

**Class: 11**

**Subject: biology**

**Topic: Locomotion And Movement**

**No. of Questions: 20**

**Duration: 60 Min**

**Maximum Marks: 60**

1. Axis vertebra is identified by
  - A. sigmoid notch
  - B. deltoid ridge
  - C. odontoid process
  - D. centrum

Detailed Answer:

Axis is the second cervical vertebra, which is identified by a prominent odontoid process. The odontoid process of axis vertebra fits in the odontoid fossa of first cervical vertebra (i.e., atlas) forming the actual pivot joint at which the skull rotates around together with the atlas.

Answer: C

2. Which is not the function of endoskeleton?
  - A. Sight
  - B. Hearing
  - C. Locomotion
  - D. Production of RBCs

Detailed Answer:

Sight is not the function of endoskeleton.

Answer: A

3. Which of the following is important for muscle contraction and nerve impulse transmission?
  - A.  $\text{Ca}^{2+}$  ions
  - B.  $\text{Mg}^{2+}$  ions
  - C.  $\text{Mn}^{2+}$  ions
  - D.  $\text{Fe}^{2+}$  ions

Detailed Answer:

$\text{Ca}^{2+}$  ions is essential of muscle contraction, neuro-muscular functions and nerve impulse transmission.

Answer: A

4. Which of the following lubricates ligament or tendons and is an important constituent of synovial fluid of bones?
- A. Pectins
  - B. Lipids
  - C. Hyaluronidase
  - D. Hyaluronic acid

Detailed Answer:

Hyaluronic acid lubricates ligaments and tendons and is an important constituent of synovial fluid of bone joints, vitreous humour of eyes, etc.

Answer: D

5. Synovial fluid is present in
- A. fibrous joints
  - B. cartilaginous joints
  - C. freely movable joints
  - D. intervertebral joints

Detailed Answer:

Synovial fluid is present in perfect movable joints. The synovial membrane secretes synovial fluid, which lubricates and provides nourishment to articular cartilage.

Answer: C

6. Immediate energy source for muscle contraction is
- A. ATP
  - B. ADP
  - C. glucose
  - D. lactic acid

Detailed Answer:

ATP is the source of energy for muscle contraction.

Answer: A

7. Haversian canals are present in
- A. bone marrow
  - B. hyaline cartilage
  - C. bone matrix
  - D. calcified cartilage

Detailed Answer:

Running along the length and present in the wall of bone there are a number of longitudinal canal called the Haversian canal, which are interconnected by a number of small transverse and oblique canal called Volkmann's canal.

Answer: A

8. The parasphenoid bone in frog forms

- A. base of cranium
- B. floor of cranium
- C. dorsal side of cranium
- D. dorsolateral side of cranium

Detailed Answer:

Parasphenoid bone is a flattened and inverted T-shaped bone, which forms floor of cranium.

Answer: B

9. Which statement is correct for muscle contraction?

- A. Length of H-zone is decreased
- B. Length of A-band remains constant
- C. Length of I-band gets increased
- D. Length of two Z-line get increased

Detailed Answer:

During muscle contraction, actin and myosin interact to form actomyosin. According to sliding filament theory, cross bridge are formed by myosin filament to slide act in filament. During muscle contraction, length of A-band remains constant.

Answer: B

10. Total number of bones found in right upper limb is

- A. 25
- B. 26
- C. 30
- D. 60

Detailed Answer:

Each arm consists of 30 bones of, which one humerus, one radius, one ulna, eight carpal bones, five Metacarpal bones and fourteen are phalanges bones, i.e.,

$$1+1+1+8+5+14 = 30$$

Answer: C

11. The sensation of fatigue in the muscles after prolonged strenuous physical work, is caused by

- A. a decrease in the supply of oxygen
- B. minor wear and tear of muscle fibres
- C. the depletion of glucose
- D. the accumulation of lactic acid

Detailed Answer:

The reduction in force of contraction of a muscle after prolonged stimulation is called muscle fatigue. The accumulation of lactic acid leads to muscle fatigue. Lactic acid is produced by glycolysis in absence of O<sub>2</sub>.

Answer: D

12. Colle's fracture is associated with

- A. femur
- B. ulna
- C. humerus
- D. radius

Detailed Answer:

A fracture of the distal end of radius, in which the distal fragment displaced posteriorly is called

**Colles' fracture**

Answer: D

13. Nucleus pulposus is found in

- A. brain
- B. nucleus
- C. intervertebral disc
- D. liver

Detailed Answer:

Nucleus pulposus is the central soft part of intervertebral disc representing remains of notochord (shock absorber).

Answer: C

14. The muscle band that remains unchanged during contraction and relaxation of the skeletal muscle is

- A. I
- B. H
- C. A
- D. A-line

Detailed Answer:

During contraction and relaxation of muscles, both I-band and **H-zone progressively shorten and disappears.**

**Dark A-band** (anisotropic) **undergo no change** during contraction and relaxation of muscle fibres.

Answer: C

15. Muscle pump is

- A. beating of heart
- B. squeezing effect of muscles upon veins running through them
- C. peristaltic wave that travel along the alimentary canal
- D. None of the above

Detailed Answer:

When muscles contract, they have squeezing effect on veins running through them, this is called muscle pump.

Answer: B

16. Elbow joint is an example of

- A. pivot joint
- B. hinge joint
- C. gliding joint
- D. ball and socket joint

Detailed Answer:

In hinge joint, the convex surface of one bone fits into the concave surface of another bone, e.g., knee, elbow and interphalangeal joints.

Answer: B

17. Actin binding sites are located on

- A. troponin
- B. tropomyosin
- C. meromyosin
- D. Both (b) and (c)

Detailed Answer:

Each actin filament is made of two 'F' (filamentous) actins helically wound to each other. Each 'F' actin is a polymer of monomeric 'G' (Globular) actins. Two filaments of other proteins, tropomyosin also runs close to the 'F' actins throughout its length. A complex protein troponin is distributed at regular intervals on the tropomyosin. In the resting state a subunit of troponin marks the active binding sites for myosin on the actin filaments.

Answer: B

18. Transverse ligament is found in

- A. axis
- B. atlas
- C. sacrum
- D. thoracic vertebra

Detailed Answer:

A transverse ligament is found in atlas. It divides the neural foramen of atlas into a smaller anterior (front) odontoid fossa and a posterior, larger vertebral foramen.

Answer: B

19. The lactic acid generated during muscle contraction is converted to glycogen in

- A. muscles
- B. kidney
- C. pancreas
- D. liver

Detailed Answer:

During anaerobic situation, lactic acid formation becomes start by the body cells. Later on, this lactic acid is delivered by the blood to the liver, where lactic acid dehydrogenase enzyme converts lactic acid to pyruvic acid.

Answer: D

20. Consider the following statements.

I. In man, vertebral column has 33 bones organized as 28 bones.

II. Pelvic girdle is made up of two fused bones only.

III. Osteoporosis is characterized by micro-architectural deterioration of the bone.

- A. I is correct
- B. II is correct
- C. III is correct
- D. I is incorrect

Detailed Answer:

**Osteoporosis** is a disease, in which bones loses minerals and fibres from its matrix. Imbalances of hormones like calcitonin, parathyroid and sex hormones, deficiencies of calcium and vitamin-D are the main causes of osteoporosis.

Answer: C