CHAPTER 20

LOCOMOTION AND MOVEMENT

MULTIPLE CHOICE QUESTIONS

i.

ii.

iii.

1. Match the following and mark the correct option

Column I

- A. Fast muscle fibres
- B. Slow muscle fibres
- C. Actin filament
- D. Sarcomere
- iv. I-band

Column II

Myoglobin

Lactic acid

Contractile unit

Options:

- a. A-i, B-ii, C-iv, D-iii
- b. A-ii, B-i, C-iii, D-iv
- c. A-ii, B-i, C-iv, D-iii
- d. A-iii, B-ii, C-iv, D-i
- (\mathbf{C})
- 2. Ribs are attached to
 - a. Scapula
 - b. Sternum
 - c. Clavicle
 - d. Ilium
- 3. What is the type of movable joint present between the atlas and axis?
 - a. Pivot
 - b. Saddle
 - c. Hinge
 - d. Gliding
- 4. ATPase of the muscle is located in
 - a. Actinin
 - b. Troponin
 - c. Myosin
 - d. Actin

- 5. Intervertebral disc is found in the vertebral column of
 - a. Birds
 - b. Reptiles
 - c. Mammals
 - d. Amphibians
- 6. Which one of the following is showing the correct sequential order of vertebrae in the vertebral column of human beings?
 - a. Cervical lumbar thoracic sacral coccygeal
 - b. Cervical thoracic sacral lumbar coccygeal
 - c. Cervical sacral thoracic lumbar coccygeal
 - d. Cervical thoracic lumbar sacral coccygeal
- 7. Which one of the following pairs is incorrect?
 - a. Hinge joint: between Humerus and Pectoral girdle
 - b. Pivot joint : between atlas and axis
 - c. Gliding joint : between the carpals
 - d. Saddle joint : between carpals and metacarpals of thumb
- 8. Knee joint and elbow joint are examples of
 - a. Saddle joint
 - b. Ball and socket joint
 - c. Pivot joint
 - d. Hinge joint
- 9. Macrophages and leucocytes exhibit
 - a. Ciliary movement
 - b. Flagellar movement
 - c. Amoeboid movement
 - d. Gliding movement
- 10. Which one of the following is not a disorder of bone?
 - a. Arthritis
 - b. Osteoporosis
 - c. Rickets
 - d. Atherosclerosis
- 11. Which one of the following statement is incorrect?
 - a. Heart muscles are striated and involuntary
 - b. The muscles of hands and legs are striated and voluntary
 - c. The muscles located in the inner walls of alimentary canal are striated and involuntary

- Muscles located in the reproductive tracts are unstriated and d. involuntary
- Which one of the following statements is true? 12.
 - a. Head of humerus bone articulates with acetabulum of pectoral girdle.
 - b. Head of humerus bone articulates with the glenoid cavity of pectoral girdle.
 - Head of humerus bone articulates with acetabulum of pelvic c. girdle.
 - Head of humerus bone articulates with a glenoid cavity of pelvic d. girdle.
- 13. Muscles with characteristic striations and involuntary are
 - Muscles in the wall of alimentary canal a.
 - Muscles of the heart b.
 - c. Muscles assisting locomotion
 - Muscles of the eyelids d.

14. Match the followings and mark the correct option

Column II

Sternum A.

- Synovial fluid i.
- B. **Glenoid** Cavity

Column I

ii. Vertebrae Pectoral girdle

iii.

- C. Freely movable joint Cartilaginous joint
- Flat bones iv.

Options:

D.

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

VERY SHORT ANSWER TYPE QUESTIONS

- Name the cells/tissues in human body which
 - exhibit ameboid movement a.
 - b. exhibit ciliary movement
- 2. Locomotion requires a perfect coordinated activity of muscular, _____, systems

- 3. Sarcolemma, sarcoplasm and sarcoplasmic reticulum refer to a particular type of cell in our body. Which is this cell and to what parts of that cell do these names refer to?
- 4. Label the different components of actin filament in the diagram given below.



- 5. The three tiny bones present in middle ear are called ear ossicles. Write them in correct sequence begining from ear drum.
- 6. What is the difference between the matrix of bones and cartilage?
- 7. Which tissue is afflicted by Myasthenia gravis? What is the underlying cause?
- 8. How do our bone joints function without grinding noise and pain?
- 9. Give the location of a ball and socket joint in a human body
- 10. Our fore arm is made of three different bones. Comment.

SHORT ANSWER TYPE QUESTIONS

- 1. With respect to rib cage, explain the following:
 - a. Bicephalic ribs
 - b. True ribs
 - c. Floating ribs
- 2. In old age, people often suffer from stiff and inflamed joints. What is this condition called? What are the possible reasons for these symptoms?
- 3. Exchange of calcium between bone and extracellular fluid takes place under the influence of certain hormones
 - a. What will happen if more of Ca⁺⁺ is in extracellular fluid?
 - b. What will happen if very less amount of $\mathrm{Ca}^{\scriptscriptstyle ++}$ is in the extracellular fluid?

- 4. Name atleast two hormones which result in fluctuation of Ca++ level.
- 5. Rahul exercises regularly by visiting a gymnasium. Of late he is gaining weight. What could be the reason? Choose the correct answer and elaborate.
 - a. Rahul has gained weight due to accumulation of fats in body.
 - b. Rahul has gained weight due to increased muscle and less of fat.
 - c. Rahul has gained weight because his muscle shape has improved.
 - d. Rahul has gained weight because he is accumulating water in the body.
- 6. Radha was running on a treadmill at a great speed for 15 minutes continuously. She stopped the treadmill and abruptly came out. For the next few minutes, she was breathing heavily/fast. Answer the following questions.
 - a. What happened to her muscles when she did strenuously exercised?
 - b. How did her breathing rate change?
- 7. Write a few lines about Gout.
- 8. What is the source of energy for muscle contraction?
- 9. What are the points for articulation of Pelvic and Pectoral girdles?

LONG ANSWER TYPE QUESTIONS

- 1. Calcium ion concentration in blood affects muscle contraction. Does it lead to tetany in certain cases? How will you correlate fluctuation in blood calcium with tetany?
- 2. An elderly woman slipped in the bathroom and had severe pain in her lower back. After X-ray examination doctors told her it is due to a slipped disc. What does that mean? How does it affect our health?
- 3. Explain sliding filament theory of muscle contraction with neat sketches.
- 4. How does a muscle shorten during its contraction and return to its original form during relaxation?
- 5. Discuss the role of Ca²⁺ ions in muscle contraction. Draw neat sketches to illustrate your answer.
- 6. Differentiate between Pectoral and Pelvic girdle.