EXERCISE

1. Cross bridge are formed during :-
(1) Muscle contraction
(2) Nervous contraction
(3) Tissue regeneration
(4) All the above

2. During contraction of muscles :-
(1) Actin Filament slide over actin
(2) Myosin filament slide over actin
(3) Actin filament slide over myosin
(4) Myosin filament slide over actin

3. Purkinje fibres :-
(1) Muscle fibres (2) Nerve fibres
(3) Axon (4) Dendron

4. Mitochondria in cardiac muscles :-
(1) More than other muscles fibres
(2) Less than other muscles fibres
(3) Equal than other muscles fibres
(4) None

5. SA Node is :-
(1) Group of specilised muscle fibres
(2) Cartilage in node of heart
(3) Connective tissue node
(4) None

6. Rigor mortis is :-
(1) Contraction of muscles after death
(2) Contraction of muscles before death
(3) Shivering of muscles
(4) None

7. Red muscle fibres are more in :-
(1) Smooth muscles
(2) Skeletal muscles
(3) Cardiac muscles
(4) None

8. Unstriped muscle are also known as :-
(1) Visceral (2) Smooth
(3) Involuntary (4) All

9. Contractile unit of muscle fibres :-
(1) H line (2) Sarcomere
(3) H zone (4) None

10. Epimycium of mucles are made up of :-
(1) White fibrous connective tissue
(2) Adipose connective tissue
(3) Reticular connective tissue
(4) Areolar connective tissue

11. Myosin filament appear dark under microscope due to :-
(1) Dark colour
(2) Melanin colour
(3) Black colour
(4) Double refractive index

12. Contraction of shortest duration is of :-
(1) Heart (2) Eye lids
(3) Arm (4) Jaws

13. ATP-ase activity found in :-
(1) Myosin filament (2) Actin filament
(3) Both (4) None

14. Total No. of muscles in our body is :-
(1) 256 muscles (2) 639 muscles
(3) 400 muscles (4) 421 muscles

15. Longest smooth muscles are :-
(1) Intestine (2) Stomach
(3) Uterus (Pregnant) (4) Urinary bladder

16. Strongest muscles :-
(1) Thigh muscle (2) Leg muscle
(3) Arm muscle (4) Jaw muscle

17. Muscles of Iris & Ciliary body originate :-
(1) Ectoderm (2) Mesoderm
(3) Endoderm (4) All of above

18. Cardiac muscles Fibres :-
(1) Involuntary (2) Non-fatigue
(3) Striated like (4) All

19. Striated muscle fibres :-
(1) Trachea (2) Lung
(3) Leg (4) Gall bladder

20. Smooth muscles fibres :-
(1) Spindle shaped
(2) Unbranched & Involuntary
(3) UniNucleated
(4) All of above

21. Basic unit of muscle contraction :-
(1) Actin (2) Myosin
(3) Sarcomere (4) Actomyosin

22. Chemical Ions responsible for muscles contraction
(1) Ca^{++} & K^{+}
(2) Na^{+} & K^{+}
(3) Na^{+} & Ca^{++}
(4) Ca^{++} & mg^{++} Ions

23. Sliding theory muscle contraction proposed by :
(1) Hansen
(2) Huxley
(3) Bohr
(4) Huxley, Huxlay & Hensen

24. Smallest muscles in rabbit & man :-
(1) Gluteus minimus (2) Stapedius
(3) Sartorius (4) Gracilis

25. In the thin filament of skeletal muscle fibre, a small globular protein that masks the active sites on the F-actin is
(1) G-actin (2) Actin
(3) Tropomyosin (4) Troponin

26. Which of the following is important for muscle contraction and nerve impulse transmission ?
(1) Ca^{+2} ion (2) mg^{+2} ions
(3) Both A & B (4) Fe^{+2} ions

27. During strenuous excercise, glucose is converted into
(1) Starch (2) Glycogen
(3) Lactic acid (4) Pyruvic acid

28. A rabbit runs very fast but after some time feel tired because :
(1) Formation of lactic acid in muscles
(2) Formation of succinic acid in muscles
(3) Loss of energy
(4) None of the above

29. The cytoplasmic segment of striated muscle fibre is termed :
(1) Metamere
(2) Neuromere
(3) Sarcoplasm
(4) Sarcomere

30. Statements about the mechanism of muscle contraction are given below.
I. Acetylcholine is released when the neural signal reaches the motor end plate.
II. Muscle contraction is initiated by a signal sent by CNS via a sensory neuron.
III. During muscle contraction isotropic band gets elongated.
IV. Repeated activation of the muscles can lead to lactic acid accumulation.
Identify the correct statement :
(1) I and IV are correct
(2) I and III are correct
(3) II and III are correct
(4) I and II are correct

31. The sensation of fatigue in the muscles after prolonged strenuous physical work, is caused by
(1) a decrease in the supply of oxygen
(2) minor wear and tear of muscle fibres
(3) the depletion of glucose
(4) the accumulation of lactic acid

32. Which of the following option shows correct order of some stages of muscle contraction from the beginning to the end of the process?
(1) Stimuli → Neurotransmitter secretion → Release of Ca^{2+} → Cross bridges formation → Excitation of T-system → Sliding of actin filaments.
(2) Stimuli → Neurotransmitter secretion → Excitation of T-system → Release of Ca^{2+} → Cross bridges formation → Sliding of actin filaments → 'H' band diminishes
(3) Stimuli → Excitation of T-system → Neurotransmitter secretion → Cross bridges formation → Sliding of actin filaments → 'H' band diminshes
(4) Stimuli → Neurotransmitter secretion → Cross bridges formation → Excitation of T-system → Sliding of actin filaments.

33. What is the location of troponin in the process of muscle contraction ?
(1) Attached to myosin filament
(2) Attached to tropomyosin
(3) Attached to myosin cross bridge
(4) Attached to T-tubule

34. Read the statements regarding muscle proteins.
I. Actin is a thin filament and is made up of two F-actins
II. The complex protein, tropomyosin is distributed at regular intervals of troponin.
III. Myosin is a thick filament which is also a polymerized protein.
IV. The globular head of meromyosin consists of light meromyosin (LMM).
Which of the above statements are correct ?
(1) I, II and III (2) I, II and IV
(3) I and III (4) II and IV

35. Which one of the following is wrongly mateched?
(1) Myosin - Contracting protein
(2) Smooth muscle - voluntary muscle
(3) Red muscle - Myoglobin
(4) Troponin - Fibrous protein.

36. In the thin filament of skeletal muscle fibre, a small globular protein that masks the active sites on the F-actin is :-
(1) G-actin (2) tropomyosin
(3) troponin (4) myosin

37. Which of the following statements is/are correct/ incorrect ?
I. A-bands of the muscle is dark and contain myosin.
II. I-bands are the light bands and contain actin.
III. During muscle contraction, the A-band contracts.
IV. The part between the two Z-lines is called as sacromere.
V. The central part of thin filament, not overlapped by thick filament is called H-zone.
(1) I, II, and III are correct, while IV and V are incorrect
(2) I, III, V are correct, while II, IV are incorrect
(3) I and II are correct, while III, IV and V are incorrect
(4) I, II and IV are correct, while III and V are incorrect.

38. Troponin is a
(1) digestive enzyme (2) muscle protein
(3) high energy reservior (4)water soluble vitamin

39. The contractive protein of skeletal muscle involving ATPase activity as
(1) tropomyosin (2) myosin
(3) α-actinin (4) troponin

40. Which statement is correct for muscle contraction?
(1) Length of H-zone is increased
(2) Length of A-band remains constant
(3) Length I-band gets increased
(4) Length of two Z-lines get increased

ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	**1**	**3**	**1**	**1**	**1**	**1**	**3**	**4**	**2**	**1**	**4**	**2**	**1**	**2**	**3**
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	**4**	**1**	**4**	**3**	**4**	**3**	**4**	**4**	**2**	**4**	**1**	**3**	**1**	**4**	**1**
Que.	31	32	33	34	35	36	37	38	39	40					
Ans.	**4**	**2**	**2**	**3**	**2**	**3**	**4**	**2**	**2**	**2**					