

UNIT-III : HUMAN PHYSIOLOGY

7. LOCOMOTION AND MOVEMENT

1 VSAQ + 1 SAQ [2 M + 4M = 6 M]

ROOT POINTS

1. **Locomotions** are the voluntary movements of a body like movement of limbs, jaws, eyelids, tongue etc., Walking, running, climbing, flying, swimming are also some other forms of locomotory movements.

Human body exhibits three main types of **movements** i) amoeboid ii) ciliary iii) muscular

2. **Main contents of this chapter** are i) Types of movement ii) Muscle iii) Skeletal system iv) Joints v) Disorders of muscular and skeletal system.

3. **Muscles** are meant for **movement**.

4. The **movements** are (i) internal (peristalsis) (ii) movements of various parts like head, eyes, hands (iii) Locomotory movements (one place to another like walking, running)

5. Bones and muscles together form **powerful locomotory organs**.

6. *Muscles classification based on location:* **Skeletal, Visceral, Cardiac**

7. Skeleton gives '**support and form**' to the body.

8. **Skeletal muscle** is Long, cylindrical with blunt ends and it is voluntary. [SAQ]

9. Each Skeletal muscle is made up of **muscle bundles (Fascicles)**.

10. The muscles are attached to skeleton by **tendons**.

11. **Red muscle fibers** are called aerobic muscles. [VSAQ]

12. **White muscle fibers** are called anaerobic muscles. [VSAQ]

13. The contractile proteins of a muscle are **actin and myosin**. [SAQ]

14. **Actin** is a **thin** contractile protein and it is present in light band called **isotropic band**. [VSAQ]

15. **Myosin** is **thick** contractile protein and it is present in dark bands called **anisotropic band**.

16. Synovial Joint acts a **lubricant for free movement of joint**. [SAQ]

17. T tubule and the two terminal cisternae at its sides form the **triad system**. [IPE]

18. **Sliding filament theory** explains the process of muscle contraction which includes Initiation by Neural Signal, Neuromuscular Junction, Generation of Action Potential, Cross-Bridge Formation, Power Stroke. [SAQ]

19. **Cardiac Muscle** is short, cylindrical with flat ends and it is involuntary. [SAQ]

20. **Ear ossicles are** Malleus, Incus, Stapes. [VSAQ]

21. **Ribs** of human being form the thoracic cage. There are **12 pairs** of ribs. [SAQ]
22. **Joints** between bones facilitate **free movement** of different parts of the body. [SAQ]
23. **Synovial Joint** is free moving joint (Diarthroses). Synovial joints are characterized by the presence of a fluid filled synovial cavity between the articulating surfaces of the two bones. [SAQ]
24. **Synovial joints:** Ball & socket, Hinge joint, Pivot joint, gliding joint, condyloid joint, saddle joint. [SAQ]
25. The joint between Atlas and Axis is a **pivot joint** (Atlas to Axial joint) [VSAQ]
26. The joint between carpal and metacarpal of human thumb is the **saddle joint**. [VSAQ]
27. Accumulation of uric acid crystals in joints causes their **inflammation**. [NEET-2013]
28. Gliding joint lies between **carpals**. [NEET-2014]
29. Stimulation of a muscle fiber by a motor neuron occurs at the **neuromuscular junction**. [NEET-2014]
30. Glenoid cavity articulates **humerus with scapula**. [NEET-2015]
31. Lack of relaxation between successive stimuli in sustained muscle contraction is known as **tetanus**. [NEET-2016]
32. Osteoporosis, an age-related disease of skeletal system, may occur due to **decreased level of estrogen**. [NEET-2016]
33. The pivot joint between atlas and axis is a type of **synovial joint**. [NEET-2017]
34. The ciliated epithelial cells which move particles or mucous in a specific direction in humans are mainly present in **Bronchioles and fallopian tubes**. [NEET-2019]
35. Chronic auto immune disorder is called **myasthenia gravis**. [NEET-2021]
36. Striated appearance of skeletal muscle fibre is due to distribution pattern of **actin and myosin proteins**. [NEET-2023]
37. Myasthenia gravis, Rheumatoid arthritis, systemic Lupus Erythematosus are **Autoimmune disorders**. [NEET-2024]