

A-LEVEL

Multiple-choice questions on the skeletal system

1. Which type of bone is primarily responsible for providing strength and support in the skeletal system?

- A. Long bone
- B. Flat bone
- C. Irregular bone
- D. Short bone

Answer: A Explanation: Long bones, such as femur and humerus, are responsible for providing strength and support due to their elongated structure.

2. What is the function of red bone marrow in the skeletal system?

- A. Storage of minerals
- B. Blood cell formation
- C. Mechanical support
- D. Calcium regulation

Answer: B Explanation: Red bone marrow is responsible for the production of blood cells, including red blood cells, white blood cells, and platelets.

3. Which hormone plays a crucial role in regulating calcium levels in the bones and blood?

- A. Insulin
- B. Thyroxine
- C. Parathyroid hormone
- D. Adrenaline

Answer: C Explanation: Parathyroid hormone regulates calcium levels by stimulating the

release of calcium from bones into the bloodstream.

4. The epiphyseal plate is commonly known as:

- A. Growth plate
- B. Suture
- C. Foramen
- D. Fossa

Answer: A Explanation: The epiphyseal plate, also known as the growth plate, is responsible for longitudinal bone growth in children and adolescents.

5. Which type of joint allows the greatest range of motion in the skeletal system?

- A. Hinge joint
- B. Ball and socket joint
- C. Pivot joint
- D. Gliding joint

Answer: B Explanation: Ball and socket joints, like the hip joint, allow a wide range of motion in multiple directions.

6. Osteoclasts are cells responsible for:

- A. Bone formation
- B. Bone resorption
- C. Calcium storage
- D. Blood clotting

Answer: B Explanation: Osteoclasts are cells that break down and resorb bone tissue, playing a crucial role in bone remodeling.

7. The condition characterized by the thinning and weakening of bones, leading to an increased risk of fractures, is known as:

- A. Osteoporosis
- B. Osteoarthritis
- C. Rheumatoid arthritis
- D. Gout

Answer: A Explanation: Osteoporosis is a condition where bones become porous and fragile, increasing the risk of fractures.

8. Which vitamin is essential for the absorption of calcium in the digestive system, crucial for bone health?

- A. Vitamin A
- B. Vitamin C
- C. Vitamin D
- D. Vitamin K

Answer: C Explanation: Vitamin D is essential for the absorption of calcium in the intestines, promoting bone health.

9. The axial skeleton includes:

- A. Skull, vertebral column, and rib cage
- B. Upper and lower limbs
- C. Pelvis and sacrum
- D. Clavicle and scapula

Answer: A Explanation: The axial skeleton consists of the skull, vertebral column, and rib cage, providing central support and protection.

10. What is the primary function of the periosteum in bone structure?

- A. Blood cell production
- B. Nutrient and blood vessel supply to bones
- C. Calcium storage
- D. Joint flexibility

Answer: B Explanation: The periosteum provides nutrients and blood vessels to the bone, facilitating growth, repair, and maintenance.

11. The condition characterized by inflammation of joints, cartilage damage, and pain is known as:

- A. Osteoporosis
- B. Osteoarthritis
- C. Rheumatoid arthritis
- D. Ankylosing spondylitis

Answer: C Explanation: Rheumatoid arthritis is an autoimmune disorder causing inflammation and damage to joints.

12. Which type of cartilage is found in the external ear and the tip of the nose?

- A. Hyaline cartilage
- B. Elastic cartilage
- C. Fibrocartilage
- D. Articular cartilage

Answer: B Explanation: Elastic cartilage is found in structures requiring flexibility, such as the external ear and the tip of the nose.

13. The vertebral column is composed of distinct regions, including:

- A. Cervical, thoracic, lumbar, and sacral
- B. Cranial, facial, thoracic, and pelvic
- C. Clavicular, scapular, humeral, and radial
- D. Femoral, tibial, fibular, and patellar

Answer: A Explanation: The vertebral column consists of cervical, thoracic, lumbar, and sacral regions.

14. What is the function of synovial fluid in a joint?

- A. Provides mechanical support
- B. Lubricates and nourishes the joint
- C. Produces blood cells
- D. Forms a protective barrier

Answer: B Explanation: Synovial fluid lubricates and nourishes the joint, reducing friction and providing nutrients to the cartilage.

15. The condition characterized by the abnormal curvature of the spine in the lateral direction is called:

- A. Lordosis
- B. Kyphosis
- C. Scoliosis
- D. Osteomalacia

Answer: C Explanation: Scoliosis is a condition where the spine curves laterally, often observed as an S or C shape.

16. Which of the following bones is NOT a part of the human skull?

- A. Maxilla
- B. Mandible
- C. Clavicle
- D. Temporal bone

Answer: C Explanation: The clavicle is not a part of the skull; it is a bone of the shoulder girdle.

17. The process by which bone is formed during embryonic development is known as:

- A. Ossification
- B. Calcification
- C. Resorption
- D. Remodeling

Answer: A Explanation: Ossification is the process of bone formation, occurring during embryonic development.

18. Which of the following is a function of yellow bone marrow?

- A. Blood cell formation
- B. Energy storage
- C. Calcium regulation
- D. Joint flexibility

Answer: B Explanation: Yellow bone marrow stores fat and serves as an energy reserve for the body.

19. The joint between the skull and the first cervical vertebra, allowing the nodding motion, is called:

- A. Ball and socket joint
- B. Hinge joint
- C. Pivot joint
- D. Suture

Answer: C Explanation: The joint between the skull and the first cervical vertebra is a pivot joint, allowing the nodding motion.

20. Which of the following statements about osteocytes is true?

- A. Osteocytes are responsible for bone resorption.
- B. Osteocytes are mature bone cells embedded in the bone matrix.
- C. Osteocytes produce synovial fluid.
- D. Osteocytes are found in the epiphyseal plate.

Answer: B Explanation: Osteocytes are mature bone cells embedded in the bone matrix, maintaining bone tissue.

21. The joint classification based on the amount of movement allowed is:

- A. Fibrous, cartilaginous, and synovial joints
- B. Ball and socket, hinge, and pivot joints
- C. Amphiarthrosis, diarthrosis, and synarthrosis

joints

D. Axial and appendicular joints

Answer: C Explanation: Joints can be classified as amphiarthrosis (slightly movable), diarthrosis (freely movable), and synarthrosis (immovable).

22. The condition characterized by the inflammation of bursae, resulting in joint pain, is known as:

A. Bursitis

B. Tendonitis

C. Arthritis

D. Osteoarthritis

Answer: A Explanation: Bursitis is the inflammation of bursae, fluid-filled sacs that reduce friction between bones and soft tissues.

23. What is the purpose of the fontanelles in a newborn's skull?

- A. Allow for skull expansion during childbirth
- B. Provide a site for blood cell formation
- C. Enhance hearing ability
- D. Facilitate jaw movement

Answer: A Explanation: Fontanelles allow for skull flexibility during childbirth, aiding in the passage through the birth canal.

24. The process of breaking down bone tissue and releasing minerals into the bloodstream is known as:

- A. Ossification
- B. Calcification
- C. Resorption
- D. Remodeling

Answer: C Explanation: Resorption is the process of breaking down bone tissue and releasing minerals into the bloodstream.

25. The structure that connects muscles to bones is known as the:

- A. Ligament
- B. Tendon
- C. Cartilage
- D. Synovium

Answer: B Explanation: Tendons connect muscles to bones, transmitting the force generated by the muscle to the bone.

26. The zygomatic bone is commonly referred to as the:

- A. Cheekbone
- B. Forehead bone
- C. Jawbone
- D. Nasal bone

Answer: A Explanation: The zygomatic bone is commonly known as the cheekbone.

27. Which of the following joints is an example of a hinge joint?

- A. Shoulder joint
- B. Elbow joint
- C. Hip joint
- D. Wrist joint

Answer: B Explanation: The elbow joint is an example of a hinge joint, allowing flexion and extension movements.

28. The condition characterized by the softening of bone due to a lack of vitamin D or calcium is known as:

- A. Osteoporosis
- B. Rickets
- C. Osteoarthritis
- D. Paget's disease

Answer: B Explanation: Rickets is a condition characterized by softening of bones, often caused by vitamin D or calcium deficiency.

29. Which of the following bones is NOT part of the appendicular skeleton?

- A. Scapula
- B. Femur
- C. Sternum
- D. Pubis

Answer: C Explanation: The sternum is part of the axial skeleton, not the appendicular skeleton.

30. The joint between adjacent vertebrae, allowing limited movement and flexibility, is called:

- A. Pivot joint
- B. Hinge joint
- C. Synovial joint
- D. Cartilaginous joint

Answer: D Explanation: The joint between adjacent vertebrae is a cartilaginous joint, allowing limited movement and flexibility.

31. The condition characterized by the inflammation of tendons, resulting in pain and restricted movement, is known as:

- A. Bursitis
- B. Tendonitis
- C. Arthritis
- D. Osteoarthritis

Answer: B Explanation: Tendonitis is the inflammation of tendons, leading to pain and limited movement.

32. What is the purpose of the synarthrosis joints in the skeletal system?

- A. Allow for free movement
- B. Provide stability and support
- C. Facilitate blood cell formation
- D. Enhance joint flexibility

Answer: B Explanation: Synarthrosis joints are immovable joints that provide stability and support to the skeletal system.

33. The bone cells responsible for depositing new bone tissue during bone growth are called:

- A. Osteoclasts
- B. Osteocytes
- C. Osteoblasts
- D. Chondrocytes

Answer: C Explanation: Osteoblasts are bone cells responsible for depositing new bone tissue during bone growth.

34. The condition characterized by the inflammation of joints, primarily affecting the spine and pelvic joints, is known as:

- A. Osteoporosis
- B. Rheumatoid arthritis
- C. Ankylosing spondylitis
- D. Gout

Answer: C Explanation: Ankylosing spondylitis is a condition characterized by inflammation of the spine and pelvic joints.

35. The process of converting cartilage into bone during bone development is called:

- A. Ossification
- B. Calcification
- C. Resorption
- D. Chondrification

Answer: A Explanation: Ossification is the process of converting cartilage into bone during bone development.

36. The joint classification based on the type of connective tissue holding the bones together is:

- A. Fibrous, cartilaginous, and synovial joints
- B. Ball and socket, hinge, and pivot joints
- C. Amphiarthrosis, diarthrosis, and synarthrosis joints
- D. Axial and appendicular joints

Answer: A Explanation: Joints can be classified as fibrous, cartilaginous, and synovial based on the type of connective tissue.

37. The bone that forms the prominent point of the shoulder is the:

- A. Clavicle
- B. Scapula
- C. Humerus
- D. Radius

Answer: B Explanation: The scapula forms the prominent point of the shoulder, known as the acromion process.

38. Which of the following is a characteristic of a saddle joint?

- A. Allows rotational movement
- B. Allows sliding or gliding movements
- C. Permits flexion and extension
- D. Enables opposition of the thumb

Answer: D Explanation: A saddle joint enables opposition of the thumb, allowing for a wide range of movements.

