball and socket joint?
- (b) Which of the skull bones are movable?
- (c) Why can our elbow not move backwards?

Answer: (a) Ball and socket joint is a movable joint. In this a bone with round head fits into hollow space of another bone. This makes the bone to rotate freely. For example, bones of hip and shoulder can move in all directions due to ball and socket joints.

(b) Lower jaw bone (Mandible bone) is the only skull bone which is movable.

(c) Our elbow cannot move backwards because it has a hinge joint which allows the movement in one plane only.

Short Type Questions and Answers

Question 1. Name the three components of skeleton.

Answer: Skeleton is made up of different bones, joints and cartilage.

Question 2. At which point does the arm rotate?

Answer: The arm rotates on the round pit like structure.

Question 3. Which is the longest bone in your body? Measure it with your scale.

Answer: Femur is the longest bone in our body. It is a thigh bone.

Question 4. Name the bones which protect the heart from all sides.

Answer: Breastbone from front and the backbone at the back make a type of box to protect the heart.

Question 5. Does the shoulder bone also move when you move your arm?

Answer: The shoulder bone does not move when we move our arm. Only arm moves, the shoulder bone remains fixed.

Question 6. Keeping your arm straight, move it forwards and backwards, up and down. Can the arm move freely in all directions?

Answer: Yes, the arm can move forward, backward down and up.

Question 7. Do the bones of the upper jaw move?

Answer: The bones of the upper jaw are joined with fixed joints. So they do not move.

Question 8. Which important organ is fully protected inside the bones of the skull (head)?

Answer: The bones of the skull form the structure similar to a box. The bones are joined with strong joints. It is not easy to break them. The bones of the skull protect the most important organ, i.e., the brain.

Question 9. Do the bones on top of the skull move?

Answer: The bones on top of the skull form the structure similar to the structure of teeth. They are joined strongly with one another. So these bones are also fixed. These bones do not move.

Question 10. Try to eat your food without moving the lower jaw. Do you find this difficult to do?

Answer: Without moving the lower jaw, we cannot chew the food. Without chewing, we cannot engulf the food into food pipe. It would be difficult to digest unchewed food.

Question 11. How can we get photograph of a bone? What is the use of such photographs?

Answer: We can get photograph of a bone by a machine called X-ray machine. Doctors use these photographs to examine the dislocations and fractures in the bone.

Question 12. What are floating ribs?

Answer: The last two pairs of ribs that are not joined in front of the breast bone/sternum. So, they are called floating ribs.

Question 13. Differentiate between ligament and tendon.

Answer: Ligament joins bone to bone together, whereas the tendon joins muscles to bone.

Question 14. Differentiate between exoskeleton and endoskeleton.

Answer: Exoskeleton: The skeleton, if it covers the body from the outside, or is situated in the skin, is known as exoskeleton. For example, insects.

Endoskeleton: The skeleton, if it lies inside the body and is covered by soft parts like flesh, is known as endoskeleton. For example, animals.

Question 15. What is cartilage? Give one example.

Answer: These are some additional parts of the skeleton that are not as hard as the bones and which can be bent. For example, the upper part of our ear has cartilage.

Question 16. Why do animals move from one place to other?

Answer: Animals move from one place to other:

- To obtain their food and shelter.
- To protect themselves from enemies and unfavourable climate.

Question 17. Name the organs of locomotion of:

1. Man
2. Bird
3. Fish.

Answer:

1. Man – Legs
2. Bird – Wings
3. Fish – Fins.

Question 18. Why is earthworm regarded as farmer's friend?

Answer: Earthworm loosens soil, and makes it fertile. So, it is called farmer's friend.

Question 19. What is slithering?

Answer: The movement of snakes is called slithering.

Long Type Questions and Answers

Question 1: How many types of joints are there in our body? Name them.

Answer: There are five types of joints in our body:

1. Ball and socket joints
2. Hinge joints
3. Gliding joints
4. Pivotal joints
5. Fixed joints.

Question 2. Name various parts of skeletal system.

Answer: The skeletal system can be divided into following main parts:

- Skull
- Back bone
- Limb bones
- Chest bones
- Shoulder bones
- Hip bones.

Question 3. What is the function of skeleton?

Answer: The function of skeleton is:

- It forms the framework of body,
- It gives shape and structure to the body.
- It protects the internal organs.
- It helps in the movement and keeping body erect.
- Ribs of chest help in breathing.

Question 4. What is exoskeleton? Explain giving examples.

Answer: The bodies of crabs, insects and spiders are covered and protected by hard coverings. These hard parts outside are called exoskeleton. Nails and hair are also exoskeleton found in our body. Similarly the scales of cockroach, fish, outer shell of snails and oyster are also exoskeleton of these animals.

Question 5. Why are bones in the foot normally set in an arch? What is a flat-foot?

Answer: The bones in the foot are normally set in an arch. The feet arches give good support to the body. They also bend and spring back each time one steps out. The smaller toe bones also help in walking and running. In some cases, the foot is flat instead of being arched and are called flat-foot. Not all flat-feet cause trouble, but sometimes they give trouble or cause pain. Then it may need special care.

Question 6. Do all animals have bones?

Answer: No, all animals do not have bones. Bones are present only in the backboned animals. Even among the backboned animals, the skeleton of sharks are made entirely of cartilage. The jellyfish, leeches and worms have no hard structure to support their bodies.

Question 7. What is dislocation and fracture of a bone? What precaution should one take when one gets a fracture?

Answer: Dislocation and fracture: Any careless, sudden movement—a jump, fall or knock—may cause an injury to the skeleton. It may be a dislocation or a fracture. In case of dislocation the bones at the joint are dislodged from their normal position. The ligaments may be torn apart or injured causing pain and swelling.

A fracture is a break in the bone. The break may be of a hair line crack or serious break in one or more points. Fracture also causes pain and swelling. In all these cases, the patient should soon be taken to a doctor or a hospital.

- Never try to reset the bones.

- Place the injured part in a comfortable position.
- Care should be taken to avoid jerk or movement of the injured part.

Question 8. How a bone is formed? What kind of food should we take for proper growth and upkeep of bones?

Answer: Before our birth, the skeleton forms as soft and elastic pieces of cartilage. Some of these cartilages, not all, are changed to bones. With the deposition of a substance containing calcium and phosphorus, the bones become hard and strong. When a baby is born its skeleton is soft. At old age, the bones become hard and brittle.

For proper growth and upkeep of bones, we need to take food which are rich in calcium, phosphorus, vitamins and proteins. Milk, curd, fruits, vegetables and eggs contain the needed nutrient.

Question 9. What is a bone marrow? Give its main function.

Answer: The long bones such as the thigh bone, upper arm bones have hollow spaces inside which contains bone marrow. The bone marrow produces red blood cells. They also form some kinds of white blood cells.

Question 10. Discuss the mechanism of bone movement. What is the role of muscles in the movement of bones?

Answer: Two muscles work for the movement of a bone. When one muscle contracts, it becomes shorter, stiffer and thicker. It pulls the bone in that direction. The other muscle of the pair relaxes. A muscle can only pull. It cannot push. Hence to move the bone in opposite direction, the relaxed muscle contracts to pull the bone towards its original position, while the first relaxes.

Question 11. Differentiate between bone and cartilage with examples.

Answer: Bone: They are hard and rigid structure in our body that cannot be bent but give shape to our body, e.g. pelvic bone, shoulder bone, etc.

Cartilage: They are semi-hard structures that are elastic tissue and present in an animal body. e.g., upper part of ear, etc.

Question 12. How are the birds adapted for flying?

Answer: Birds can fly because their bodies are well-suited for flying. Main adaptations for flying in birds are given as follows:

- Body is streamlined.
- Bones have air spaces.

- Fore limbs are modified as wings. iiiv) Shoulder bones are strong.
- Breast bones are modified to hold massive muscles of flight.
- Wings and tail are reinforced with big feathers.
- Air sacs are connected with the lungs to make the body light and buoyant.

Question 13. Describe the mechanism of swimming in fish.

Answer: The bodies of fish are usually spindle-shaped and streamlined. This makes it easy to move in water. There are also air filled swim bladders to make the body buoyant. The skeleton of the body axis is covered by strong muscles. They are arranged serially, segment by segment. During swimming, the front part of the body curves in one side and the tail part remains in the opposite side. It forms a loop. Then quickly the body and tail curve to the other side. This makes a jerk and pushes the body forward. A series of such jerks make the fish swim ahead. This is aided by the fins of the tail. The paired and unpaired fins mainly help to keep the balance of the body and to keep direction.

Question 14. What is a bone joint? Describe various kinds of joints found in our body.

Joints:

Answer: The place where two or more bones meet together is called a joint. There are five main types of joints in our body.

(i) Fixed joints: Some attachments of bones do not allow movement. They are fixed joints. Joint of the cranium is a fixed joint.

(ii) Ball and socket joints: The rounded end of one bone fits into the hollow space of the other bone. Such a kind of joint allows movements in all directions and is called ball and socket joint. For example, the joint between the upper arm and the shoulder; the thigh and the hip.

(iii) Pivotal joints: The skull is joined to the first two vertebrae of the backbone like a ball to a stick. This type of joints allows movements in many planes—up and down, to the side and all other planes.

(iv) Hinge joints: These joints allow movement only in one plane like a door hinge and not more than 180 degree. For example, the fingers, the knee. The wrist is a double hinge joint.

(v) Gliding joints: These joints allow only a limited amount of movement of sliding nature of cartilages. For example, the joints in backbone.

Question 15. Write short notes on the following.

1. skull
2. chest bones
3. Backbone
4. Hip bone
5. The shoulder bone
6. limb bone

Answer:

The skull: The skull has two main parts. They are the cranium (cra-ni-um) or the brain case and the facial bones. The bones of the cranium are flat. They are held firmly like a zipper. The cranium covers and protects the brain. The facial bones comprise of the upper and lower jaws and a few other bones. The lower jaw is movable. The movement of the lower jaw enables us to eat, talk, and sing. The skull also includes a pair of eye sockets. These form a safe pocket for the eyes.

The chest bones: The chest is a cone-shaped cage. It encloses the heart and the lungs. At the back are the vertebrae, 12 pairs of ribs curve surround the sides. Ribs are attached to the sides of each vertebrate. Ten of them are also attached by cartilage to the breast bone at the front. Two ribs are free. These are called floating ribs. The ribs are joined in such a way that they allow the necessary movement of the chest during breathing.

Backbone: Vertebral column or backbone is composed of 33 small, ring-like vertebrae joined end to end. Thus it forms a hollow bony tube. The main nerve cord passes through it. The backbone has five regions from top to bottom, they are the neck, chest, belly, hip and tail. Five vertebrae of the hip and four vertebrae of tail are fused to form 1 bone [turn 26 bones of vertebrae in an adult.

Hip bone: The hip bone is formed by the fusion of three bones. The hip bones together with the last two parts of the backbone form a large bony bowl. It is called the pelvis. It is the lowest and strongest part on which we sit on. The thigh bones are attached to the hip bones.

Shoulder bones: The shoulder bone is formed by the collar bone and the shoulder blades. It connects the upper part of the chest and the bones of the hand. The bones of the upper arm attach with the shoulder bones.

Limb bones: The hand comprises of the upper arm, fore arm, wrist, palm and fingers. The leg includes the thigh, lower leg, ankle, feet, and the toes. The bones in hand and leg are in same pattern and are called limb bones, upper arm and thigh has one long bone. The thigh bone is strongest and longest bone in the body. In the fore arm and lower leg, there are two long bones. Wrist and ankle are made up of several small bones. Palm and foot have five longer bones. Each finger and toe are made up of three small bones, except thumb, which has two bones.

Question 16. How do incorrect sitting postures harm us? What are the correct sitting and standing postures?

Answer: Incorrect sitting postures cause stresses and strains on the muscles and bones. It may turn fatigue and painful.

In correct position, one should sit straight and relaxed. One should not bend in front or lean backwards. The fore arms should be at the same level. The feet should rest flat on the floor. The lower leg should be erect making a right angle at the knee.

Similarly, one should stand straight and erect and not droop in front for a long time. The habit should be checked from childhood when the bones are soft. Otherwise the curvature or bend of the backbone may become permanent with age as the bones gradually harden.

Question 17. Comment on the mode of locomotion in following animals:

1. Snake
2. Cockroach
3. Snail
4. Earthworm

Answer:

1. Snake: In long snakes, there are large number of vertebrae. The body muscles are very slender and numerous. They interconnect the adjoining vertebrae, ribs and skin.

Locomotion in a snake is like swimming on land. They make many loops at the sides. It is mainly the forward thrust of the loops against the surface that makes the snake to move forward. They also hitch the skin and body alternately dragging the ventral scales on the ground. Some snakes can swim well in water.

2. Cockroach: The cockroach walks on limb as well as fly in the air. They have three pairs of joined legs attached to the breast region. These help in walking. There are two pairs of wings attached to the breast. The fore wings are narrow. The hind wings are broad and thin with supporting veins. In the breast region, there are strong large muscles which move the legs for walking and wings for flying.

3. Snail: The body of a snail is covered with a hard shell. It has an opening with a lid. Through the opening of the shell, a strong muscular foot comes out (The foot is a part of its belly) and performs a very slow wavy motion. The shell cannot help in locomotion. It has to be dragged along.

4. Earthworm: The body of a mature earthworm seems to be made of many rings joined end to end. From the paler under surface of the body, a large number of minute bristles project out. The bristles are connected with muscles at their bases. The bristles help to get a good grip on the ground. There are muscles in the body wall which help to extend and shorten the body. During movement, the earthworm first extends the front part of body keeping the rear fixed to the ground. Then it fixes the front end and releases the rear end. Thereafter, it shortens the body and pulls the rear end forward. The earthworm follows this process repeatedly to move ahead. On a slippery surface, its movement is affected due to the loose grip on the surface.

FOR MORE STUDY MATERIALS VISIT: WWW.UNIQUESTUDYONLINE.COM

JOIN US ON:

