



Brain International School

Vikas Puri, New Delhi

ASSIGNMENT NO. 5

SUBJECT: BIOLOGY

CLASS-XI

NOV,2025

Chapter-17 Locomotion and Movement

MULIPLE QUESTION ANSWERS

1. Who shows amoeboid movement?
a) Amoeba b) leucocytes c) macrophage d) all a,b,c
2. Which muscle does not fatigue and possesses abundant blood supply during life span?
a) Skeletal muscle b) smooth muscle c) cardiac muscle d) both b and c
3. Which muscle possesses multinucleus condition(Syncytium)?
a)Skeletal muscle b) smooth muscle c) cardiac muscle d) none of the above
4. In which muscle, amount of myoglobin is high?
a) Red muscle b) white muscle c) Non-striated muscle a) both a and b
5. How many bones is the skull made up of?
a) 23 b)22 c)21 d)20

Short Answer Type Questions

1. What makes the synovial joints freely movable? List any four types of synovial joints.
2. What is osteoporosis? Name two factors which are responsible for osteoporosis.
3. What are floating ribs? How many of them are there?

Long Answer Type Questions

1. Differentiate between Endoskeleton and Exoskeleton.
2. List any three disorders of the muscular system.
3. Explain sliding filament theory of muscle contraction.
4. Describe the various kinds of joint in human body. According to mobility giving one example of each.

Case Based Questions:

Skeletal system consists of a framework of bones and a few cartilages. This system has a significant role in movement shown by the body. Bone and cartilage are specialised connective tissues. The former has a very hard matrix due to calcium salts in it and the latter has slightly pliable matrix due to chondroitin salts. In human beings, this system is made up of 206 bones and a few cartilages. It is grouped into two principal divisions – the axial and the appendicular skeleton. Axial skeleton comprises 80 bones distributed along the main axis of the body. The skull, vertebral column,

sternum and ribs constitute axial skeleton. The skull is composed of two sets of bones – cranial and facial, that totals to 22 bones. Cranial bones are 8 in number.

They form the hard protective outer covering, cranium for the brain. The facial region is made up of 14 skeletal elements which form the front part of the skull.

1.) Which of the following is the connective tissue has pliable matrix?

- a) Bone b) Blood c) Cartilages d) All of the above

2.) Human skull is composed of _____

- a) Cranial bones b) Facial bones c) Pliable matrix d) both a and b

3.the vertebral formula of human beings is

- a) C7, T12,L5,S1,C1 b) C8, T12,L5,S1,C1 c) C7, T11,L5,S1,C1 d) C7, T12,L4,S1,C1

4. The total number of bones in axial skeleton is

- a) 90 b)80 c)85 d)88

5. Ribs are attached to the

- a) scapula b) sternum c) clavicle d) ileum

Chapter-18 Neural control and coordination

MULIPLE QUESTION ANSWERS

1) The resting membrane potential is established primarily due to:

- (a) Sodium-potassium pump (b) Efflux of potassium (c) Influx of sodium (d) Influx of chloride

2) The thalamus and the hypothalamus are located in the

- (a) Brain stem (b) Cerebrum (c) Cerebellum (d) Diencephalon

3) At a neuromuscular junction, synaptic vesicles discharge ____.

- (a) Acetylcholine (b) Epinephrine (c) Adrenaline (d) None of these

4) Which layer is in contact with brain tissues?

- (a) Piamater (b) Arachnoid (c) Duramater (d) Piamater and Arachnoid

5) Number of cranial nerves in human:

- (a) 12 Cranial Nerves (b) 24 Cranial Nerves (c) 11 Cranial Nerves (d) 29 Cranial Nerves

Short Answer Type Questions

1. What is a synapse?

2.Name the structures involved in the protection of the brain.

Long Answer Type Questions

1. Explain the role of Na^+ in the generation of action potential.

2. Explain the following process of transmission of a nerve impulse across a chemical synapse.

3. Briefly describe the structure of Brain.

Case Based Questions:

The brain is a complex organ that controls thought, memory, emotion, touch, motor skills, vision, breathing, temperature, hunger and every process that regulates our body. Together, the brain and 193 spinal cord that extends from it make up the central nervous system, or CNS. Weighing about 3 pounds in the average adult, the brain is about 60% fat. The remaining 40% is a combination of water, protein, carbohydrates and salts. The brain itself is not a muscle. It contains blood vessels and nerves, including neurons and glial cells. The brain sends and receives chemical and electrical signals throughout the body. Different signals control different processes, and your brain interprets each.

Some make you feel tired, for example, while others make you feel pain. Some messages are kept within the brain, while others are relayed through the spine and across the body's vast network of nerves to distant extremities. To do this, the central nervous system relies on billions of neurons (nerve cells).

1.) An injury sustained by the Hypothalamus is most likely to interrupt

- (a) Coordination during locomotion
- (b) Short term memory
- (c) Regulation of body temperature
- (d) Executive function like decision making

2.) This statement is not associated with Midbrain (a) The central portion of the midbrain is composed of mainly four, round swellings known as corpora quadrigemina.

- (b) Located between the thalamus of the forebrain and pons of the hindbrain.
- (c) The canal called the cerebral aqueduct passes through the midbrain.
- (d) Hindbrain and midbrain constitute the brain stem

3.) What connects two hemispheres of the brain? (a) Pons

- (b) Pia matter
- (c) Corpus callosum
- (d) Diencephalon

3.) Which part of the brain controls higher mental activities like reasoning?

- (a) Temporal lobe (b) Frontal lobe (c) Medulla oblongata (d) Cerebellum

4.) The autonomic nervous system

- (a) enables us to act on the external environment
- (b) transmits motor information to the brain
- (c) regulates the internal environment

(d) is located within the brain

Chapter-19 Chemical coordination and integration

Very Short Answer Questions (1 mark each)

1. Name the master endocrine gland of the human body.
2. Which hormone is known as the “fight or flight” hormone?
3. Name the hormone secreted by the β -cells of the islets of Langerhans.
4. What is the full form of ADH? Mention its main function.
5. Which gland secretes melatonin?
6. Name one hormone that regulates calcium metabolism.
7. Write one difference between endocrine and exocrine glands.
8. Mention one symptom of hypothyroidism.
9. Name the part of the brain that controls the secretions of the pituitary gland.
10. Give one example of a feedback mechanism in the endocrine system.

Short Answer Questions (2–3 marks each)

11. Explain the role of insulin and glucagon in glucose homeostasis.
12. Write a short note on the structure and function of the thyroid gland.
13. How does parathyroid hormone (PTH) regulate calcium balance?
14. What are the physiological effects of adrenaline and noradrenaline?
15. Differentiate between diabetes mellitus and diabetes insipidus.
16. Explain the function of the adrenal cortex.
17. What are hormones? Mention any two properties of hormones.
18. Name the hormones secreted by the posterior pituitary and write their functions.
19. Explain how hormonal disorders can result from hypersecretion and hyposecretion.
20. Define feedback mechanism. Describe its role in maintaining hormonal balance.

Long Answer Questions (5 marks each)

21. Describe the role of the pituitary gland as a master gland. Mention at least five hormones secreted and their functions.
22. Explain the structure and functions of the pancreas as both endocrine and exocrine gland.
23. Discuss the functions of male and female gonadal hormones and their importance.

24. What are the major endocrine glands in the human body? Write their location and main functions in a tabular form.
25. Describe the disorders caused by malfunctioning of the endocrine glands (any three examples).

Application/Reasoning/Diagram-Based Questions (3–5 marks each)

26. A patient shows symptoms like exophthalmos (bulging eyes) and weight loss. Name the disorder, its cause, and hormonal imbalance involved.
27. Observe the diagram of an endocrine gland (draw or paste diagram of pituitary/thyroid/adrenal) and label the parts.
28. How does the secretion of hormones help in maintaining homeostasis in the human body?
29. Justify the statement: “Hormones act as chemical messengers.”
30. Explain how the adrenal medulla and sympathetic nervous system coordinate during stress.