

## LOCOMOTION AND MOVEMENT

1. Skull of mammals is  
(A) Amphicondyloous                      (B) Condylless  
(C) Dicondyloous                        (D) Monocondylous
2. In the larynx of rabbit which one of the following, is the biggest cartilage  
(A) Arytenoid cartilage                (B) Cricoid cartilage  
(C) Thyroid cartilage                    (D) Tracheal cartilage
3. In rabbit the basihyal is present in  
(A) Collar bone                            (B) Hip bone  
(C) Shoulder blade                        (D) Tongue bone
4. Obturator foramen is present in  
(A) Skull                                    (B) Radio-ulna  
(C) Pelvic girdle                         (D) Quadrate
5. Haversian canal consists of  
(A) Nerve fibres only  
(B) An artery and a vein  
(C) An artery, a vein, lymphatic vessels, nerve fibres and cells.  
(D) A hollow case of tissue.

6. A cotyloid bone is found in  
(A) Pelvic girdle of frog                      (B) Pelvic girdle of rabbit  
(C) Pectoral girdle of rabbit                (D) Skull of frog
7. Which of the following structure joins biceps muscles with radius-ulna  
(A) Tendon                                      (B) Small muscles  
(C) Ligament                                    (D) None of the above
8. A genetic disorder resulting in progressive degeneration of skeletal muscles is called  
(A) Muscular dystrophy                      (B) Myathenia gravis  
(C) Tetany                                        (D) Arthritis
9. Which one of the following sets of ions are necessary in the chemical events for muscle contraction  
(A)  $Na^+$  and  $K^+$  ions                      (B)  $Ca^{++}$  and  $Mg^{++}$  ions  
(C)  $Na^+$  and  $Ca^{++}$  ions                    (D)  $Na^+$  and  $Mg^{++}$  ions
10. Which of the following helps in the articulation of the bones of the forelimbs with the axial skeleton?  
(A) Sternum                                      (B) Ribs  
(C) Pectoral girdle                            (D) Pelvic girdle

11. Following are the events which occur during muscle contraction. Arrange them in a proper sequence.
- a. The sarcoplasmic reticulum releases the stored  $\text{Ca}^{++}$  which binds with the specific sites present on the troponin component of the thin filaments.
  - b. A neurotransmitter is released at the neuromuscular junction.
  - c. The sarcolemma is depolarised which results in the inflow of  $\text{Na}^+$  inside the sarcomere.
  - d. Conformational change occurs in the troponin molecule and the active sites present on F-actin molecules are exposed.
  - e. Myosin head, now binds with active site of actin.
  - f. During relaxation, the  $\text{Ca}^{++}$  is pumped back into the sarcoplasmic reticulum. Troponin masks the active sites for the myosin.
- (A) c, b, d, a, e, f                                      (B) b, c, d, a, e, f  
(C) b, c, a, d, e, f                                      (D) b, c, a, e, d, f

12. Gliding joints are present between
- (A) Phalanges of toes
  - (B) Acetabulum and femur
  - (C) Pre and post zygapophysis of successive vertebrae
  - (D) Atlas and axis

13. The upper ends of the forearm bones articulate with each other by

- (A) Ball and socket joint                      (B) Hinge joint  
(C) A pivot joint                                (D) Ellipsoid joint

14. The butterfly shaped bone at the base of the cranium which articulates with all the other cranial bones to hold them together, has sella turcica is

- (A) Ethmoid                                      (B) Sphenoid  
(C) Parietal                                      (D) Occipital

15. During contraction of a muscle fibre

- a. Binding of  $\text{Ca}^{2+}$  ions to Tpn stimulates the contraction.  
b. The length of 'O' band increases.  
c. The length of 'A' band remains the same.  
d. The 'H' zone and 'I' bands increase in length

Which of these statements are correct?

- (A) b, c    (B) a, b, c  
(C) b, c, d                                        (D) a, b, c, d

16. Which of the following is not correct for red muscle fibres?

- (A) Myoglobin content is very high.  
(B) Amount of mitochondria is very high.  
(C) They have very high concentration of endoplasmic reticulum.  
(D) They are also called aerobic muscle fibres.

17. An autoimmune disorder of muscles that causes paralysis of skeletal muscles, resulting in their weakening and degeneration is

- (A) Poliomyelitis
- (B) Myasthenia gravis
- (C) Rigor mortis
- (D) Muscular tetany

18. ATPase activity is located on

- (A) Myosin shaft
- (B) Myosin tail
- (C) Myosin head
- (D) All of the above

19. At neuromuscular junction the following transmitter is released

- (A) Acetylcholine
- (B) Bradykinin
- (C) Histamine
- (D) Serotonin

20. Single unit smooth muscle refers to

- (A) Single muscle fiber
- (B) Multiple muscle fibers contracting as a unit.
- (C) Each muscle fiber contracting independently of the other.
- (D) Single stimulus to its nerve cause repeated firing of action potential.

21. The function of T- Tubules and membrane of Krause is
- (A) To break the dark band into 2 halves
  - (B) Protein synthesis
  - (C) Glycogen storage
  - (D) Transport of signals and nutrients
22. Striated muscles are found in
- (A) Arms
  - (B) Legs
  - (C) Upper part of pharynx
  - (D) All of these
23. Intercalated discs are characteristically found in
- (A) Smooth muscles
  - (B) Striated muscles
  - (C) Cardiac muscles
  - (D) All of these
24. Striated muscle fibers are
- (A) Binucleated
  - (B) Uninucleated
  - (C) Multinucleated
  - (D) Anucleated
25. Floating ribs of thoracic cage are:
- (A) 1st to 7th Pair
  - (B) 8th to 9th pair
  - (C) 8th to 10th Pair
  - (D) 11th to 12 Pair
26. Which of the following forms thoracic cage of man?
- (A) Ribs and sternum
  - (B) Ribs and thoracic vertebrae
  - (C) Ribs, sternum and lumbar vertebrae

(D) Ribs, sternum and thoracic vertebrae

27. In mammals, the lower jaw is made of:

(A) Medulla

(B) Maxilla

(C) Mandible

(D) Ethmoid

28. Hyoid bone is located at the:

(A) front of the skull

(B) behind the skull

(C) top of the buccal cavity

(D) floor of the buccal cavity

29 Acetabulum occur in:

(A) cranium

(B) vertebrae

(C) pelvic girdle

(D) pectoral girdle

30. Arthritis is caused by

(A) Lack of synovial fluid

(B) Deposition of uric acid crystal in synovial cavity

(C) Ossification of articular cartilage

(D) All of these

31. During the contraction of a vertebrate skeletal muscle fibre, calcium ions

(A) break cross bridges by acting as a cofactor in the hydrolysis of ATP.

- (B) bind with troponin, changing its shape so that myosin-binding sites on actin are exposed.
- (C) transmit action potentials from the motor neuron to muscle fibres.
- (D) re-establish the polarization of plasma membrane following an action potential.

32. According to sliding filament theory of muscle contraction

- (A) Thick filaments of actin and myosin walk along cross bridges towards centre of sarcomere.
- (B) Tendons push the muscle ends together which causes sarcomere shortening.
- (C) Sarcomeres shorten when thin filaments move towards the centre of sarcomere.
- (D) Calcium causes myosin heads to release from actin when contraction is over.

33. Mark the wrong statement regarding the structure of muscle protein?

- (A) Each actin filament is made of two filamentous actins helically wound to each other.
- (B) Tropomyosin consists of two filaments.
- (C) A subunit of troponin masks the active binding site for actin on the myosin filament.
- (D) Myosin filaments consist of many similar meromyosin.



34. The motor unit in vertebrate skeletal muscle refers to
- (A) one myofibril and all its sarcomeres.
  - (B) one sarcomere and all of the muscle fibres on which it synapses.
  - (C) one motorneuron and all of the muscle fibres on which it synapses.
  - (D) one actin binding site and its myosin partner.

35. Match the type of joints given in column I with their location given in column II

Column I	Column II
a. Ball and socket joint	(i) Between carpal and metacarpal of thumb
b. Gliding joint	(ii) Between the carpals
c. Saddle joint	(iii) Between atlas and axis
d. Pivot joint	(iv) Between humerus and pectoral girdle

- (A) a(i), b(ii), c(iii), d(iv) (B) a(iv), b(i), c(ii), d(iii) (C) a(iv), b(ii), c(i), d(iii) (D) a(iv), b(iii), c(ii), d(i)

36. Choose an incorrect statement

- (A) Sternum is present on ventral side of body
- (B) In a muscle fibre  $Ca^{++}$  is stored in sarcoplasmic reticulum.

- (C) Tropomyosin is present in thick filaments
- (D) H-zone of skeletal muscle fibre represents only thick filaments.

37. The contractile and regulatory protein of a muscle are respectively
- (A) Tubulin and troponin
  - (B) Tropomyosin and actin
  - (C) Actin and tropomyosin
  - (D) Myosin and actin
38. Tetany that is rapid spasms in muscles due to low  $\text{Ca}^{++}$  in body fluid is caused due to deficiency of
- (A) Thyroxine
  - (B) Parathormone
  - (C) Cortisol
  - (D) Aldosterone
39. Which of the following bones is not a part of axial skeleton?
- (A) Skull bones
  - (B) Bones of vertebral column
  - (C) Bones of sternum and ribs
  - (D) Bones of pectoral and pelvic girdles
40. Rigidity produced in muscles after the death of person is called
- (A) Muscle twitch
  - (B) Fatigue
  - (C) Rigor mortis
  - (D) Tetanus

41. Which of the following is not correct for red muscle fibres?
- (A) Myoglobin content is very high.
  - (B) Amount of mitochondria is very high.
  - (C) They have very high concentration of endoplasmic reticulum.
  - (D) They are also called aerobic muscle fibres.
42. Which one of the following is a bone of hind-limb?
- (A) Ilium
  - (B) Scaphoid
  - (C) Cuboid
  - (D) Triquetrum
43. How many bones in the cranium of human beings are paired?
- (A) Four
  - (B) Two
  - (C) One
  - (D) Eight
44. Human body resting on toes is an example of
- (A) 1st class lever mechanism
  - (B) 2nd class lever mechanism
  - (C) 3rd class lever mechanism
  - (D) Lever having fulcrum between load and effort.

45. Read the following paragraph having three blanks A, B and C.

\_\_\_\_\_ is a large triangular flat bone situated in the dorsal part of the thorax between \_\_\_\_\_. The dorsal, flat, triangular body of this bone has a slightly elevated ridge called the spine which projects as a flat, expanded process called as the \_\_\_\_\_.

The correct option for all the three blanks is

	A	B	C
(A)	Scapula	2 to 4th ribs	Acromian
(B)	Scapula	2 to 6th ribs	Clavicle
(C)	Ilium	Sacrum	Iliac crest
(D)	Scapula	2 to 7th ribs	Acromian

## ANSWERS

- |        |     |        |     |         |        |     |         |
|--------|-----|--------|-----|---------|--------|-----|---------|
| 1. (C) | 6.  | 2. (C) | 7.  | 3. (D)  | 4. (C) | 9.  | 5. (C)  |
| (B)    | 11. | (A)    | 12. | 8. (A)  | (B)    | 14. | 10. (C) |
| (C)    | 16. | (C)    | 17. | 13. (C) | (B)    | 19. | 15. (A) |
| (C)    | 21. | (B)    | 22. | 18. (C) | (A)    | 24. | 20. (C) |
| (D)    | 26. | (D)    | 27. | 23. (C) | (C)    | 29. | 25. (D) |
| (D)    | 31. | (C)    | 32. | 28. (D) | (C)    | 34. | 30. (D) |
| (B)    | 36. | (C)    | 37. | 33. (C) | (C)    | 39. | 35. (C) |
| (C)    | 41. | (C)    | 42. | 38. (B) | (D)    | 44. | 40. (C) |
| (C)    |     | (C)    |     | 43. (B) | (B)    |     | 45. (D) |

## SOLUTIONS

1. One pair occipital condyles. Thyroid cartilage is a large,
2. shield-shaped cartilage which supports the larynx ventrally and laterally. Basihyal is a small plate lying transversely
3. between the two rami of mandible and bearing anterior and posterior pairs of cornua. Obturator foramen are large, membrane covered spaces separating laterally the pubis
4. from ischium which are otherwise fused. Haversian canal system is found in bones to assist in blood and nutrition supply.
- 5.

6. Ilium and ischium participate in the formation of acetabulum but a small cotyloid bone prevents pubis from reaching up to acetabulum in rabbit. Tendon is a cord or
7. band of comparatively inextensible (non-elastic) connective tissue attaching muscle tissue to bone. A genetic disorder resulting in progressive degeneration of skeletal muscles is
8. called muscular dystrophy. Mineral ions required for muscle contraction are  $Ca^{++}$  and
9.  $Mg^{++}$ .
10. Pectoral girdle helps in the articulation of the bones of the forelimbs with the axial skeleton.