

Chapter - 4: Bones and Muscles

A. Define:

1. **Skeletal System** - The framework of bones in an animal body.
2. **Humerus** - The bone in the upper arm that connects elbow to the shoulder.
3. **Femur** - The thigh bone.
4. **Bone marrow**- Fatty jelly-like substance filled in bones.
5. **Joints**- The points where two bones are joined together.
6. **Ligaments** - Strong tissues that hold the bones together at joints.
7. **Tendons**- Strong tissues that attach muscles and bones to each other.
8. **Muscle contraction**- The shortening or tightening of a muscle to help move a part of the body.
9. **Muscle relaxation** - The loosening and returning to the normal length of a muscle after contraction.

B. Pick the correct options:

1. What do all bones of our body join together to form?
 - a) bones
 - b) hair
 - c) skin

d) the skeleton

2. Which of the following gives the body structure, support and flexibility?
 - a) the skull
 - b) the limbs
 - c) the spine
 - d) the rib cage
3. Which of the following connects the elbow joint to the shoulder blade?

a) the humerus

- b) the femur
- c) the calf bone
- d) the shin bone

4. Which of the following joint allows bones to slide past each other?

a) gliding joint

- b) pivot joint
- c) hinge joint
- d) none of these

5. Which of the following muscles allow us to perform movement?

a) voluntary muscles

- b) involuntary muscles
- c) cardiac muscles
- d) none of these

C. Fill in the blanks:

1. Organs : organ system :: bones : **skeletal system** :: muscles : **muscular system**
2. Arms : upper limbs :: legs : **lower limbs**
3. Elbow joint : hinge joint :: hip joint : **ball and socket joint** :: ankle joint : **gliding joint**
4. Muscles in the arms : voluntary muscles :: muscles in the stomach : **involuntary muscles**
5. The **pivot** joint allows sideways, up and down and round motion of head.
6. Adult humans have **206** bones.
7. **Hinge** joint allows movement in only one direction.

D. Name the following:

1. The bones to which the upper 10 pairs of ribs are attached - **Sternum**
2. The long bone in the top part of the arms - **Humerus**

E. Give two examples:

1. Minerals stored in bones - **Calcium, Phosphorus**
2. Hinge joint - **Elbow and knee joint**
3. Ball and socket joint - **Shoulder joint and hip joint**

F. Correct the false statements:

1. The wrist and ankle joints are pivot joint.
Ans: The wrist and ankle joints are **gliding joints**.
2. The face is made of 16 bones.
Ans: The face is made of **14** bones.
3. The spine protects the brain.
Ans: The **skull** protects the brain.
4. There are 13 pairs of ribs.
Ans: There are **12** pairs of ribs.

G. Give reasons:

1. We are able to stretch our arm and pick a book.
Ans: Stretching our arm and picking a book happens due to muscle contraction and relaxation.
2. We cannot stop our heart from beating.
Ans: Due to the presence of involuntary cardiac muscles, we cannot control their movements.

H. Match the following:

- | | |
|----------------------|---|
| 1. Babies | a. Atlas and axis (2) |
| 2. 1st two vertebrae | b. 8 bones (5) |
| 3. Organ. | c . 300 bones (1) |
| 4. Ribcage | d. Protects heart and lungs (4) |
| 5. Top part of Skull | e. Performs a special function (3) |

I. Differentiate on specific criteria:

1.a) Voluntary muscle and involuntary muscle (Location)

Ans: Voluntary muscle: Muscles in the arms, legs.

Involuntary muscle: Muscles in the stomach, intestines.

b) Voluntary and involuntary muscles (Control)

Ans: Voluntary muscles: We can control their movements.

Involuntary muscles: We cannot control their movements.

J .Answer the questions briefly:

1. Number of bones in the skull - **22**

2. Protects the heart and lungs - **Ribcage**

3. Largest and strongest bone - **Femur**

4. Two gliding joints - **Ankle joint and wrist joint**

5. Three main types of muscles- **Voluntary muscles, Involuntary muscles, Cardiac muscles**

6. Number of muscles in the body - **More than 600**

K .Answer the following questions:

1. List the functions of skeletal system.

Ans: The functions of skeletal system are:

- a) giving shape and support to the body,
- b) protecting the soft internal organs.

2. Write a short note on ball and socket joint.

Ans: The ball and socket joint consists of a round bone (ball) that fits into a cup shaped bone (socket). It allows a lot of movement. Ex - Shoulder joint and hip joint.

3. How do bones and muscles work together?

Ans: Bones give shape and support to the body. Muscles pull on the bones to make them move. Together they help us walk, run, bend, lift things.

L .Picture based question:



1. Identify the structure.

Ans: Spine

2. The structure is otherwise called _____.

Ans: vertebral column

3. 33 bones join to form the structure.

4. Write a function of the structure.

Ans: The spine gives structure, support and flexibility to the body.

5. What are the first two bones of the structure called?

Ans: Axis and atlas.

Chapter-5 The nervous system

A .Define:

1. Reflex action - An automatic, fast and sudden response to something.
2. Retina - The part of the eye on which the image of the object we see is formed.
3. Taste buds - Tiny structures on the tongue that help us taste food.

B. Choose the correct answer:

1. The part of the cerebrum that helps us with logical and analytical things like maths, science

a) Left

b) Right

c) Middle

2. The part of brain responsible for balance and co-ordination.

a) Cerebrum

b) Cerebellum

c) Brain stem

C. Name the following:

1. Nerves that allow the brain to control our muscles. - **Motor nerves**
2. Focuses light from an object we look at. - **Lens**
3. Black circle in the centre of iris. - **Pupil**
4. Largest part of the brain. - **Cerebrum**
5. The control centre of the whole body. - **Brain**
6. The colourful part of the eye. - **Iris**
7. Nerves that carry information relating to the senses. - **Sensory nerves**

8. The nerve that carries the messages of what we see from the eye to the brain. -

Optic nerve

9. The part of the brain that connects brain to the spinal cord. - **Brain stem**

10. The visible part of the ear. - **Pinna**

11. Automatic, fast and sudden response to something. - **Reflex action**

12. The part of the eye on which the image of the object is formed. - **Retina**

D. Fill in the blanks:

1. The spinal cord is protected by the **vertebrae**, a set of ring-shaped bones.

2. The nerves are like wires that send signals **to** and **from** the brain.

3. **Sensory** nerves send information from the sense organs to the spinal cord and the brain to help you see, hear, taste, smell and touch.

4. Motor nerves allow the brain to **control** our muscles.

5. Mixed nerves carry both **sensory** and **motor** signals.

6. **Eyelid** protects the eye and keeps the eye clean and moist.

7. The **auditory nerve** carries sound signals to the brain.

8. Ear drum is present in the **middle** ear.

E. Give two examples:

1. Sense organs - **Eye, Ear**

2. Tastes - **Sweet, salty, bitter, sour**

3. Sensations - **Heat, cold, pain, pleasure**

F. Correct the false statements:

1. The cerebellum connects the brain to the spinal cord.

Ans: The **brain stem** connects the brain to the spinal cord.

2. Sensory nerves allow the brain to control our muscles.

Ans: **Motor nerves** allow the brain to control our muscles.

3. The eye socket is the colourful part of the eye.

Ans: The **iris** is the colourful part of the eye.

4. The retina carries the messages of what we see from the eye to the brain.

Ans: The **optic nerve** carries the messages of what we see from the eye to the brain.

5. The skin protects all the external organs from dirt, injury and infection.

Ans: The skin protects all the **internal** organs from dirt, injury and infection.

G. Give reasons:

1. Brain is called the control centre of the body.

Ans: The brain controls all the voluntary and involuntary actions, thinking, reasoning and processing information.

2.. We blink our eyes automatically when dust flies towards them.

Ans: Blinking is a protective reflex action.

H. Match the following: (Answers already matched)

- | | |
|---|-----------------------------------|
| 1. Cerebellum | c. Body balance and co-ordination |
| 2. Sensation | d. Pain |
| 3. Nose | a. Nostrils |
| 4. Ear | b. Auditory nerve |
| 5. Heartbeat, breathing, hunger, thirst | e. Brain stem |

I. Differentiate on specific criteria:

1. Cerebrum and Cerebellum (Location and Function)

Ans :Location : Cerebrum -Topmost part of the brain. |Cerebellum -Lower back of the brain.

Function: Cerebrum -Controls reasoning, memory, emotions, voluntary muscle movements. Cerebellum -Controls co-ordination, balance, maintains posture and muscle memory.

2.. Sensory nerves and motor nerves (Information pathway)

Ans: Sensory nerves: Carry messages from sense organs to brain.

Motor nerves: Carry messages from brain to muscles.

J .Answer the following questions:

1. Define nerves. Name the types of nerves.

Ans: Nerves are like wires that send signals to and from the brain.

The various types of nerves are:

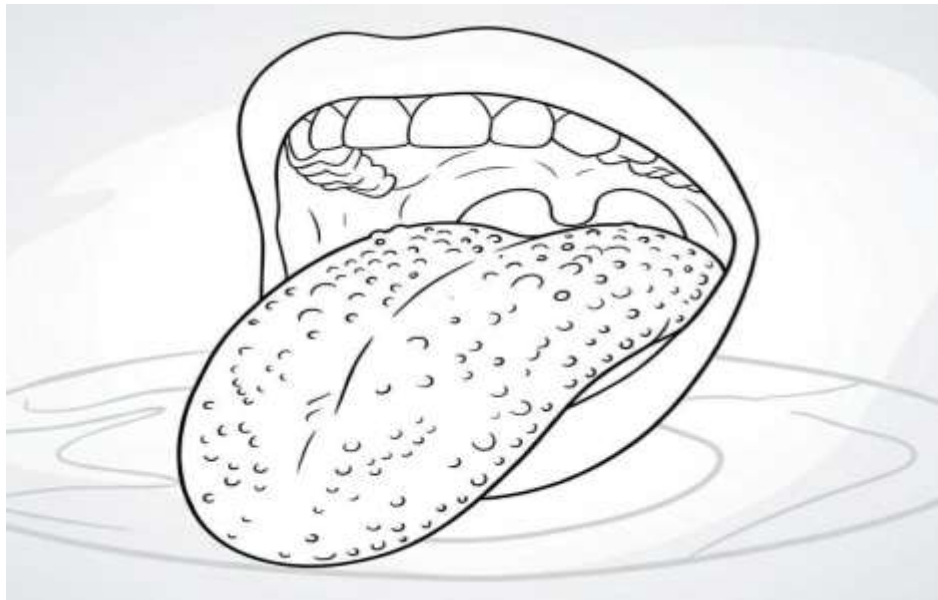
- Sensory nerves
- Motor nerves
- Mixed nerves

2. What is reflex action? Give an example.?

Ans: An automatic, fast and sudden response to something is called a reflex action.

Ex: Immediate withdrawal of hands on touching hot objects.

K .Picture based question:



1. Identify the sense organ?

Ans: Tongue

2. What are the tiny bumps all over the sense organ's surface called?

Ans: Taste buds

3. Name the four types of flavours these bumps help your brain identify.

Ans: Sweet, sour, salty, and bitter

4. If you eat a slice of lemon which flavour bumps get activated?

***Ans:** Sour

5. This sense organ helps us to _____ in our everyday life.

Ans: Speak

L. Draw a well labelled diagram:

1. Structure of eye
2. Structure of ear

Chapter-6

Safety tips and First Aid

A. Define:

1. Tourniquet - A tight bandage used to stop the flow of blood.
2. Sprain - An injury that occurs when you roll twist or turn your ankle or wrist in an awkward way.
3. Sling- Support for a splint using a cloth tied around the neck.
4. Rabies - A serious disease caused by an animal bite.

B. Choose the correct answer:

1. Which of the following should be used to put out a fire caused by a petrol spill?

a) sand

b) water

c) kerosene

d) none of these

2. Which of the following is the road sign for NO PARKING?

3. Which of the following injuries occur when you turn or twist your ankle in an awkward way?

a) Rabies

b) Burn

c) Sprain

d) Nosebleed

4. Which of the following can be caused by animal bites?

a) burns

b) rabies

c) splint

d) none of these

C. Fill in the blanks:

1. Never touch an electrical object with **wet** hands.
2. Wear **cotton** clothes in the kitchen and while burning crackers.
3. Call **101** to call the fire brigade.
4. Swim in **shallow** water if you are not an expert swimmer.
5. If the injury is **minor** , you can try to help the person yourself.

D. Name the following:

1. Immediate help given to an injured person. - **First aid**
2. Special bandage tied to stop heavy bleeding. - **Tourniquet**
3. Disease caused by an animal bite. - **Rabies**

E. Correct the false statements:

1. You can play with a gas lighter and matchsticks.

*Ans: You **cannot** play with a gas lighter and matchsticks.

2. You can touch rusted and sharp metal objects.

Ans: You **cannot** touch rusted and sharp metal objects.

3. You can touch a hot toaster and oven.

Ans: You **cannot** touch a hot toaster and oven.

F. Give reasons:

1. Do not lean out of a window of a moving vehicle.

Ans: A passing vehicle, electric pole or a tree branch could hit you, leading to fatal injuries.

2.. Wash the wound with clean water before applying ointment.

Ans: Washing the wound removes dirt and germs, which can otherwise cause infection.

G. Match the following:

B. Match the following

a. 	1. Danger ahead	d. 
b. 	2. Speed limit	e. 
c. 	3. No entry	f. 
	4. First-aid station	
	5. No parking	
	6. Restaurant	

H. Differentiate on specific criteria:

1. Sling and splint (Material and Purpose)

Sling

Material- Soft, flexible cloth

| Hard, stiff materials like wood, plastic

Purpose -Hold and support an injured arm. | Keep the broken bone completely still.

Splint

I. Answer the following questions:

1. What should be done in case a person's clothes catch fire?

Ans: In case a person's clothes catch fire:

-the person should be covered with a blanket

-or, the person should be made to roll on the ground.

2.What should we do in case of a sprained ankle?

Ans: - Person should sit comfortably.

- Remove the shoes and socks.

-Apply ice pack or dip the foot in cold water

-wrap elastic bandage around the joint.

J .Picture based question:



1. What is the name of this safety device?

Ans: Fire extinguisher

2. Which part must be pulled out before using it?

Ans: Safety pin

3. What does the base aim at?

Ans: Base of fire

4. Which gas inside it helps put out fires?

Ans: Carbon dioxide

5. What does the needle in the gauge show?

Ans: Pressure level

K .Draw road signs:

- * No Parking
- * No entry
- * Speed limit
- * Restaurant

Chapter - 7

Matter

A .Define:

1. **Atoms** - The basic building blocks of matter.
2. **Matter**- Anything that takes up space and has weight.
3. **Molecules** - Tiny particles that make up matter.

B .Choose the correct answer:

1. The volume and shape of a _____ changes.

- a) solid
- b) liquid

c) gas

2. The gas which is soluble in water.

a) Oxygen

- b) Nitrogen

c) Hydrogen

C. Fill in the blanks:

1. Matter is made up of tiny particles called molecules.
2. Atoms are the basic building blocks of matter.
3. The attraction between the molecules in a solid is strong.
4. Liquids that do not dissolve in water are called immiscible.
5. Chemical changes can lead to the creation of a new substance.

D . Name the following:

1. The building blocks of matter - **Atoms**
2. A type of change leading to the creation of a new substance - **Chemical change**
3. A change that does not change the nature of the substance - **Physical change**
4. Lemonade: a **solution** of sugar, lemon and water.
5. The state of matter in which molecules are tightly packed together - **Solid**
6. A chemical change happening to milk - **Curdling**
7. Lemon and sugar are examples of - **Solute**
8. The water in which lemon and sugar are added is the - **solvent**
9. The molecules in this state of matter are loosely packed. - **Gas**
10. Liquids that do not dissolve in water - **Immiscible**
11. A change that can be easily reversed - **Physical change**
12. Anything that takes up space and has weight - **Matter**
13. Liquids that dissolve in water – **Miscible**

E .Give two examples of:

1. Miscible liquids - **water-milk, lemon juice-water**
2. Immiscible liquids - **Oil-water, Oil-milk, Kerosene-Petrol**
3. Chemical change - **Curdling of milk, Burning of paper**
4. Physical change - **Melting of ice, Tearing of paper**

F .Correct the false statements:

1. In liquids, molecules are tightly packed.

Ans: In **solids**, molecules are tightly packed.

2. The digestion of food is a physical change.

Ans: The digestion of food is a **chemical** change.

3. Salt is insoluble in water.

Ans: Salt is **soluble** in water.

G. Give reasons:

1. Solids have a fixed shape and definite volume.

Ans: Molecules in solids remain fixed in their positions because of very strong intermolecular force of attraction.

2. We smell a perfume, even when the person wearing it stands in the opposite corner of the room.

Ans: The gas molecules of the perfume mix with moving air molecules and hence the scent is carried across the room.

H. Match the following:

- | | |
|---------------------------|---------------------------------------|
| 1. Solid | a. Chemical change (3) |
| 2. Pepper | b. Molecules widely packed (5) |
| 3. Lighting of matchstick | c. No molecular movement (1) |
| 4. Water | d. Insoluble in water (2) |
| 5. Gases | e. Solvent (4) |

I .Differentiate on specific criteria:

1. Solute and solvent (**Definition**)

Solute

Solvent

Ans: The substance that dissolves (disappears). | The substance that does the dissolving. | 3. Miscible and Immiscible liquids (**Definition**)

Miscible liquids	Immiscible
liquids	

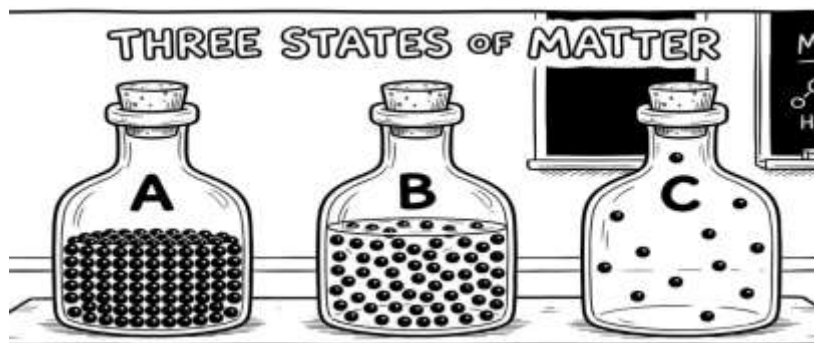
Ans: They mix completely together. together.	They do not mix together.
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J. Answer the following questions:

1. How does oxygen dissolve in water?

Ans: When water meets the air, oxygen gas slowly moves into the water and mixes with the water molecules.

K .Picture based question:



1. Identify containers A, B and C as solid, liquid or gas.
2. In which container are the molecules packed the tightest?
3. Which container shows a state that has a fixed volume but no fixed shape?
4. What will happen to the molecules if container C is opened?
5. Give one everyday example for each container (A, B and C).

Test Paper 1 (Chapters 1–7)

A. Fill in the blanks with the correct words from the box.

scavenger | roughage | jawbone | seed coat | iron

1. The _____ protects the seed.

Answer: **seed coat**

2. A hyena is a _____.

Answer: **scavenger**

3. Salads give us _____.

Answer: **roughage**

4. _____ is needed to make healthy blood in the body.

Answer: **iron**

5. The _____ is the only movable bone in the skull.

Answer: **jawbone**

B. Tick (✓) the correct options.

1. _____ activates the cells of a seed.

a. Sunlight b. Air c. Water d. Greenery

Answer: c. **Water**

2. Prawns breathe through their _____.

a. lungs b. gills c. skin d. spiracles

Answer: b. **gills**

3. Which of the following is NOT a source of iron?

a. meat b. egg yolk c. curd d. beans

Answer: c. **curd**

4. Seals use their _____ for swimming.

a. fins b. body c. flippers d. legs

Answer: c. **flippers**

5. _____ help the body to grow and repair itself.

a. Proteins b. Fats c. Carbohydrates d. Vitamins

Answer: a. **Proteins**

6. The _____ protects the eye and keeps it clean.

a. iris b. eyelid c. pupil d. optic nerve

Answer: b. **eyelid**

7. The points where two bones are joined together are called _____.

- a. joints b. ligaments c. tendons d. femur

Answer: a. **joint**

C. Circle the correct answers.

1. Maple plants are dispersed by water / wind.

Answer: **wind**

2. Nostrils are connected to the heart / lungs by a wind pipe.

Answer: **lungs**

3. Land animals walk and run with the help of their fins / legs.

Answer: **legs**

4. Carbohydrates / Proteins are called body-building food.

Answer: **Proteins**

5. Iron consists of iron / chlorine atoms.

Answer: **iron**

D. Read the clues and write the words:

1. energy-giving food _____

Answer: **Carbohydrates / Fats**

2. diseases that spread from one person to another _____

Answer: **Communicable diseases**

3. matter is made up of these tiny particles _____

Answer: **Molecules**

4. a disease caused by animal bites _____

Answer: **Rabies**

5. tiny structures on the surface of the tongue _____

Answer: **Taste buds**

E. Answer the following questions in short:

1. What is the name of the special pigment that makes leaves appear green in colour?

Answer: Chlorophyll

2. Give two examples of diseases spread by fungi.

Answer: Ringworm and Athlete's foot

3. Which animals breathe through their lungs?

Answer: Mammals (like humans, whales, dogs), birds, reptiles (like lizards, snakes), and adult amphibians on land breathe through their lungs.

4. What can a bad accident result in?

Answer: A bad accident can result in serious physical injuries, bone fractures, severe blood loss, permanent disability, or even life-threatening conditions.

5. When should you use sand to put out a fire?

Answer: You should use sand to put out fires caused by electrical faults or burning liquids (like petrol and kerosene) where water cannot be safely used.

F. Answer the following questions:

1. Explain the process of seed germination.

Answer: It is the growth of a seed into a new plant. With water, air, and warmth, the seed breaks open, sending roots downward and a shoot upward.

2. Explain the process of flying in animals with the help of an example.

Answer: Birds fly by flapping their wings using strong chest muscles. The downstroke pushes the air down to lift them up, while the upstroke resets the wings.

3. Write a short note on balanced diet.

Answer: A balanced diet is food that contains all the necessary nutrients, water, and roughage in the right amounts to keep us healthy.

4. Write the functions of the skeletal system.

Answer: The skeletal system gives shape and support to the body, protects internal organs, and helps us move.

5. Explain the functions of the motor nerves with the help of an example.

Answer: Motor nerves carry orders from the brain to the muscles to make them move. Example: Moving your hand away quickly when touching something hot.

6. How is the arrangement of molecules different in the three states of matter?

Answer: Solids: Molecules are tightly packed (fixed shape).

Liquids: Molecules are loosely packed (can flow).

Gases: Molecules are very far apart (move freely).