

Chapter 7: Skeletal System and Nervous System

New words

- | | |
|-----------------|----------------|
| 1.Skeletal. | 2.Vertebrae |
| 3.Humerus. | 4.Femur |
| 5.Girdles. | 6.Cartilage |
| 7.Pivot Joint. | 8.Hinge Joint |
| 9 Gliding Joint | 10. Cerebellum |
| 11.Medulla. | 12.Cerebrum |

Define the Following

1. **Sternum**-A long bone at the centre of the chest that holds the ribs in place is called the sternum.
2. **Spinal Cord**-A thick cord of nerve tissue that extends down from the brain is called the spinal cord.

Answer the Following Questions

Q1. What is a joint? Name the different kinds of joints found in the body.

Answer: A joint is a place where two or more bones meet.

The different kinds of joints are:

- Ball and socket joint
- Hinge joint
- Pivot joint
- Gliding joint

Q2. List three important functions of the skeletal system.

Answer:

- Gives shape and support to our body.
- Protects internal organs.
- Helps in movement with the help of muscles.

Q3. Differentiate between cardiac muscles and smooth muscles.

Cardiac Muscles

- These muscles are found only in the heart.
- These muscles work continuously without rest.

Smooth Muscles

- These muscles are found in internal organs like the stomach and intestines.
- These muscles work slowly and involuntarily.

Q4. Write the one function of each brain part.

- Cerebrum: Controls thinking, memory and voluntary actions.
- Cerebellum: Maintains balance and coordinates body movements.
- Medulla: Controls involuntary activities like heartbeat and breathing.

Q5. Differentiate between sensory and motor nerves.

Motor Nerves

These nerves carry messages from the brain or spinal cord to different parts of the body.

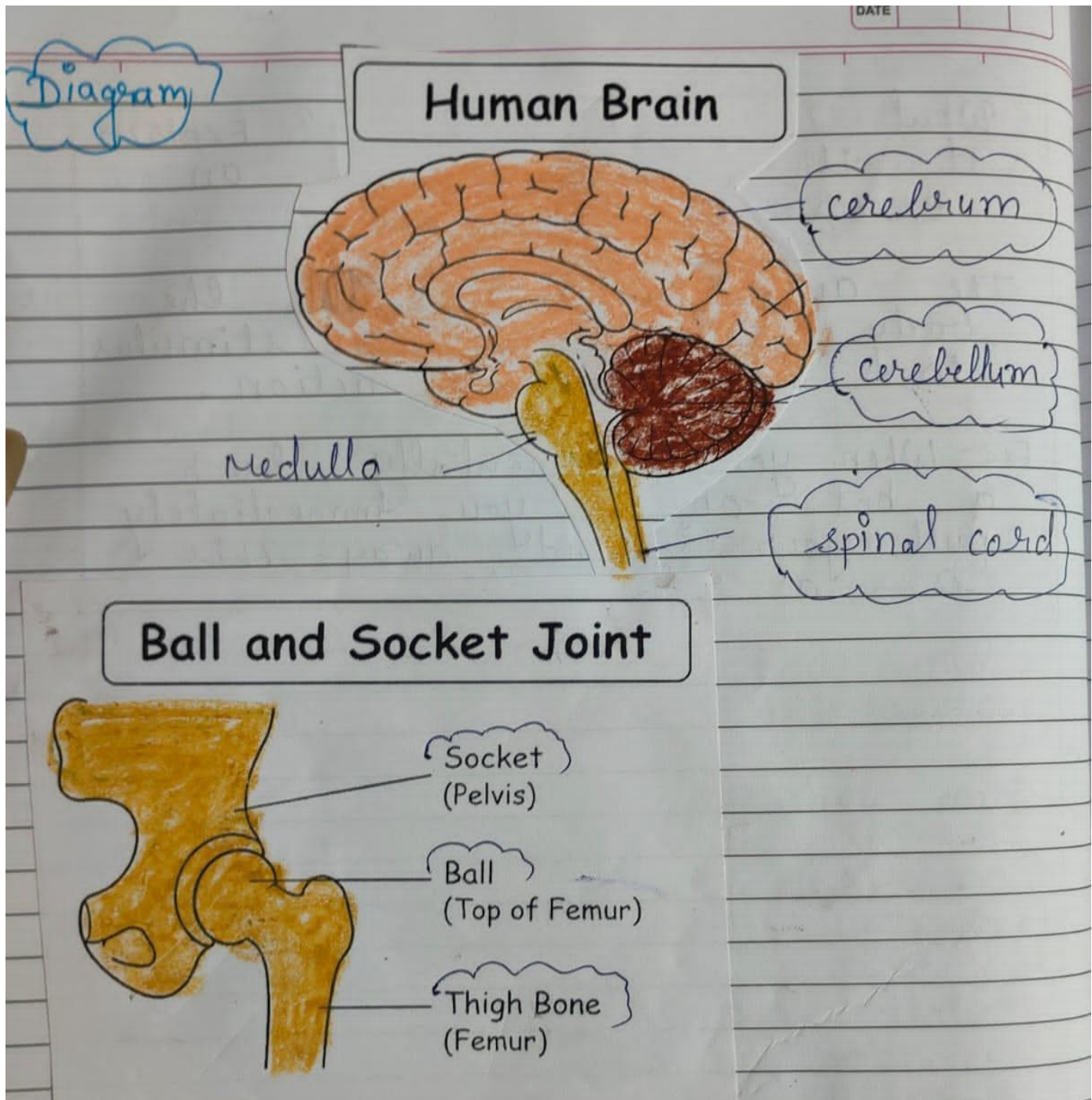
Sensory Nerves

These nerves carry messages from different parts of the body to the brain or spinal cord.

Q6. What is a reflex action? Explain it with the help of an example.

Answer: The automatic response of the body to a particular stimulus is called a reflex action.

Example: When you accidentally touch a hot object, you immediately pull your hand away. This is a reflex action.



Let's Remember

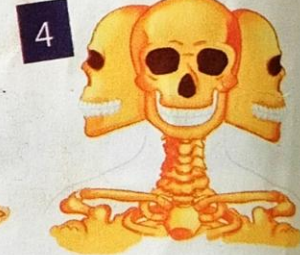
Identify the type of joint in each of the following. Name one place where each of them is found in the human body.

1. Joint: Hinge; Place: knee

2. Joint: Ball and socket; Place: hip

3. Joint: Gliding; Place: ankle

4. Joint: Pivot; Place: neck



Textbook Exercises

I. Fill in the blanks with the correct words.

- Muscles are attached to the bones with the help of special tissues called tendons.
- The femur is the longest bone in the human body.
- When the sight of food makes your mouth water, then seeing the food is the stimulus and the production of saliva in your mouth is the response.
- The lens of the eye helps us to focus the light.
- The inner ear transforms sound into a nerve signal that is sent to the brain via nerves.

II. Write T for the True and F for the False statements.

- The backbone is made up of 33 small bones called ribs. — F
- The bone marrow makes blood cells for the body. — T
- The backbone protects the reflex actions. — F
- Cerebellum is responsible for learning and memory. — F
- Motor nerves carry messages from the body to the brain. — F

III. Choose the correct option.

1. Which of these protects the spinal cord?

- | | | | |
|--------------|----------|---------------|------------|
| a. Rib cage. | b. Skull | c. Backbone ✓ | d. Girdles |
|--------------|----------|---------------|------------|

2. Which of these help us in movement?

- | | | | |
|----------|------------|------------|-------------------|
| a. Bones | b. Muscles | c. Joints. | d. All of these ✓ |
|----------|------------|------------|-------------------|

3. Which of these holds the bones together at the joints?

- a. Ligament ✓ b. Cartilage c. Muscle. d. Girdle

4. Which of these is the smallest bone in the body?

- a. Humerus. b. Femur c. Sternum. d. Stirrup ✓

5. Which of these muscles are under our control?

- a. Skeletal muscles ✓. b. Cardiac muscles c. Smooth muscles. d. both b and c

6. Which part of the brain controls our heartbeat and breathing?

- a. Cerebrum. b. Cerebellum c. Medulla ✓. d. Reflexes

7. Which part of the eye is responsible for giving the colour to the eye?

- a. Cornea. b. Iris ✓ c. Pupil. d. Retina

8. Which part of the ear receives vibrations from outside?

- a. Pinna ✓ b. Eard c. Cochlea. d. Ear canal

LET'S RECALL  Recall and complete the concept map given below.

Parts of human skeleton

- Skull
- Backbone
- Ribcage
- Limbs

Types of muscles

- skeletal
- smooth
- Cardiac

Kinds of joints

- Ball and Socket
- Hinge
- Pivot
- Gliding

Nervous system

B R A I N

Has three parts

- Cerebrum
- Cerebellum
- Medulla

**S P I N A L
C O R D**

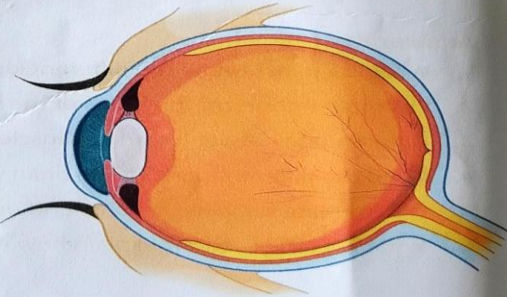
Controls
R E F L E X
A C T I O N S

N E R V E S

S E N S O R Y
nerves
and M O T O R
nerves

LET'S OBSERVE   

- (i) Label the different parts. **LO15**
- (ii) From which part of the eye does light enter? Pupil
- (iii) Where does light fall and form the image? Retina



IV. Match the columns.

Column A

1. Knee
2. Neck
3. Hip
4. Ankle
5. Skull

Column B

- a. Ball and socket joint
- b. Gliding joint
- c. Hinge joint
- d. Brain
- e. Pivot joint

1 c
2 e
3 a
4 b
5 d

B. Very short answer questions

I. Give two examples of the following.

1. Girdles
2. Ball and socket joints
3. Hinge joints
4. Parts of the eye
5. Parts of the ear

Shoulder Pelvic
Shoulder Hip
Elbow Knee
Cornea Retina
Outer ear Inner ear

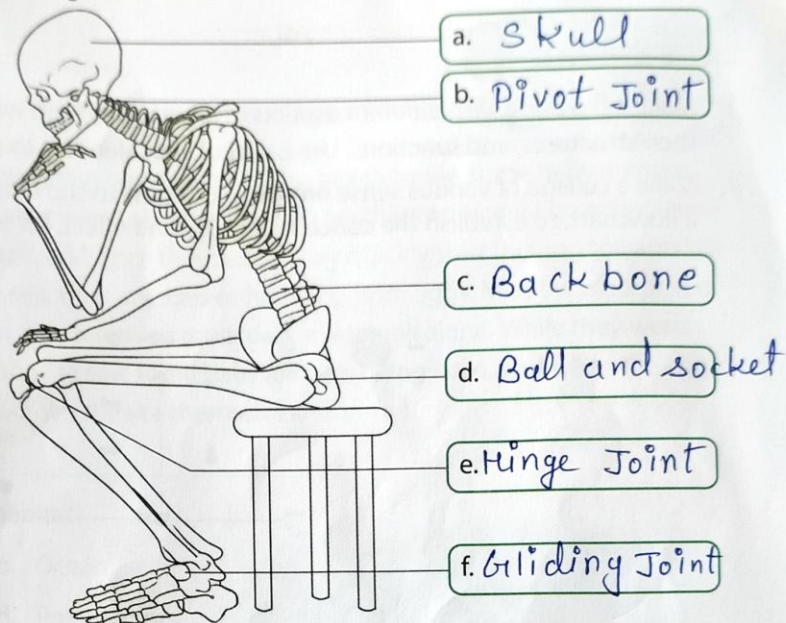
II. Give one word for the following.

1. The long, single bone that makes the upper arm
2. A jelly-like substance that fills the hollow of the bone
3. A tough, elastic substance that holds the bones together at the joints
4. The part of the brain that controls the heartbeat
5. The part of the eye where an image gets formed

Humerus
Bone marrow
Ligament
Medulla
Retina

2. Label the diagram using the words given below.

- Pivot Joint
- Ball and socket joint
- Backbone
- Gliding Joint
- Skull
- Hinge Joint



LET'S CONNECT



MATHEMATICS



1. A ball and socket joint helps us to move the arms in a full circle. How many angles are there in a circle? 360°
2. We can move our wrist from one end to another as though in a straight line. How many angles are there in a straight line? 180° (straight angle)
3. A knee joint helps us to move our legs in one direction only, such that it forms a right angle. How many angles are there in a right angle? 90°

Draw all these three angles in your notebook. Label the arms and vertex in each.