3. BODY MOVEMENTS

TEACHING TASK: NEET LEVEL QUESTIONS

Multiple Choice Questions (1–15)

1.Which part of the skeletal system is responsible for protecting the brain?
Answer: C) Skull
Explanation: The skull is a bony structure that encases and protects the brain from injury.

2.How many bones make up the upper part of the skull?
Answer: A) 8
Explanation: The cranium, which forms the upper part of the skull, consists of 8 bones that are fused to protect the brain.

3.What is the purpose of the spinal cord passing through the holes in the vertebrae?
Answer: C) To transmit nerve signals
Explanation: The spinal cord runs through the vertebral foramen in the vertebrae, allowing it to transmit nerve signals between the brain and the rest of the body while being protected by the vertebral column.

4.What are the bones that form a cage around the heart and lungs?
Answer: D) Ribs
Explanation: The ribs, along with the sternum and part of the vertebral column, form the rib cage, which protects the heart and lungs.

5.How many pairs of ribs do humans typically have?
Answer: C) 12
Explanation: Humans typically have 12 pairs of ribs, with 7 pairs of true ribs, 3 pairs of false ribs, and 2 pairs of floating ribs.

6.Which type of joint allows movement in only one direction?
Answer: C) Hinge Joint
Explanation: Hinge joints, such as those in the elbow and knee, allow movement in one plane (flexion and extension), similar to a door hinge.

7.Where are immovable joints commonly found?
Answer: C) Skull
Explanation: Immovable joints, or sutures, are found in the skull, where bones are tightly interlocked to provide stability and protect the brain.
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8.What is the function of immovable joints?
Answer: B) To protect delicate organs
Explanation: Immovable joints, such as those in the skull, are designed to hold bones together tightly to protect delicate organs like the brain.

9.Which type of joint allows movement in all directions?
Answer: C) Ball and Socket Joint
Explanation: Ball and socket joints, like those in the hip and shoulder, allow movement in multiple directions, including rotation.

10.Where is the ball and socket joint found?
Answer: C) Hip
Explanation: The hip joint is a classic example of a ball and socket joint, where the femoral head fits into the acetabulum of the pelvis, allowing multidirectional movement.

11.Which muscles are responsible for pushing food from the mouth to the stomach?
Answer: B) Involuntary muscles
Explanation: Involuntary (smooth) muscles in the esophagus perform peristalsis to push food from the mouth to the stomach without conscious control.

12.Which type of muscles are found in the heart?
Answer: C) Cardiac muscles
Explanation: Cardiac muscles are specialized involuntary muscles found only in the heart, responsible for its rhythmic contractions.

13.How do voluntary muscles work during movement?
Answer: B) They contract
Explanation: Voluntary (skeletal) muscles contract to pull bones at joints, facilitating movement.

14.How many muscles are typically needed to move bones in one direction?
Answer: B) 2
Explanation: Muscles work in pairs (e.g., agonist and antagonist) to move bones in one direction, as muscles can only pull, not push.

15.Which type of muscles are responsible for activities like reading, writing, walking, or running?
Answer: A) Voluntary muscles
Explanation: Voluntary (skeletal) muscles are under conscious control and are responsible for activities like walking, writing, and running.

Advanced Level Questions

16. What are functions of the vertebral column (backbone)?
Answer: A) Protecting the spinal cord, B) Providing flexibility, C) Supporting the body
Explanation: The vertebral column protects the spinal cord, provides flexibility for movement, and supports the body's structure. It does not produce red blood cells (that occurs in bone marrow, primarily in flat bones like the sternum or pelvis).

17. Which types of joints are movable?
Answer: A) Hinge Joint, B) Ball and Socket Joint, D) Gliding Joint
Explanation: Movable joints include hinge joints (e.g., elbow), ball and socket joints (e.g., hip), and gliding joints (e.g., wrist). Immovable joints (e.g., skull sutures) do not allow movement.

18. Which statements about muscles are true?
Answer: A) Muscles are attached to bones and pull to make them move at joints, C) Muscles are made of tough elastic tissues, D) At least 2 muscles are required to move bones in one direction
Explanation: Muscles pull bones to cause movement (not push), are made of elastic tissues, and work in pairs for directional movement. Statement B is false as muscles cannot push bones.

19. Reason and Assertion Type
Assertion: Voluntary muscles control the movement of the body and are under conscious control.
Reason: Involuntary muscles, on the other hand, work independently of conscious control and are found in internal organs.
Answer: Both Assertion and Reason are true, and the Reason is the correct explanation of the Assertion.
Explanation: Voluntary muscles (skeletal) are consciously controlled for body movements, while involuntary muscles (smooth and cardiac) operate without conscious control, such as in internal organs.

20. Reason and Assertion Type
Assertion: To move bones in one direction, at least 2 muscles are required.
Reason: Muscles can only pull bones; they cannot push them.
Answer: Both Assertion and Reason are true, and the Reason is the correct explanation of the Assertion.
Explanation: Muscles work in antagonistic pairs (e.g., biceps and triceps) because they can only contract to pull bones, not push them, requiring at least two muscles for movement in one direction.

21. Matrix Matching Type
Skull '! B) Protects the brain and contains movable lower jaw

Spine ’! D) Consists of 26 vertebrae and protects the spinal cord
Rib Cage ’! A) Forms a cage around the heart and lungs
Fore Limbs (Arms) ’! E) Includes the upper arm, forearm, wrist, and hand
Hind Limbs (Legs) ’! C) Contains the femur, tibia, fibula, ankle, and foot
Explanation: Each option matches the anatomical description of the respective skeletal structure.

22. Comprehension Type: How does cartilage contribute to the mobility of movable joints?
Answer: D) It allows bones to move freely
Explanation: Cartilage covers the ends of bones in movable joints, reducing friction and allowing smooth movement.

23. Comprehension Type: Which of the following statements accurately describes movable joints?
Answer: D) They are found in the arms, legs, hip, and shoulders
Explanation: Movable joints, such as hinge and ball and socket joints, are found in the arms, legs, hips, and shoulders, allowing free movement. Options A and B describe immovable joints, and C is incomplete as ligaments are only part of the structure.

LEARNERS TASK: NEET LEVEL QUESTIONS

Multiple Choice Questions (1–15)
1.Which part of the forelimb extends from the shoulder to the elbow?
Answer: C) Upper arm
Explanation: The upper arm, consisting of the humerus, extends from the shoulder to the elbow.
2.What is the longest bone in the human body?
Answer: B) Femur
Explanation: The femur (thigh bone) is the longest and strongest bone in the human body.

3.Which bones are not attached to the chest bone but only to the backbone?
Answer: A) Floating ribs
Explanation: The two pairs of floating ribs (11th and 12th) are attached only to the backbone and not to the sternum.

4.How many bones make up the wrist and hand?
Answer: C) 27
Explanation: The wrist (carpals: 8 bones) and hand (metacarpals: 5, phalanges: 14) together consist of 27 bones.

5.Which part of the skeletal system is responsible for supporting and shaping the body?
Answer: C) Spine

Explanation: The spine (vertebral column) provides structural support and shapes the body, maintaining posture.

6.What is the purpose of cartilage in joints?
Answer: C) To cushion the joints
Explanation: Cartilage reduces friction and cushions joints, allowing smooth movement and preventing bone wear.

7.Which joint allows side to side, upward and downward movement?
Answer: C) Pivot Joint
Explanation: Pivot joints, such as the one between the atlas and axis in the neck, allow side-to-side and rotational movements.

8.What type of joint is found in the wrist and ankle?
Answer: D) Gliding Joint
Explanation: Gliding joints in the wrist and ankle allow bones to slide over each other, enabling flexible movements.

9.What is the function of ligaments in joints?
Answer: A) To hold the joint together
Explanation: Ligaments are tough bands of tissue that connect bones and stabilize joints.

10.Where is the smallest bone in the human body located?
Answer: C) Middle ear
Explanation: The smallest bone, the stapes, is located in the middle ear and is part of the ossicles that transmit sound.

11.What is the function of muscles in the human body?
Answer: C) To pull bones for movement
Explanation: Muscles (skeletal) contract to pull bones at joints, enabling movement.

12.How many muscles are there in the human body?
Answer: B) 640
Explanation: The human body has approximately 640 skeletal muscles, though the exact number varies slightly in literature.

13.What connects muscles to bones?
Answer: C) Tendons
Explanation: Tendons are strong connective tissues that attach muscles to bones, enabling movement.

14.Which type of muscles are responsible for the movement of the body under our control?
Answer: A) Voluntary muscles

Explanation: Voluntary (skeletal) muscles are under conscious control and responsible for body movements.

15.Where are involuntary muscles mainly found?
Answer: D) Internal organs
Explanation: Involuntary (smooth) muscles are found in internal organs like the stomach and intestines, functioning without conscious control.

Advanced Level Questions
16. Which bones are part of the lower limb (leg)?
Answer: A) Femur (thigh bone), B) Tibia, C) Fibula, D) Ankle
Explanation: The lower limb includes the femur (thigh), tibia and fibula (lower leg), and ankle bones (tarsals).

17. Which statements accurately describe immovable joints?
Answer: A) They are found in the skull, B) Little or no movement happens in these joints, D) They protect delicate organs
Explanation: Immovable joints (e.g., skull sutures) have little to no movement and protect organs like the brain. They are not found in arms and legs.

18. Which characteristics describe involuntary muscles?
Answer: B) They work independently of conscious control, C) They are found in internal organs
Explanation: Involuntary muscles (smooth and cardiac) function without conscious control and are found in internal organs or the heart, not in arms and legs.

19. Reason and Assertion Type
Assertion: Muscles are attached to bones and pull to make them move at joints.
Reason: Muscles are made of tough elastic tissues.
Answer: Both Assertion and Reason are true, but the Reason is not the correct explanation of the Assertion.
Explanation: The assertion is correct as muscles pull bones for movement. The reason is true but does not explain why muscles pull bones; it describes their composition.

20. Reason and Assertion Type
Assertion: Cardiac muscles are responsible for pumping blood throughout the body and are involuntary.
Reason: Smooth muscles, found in internal organs, include those responsible for pushing food from the mouth to the stomach.
Answer: Both Assertion and Reason are true, and the Reason is the correct explanation of the Assertion.
Explanation: Cardiac muscles are involuntary and pump blood, while smooth muscles (also involuntary) facilitate processes like peristalsis in the digestive system.

21. Matrix Matching Type
Hinge Joint '! B) Allows movement only in one direction
Ball and Socket Joint '! A) Allows movement in all directions; one bone is like a ball fitting into a hollow socket of another bone
Pivot Joint '! D) Found between the head and neck, allowing side to side, upward, and downward movement
Gliding Joint '! C) Allows bones to slide on each other in any direction along the plane of the joint
Explanation: Each joint type is matched with its specific function and location.

22. Comprehension Type: What is the primary purpose of ribs in the human body?
Answer: C) To form a protective cage around the heart and lungs
Explanation: The ribs form a rib cage that primarily protects the heart and lungs from external injury.

23. Comprehension Type: What is the function of the rib cage?
Answer: C) To enclose and protect the heart and lungs
Explanation: The rib cage's primary function is to protect vital organs like the heart and lungs, not the liver, legs, or face.

TEACHING TASK:

NEET LEVEL QUESTIONS (Animal Locomotion)
Multiple Choice Questions (1–10)
1.What is the purpose of the shell for a snail?
Answer: A) To protect against predators, C) To serve as a home
Explanation: The snail's shell provides protection from predators and environmental hazards and serves as a portable home.

2.Where is a snail's head located in relation to its shell?
Answer: A) It's inside the shell
Explanation: The snail's head is part of its soft body, which can retract inside the shell for protection.

3.What is the thick part of a snail called?
Answer: C) Foot
Explanation: The snail's foot is the thick, muscular part used for locomotion.

4.How does a snail's foot move?
Answer: C) In a wavy motion
Explanation: The snail's foot moves in a wavy, rippling motion, aided by mucus secretion, to propel the snail forward.

5.What role does the snail's foot play in its movement?
Answer: A) It helps it grip surfaces, C) It produces slime for locomotion, D) It propels the snail forward
Explanation: The snail's foot grips surfaces, secretes slime to reduce friction, and contracts to propel the snail.

6.What enables cockroaches to move efficiently?
Answer: D) Streamlined body shape
Explanation: The cockroach's streamlined body and strong legs allow efficient movement, not hollow wings or lightweight bones.

7.What adaptation helps birds to fly?
Answer: B) Lightweight body
Explanation: Birds have lightweight bodies due to hollow bones and feathers, which aid in flight.

8.What characteristic of a fish's body helps it move smoothly through water?
Answer: C) Streamlined shape
Explanation: The streamlined shape of a fish reduces water resistance, allowing smooth movement.

9.How do fish propel themselves forward?
Answer: B) Swinging their tail side to side
Explanation: Fish use lateral (side-to-side) movements of their tail (caudal fin) to propel themselves through water.

10.What assists underwater divers in moving easily in water?
Answer: D) Fin-like flippers on their feet
Explanation: Flippers mimic the fins of aquatic animals, helping divers move efficiently through water.

LEARNERS TASK:

NEET LEVEL QUESTIONS (Animal Locomotion)
Multiple Choice Questions (1–10)
1.What is the Earthworm's method of locomotion?
Answer: B) Wiggling
Explanation: Earthworms move by wiggling their segmented bodies, contracting and expanding muscles.

2.How does an Earthworm anchor itself to the ground?
Answer: B) With tiny bristles on its belly

Explanation: Earthworms use setae (bristles) on their ventral surface to grip the soil for movement.

3.What purpose does the slippery substance produced by an Earthworm serve?
Answer: C) To help it slide through soil
Explanation: Mucus secreted by earthworms reduces friction, aiding movement through soil.

4.What is the snail's outer structure called?
Answer: C) Shell
Explanation: The snail's outer protective structure is called a shell, not an exoskeleton or carapace.

5.How does a snail move?
Answer: C) By crawling
Explanation: Snails move by crawling, using their muscular foot and mucus to glide over surfaces.

6.What allows snakes to move quickly?
Answer: B) Thick muscles
Explanation: Snakes rely on strong, thick muscles to contract and create undulating movements for locomotion.

7.How do snakes achieve forward movement?
Answer: C) Curving their bodies into loops
Explanation: Snakes move by forming loops or curves in their bodies, using lateral undulation or concertina motion to push against surfaces.

8.Which animal has a hard outer shell made of plates?
Answer: D) Cockroaches
Explanation: Cockroaches have a hard exoskeleton made of sclerotized plates, unlike birds, fish, or snakes.

9.What type of bones do birds have that aid in flight?
Answer: B) Hollow and lightweight
Explanation: Birds have hollow, lightweight bones that reduce body weight, aiding in flight.

10.How do fish maintain balance and direction while swimming?
Answer: C) With their fins
Explanation: Fins (e.g., dorsal, pectoral, and pelvic) help fish maintain balance and steer while swimming.