

Neural Control and Coordination — Assignment 1

Class 11 Biology · Topic-wise question bank covering every concept of the chapter · Narayan Gurukul Academy

Instructions: (1) Attempt all questions. This worksheet walks through every concept of the chapter, topic by topic.
(2) The interactive MCQ version of these questions (with instant answer reveal) is available on the notes page.
(3) Universal values: $g = 10 \text{ m/s}^2$ unless stated. Give answers with correct SI units.

Organisation of the Nervous System

MCQ Questions (choose the correct option)

- The nervous system is divided into the
 - central and peripheral nervous systems
 - somatic and autonomic only
 - brain and spinal cord only
 - sympathetic and parasympathetic only
- The autonomic nervous system is divided into
 - sympathetic and parasympathetic
 - central and peripheral
 - somatic and visceral
 - afferent and efferent
- The functional unit of the nervous system is the
 - neuron
 - nephron
 - neuroglia
 - axon
- The somatic nervous system controls
 - voluntary movements
 - involuntary movements
 - heartbeat only
 - gland secretion only

1 Mark Questions

- Name the two main divisions of the nervous system.
- What is the functional unit of the nervous system?
- Name the two divisions of the autonomic nervous system.

2 Mark Questions

- Distinguish between the somatic and autonomic nervous systems.
- Distinguish between the sympathetic and parasympathetic systems.

3 Mark Questions

- Describe the organisation of the nervous system.
- Explain the divisions of the peripheral nervous system.

Structure of a Neuron

MCQ Questions (choose the correct option)

1. The cell body of a neuron is called the
 - (A) cyton
 - (B) axon
 - (C) dendrite
 - (D) synapse
2. The long process of a neuron that carries impulses away is the
 - (A) axon
 - (B) dendrite
 - (C) cyton
 - (D) nissl body
3. The gaps in the myelin sheath are called
 - (A) nodes of Ranvier
 - (B) synapses
 - (C) dendrites
 - (D) nissl bodies
4. The short branched processes of a neuron are
 - (A) dendrites
 - (B) axons
 - (C) cytons
 - (D) nodes

1 Mark Questions

1. What is the cyton?
2. Name the long process that carries impulses away from the cell body.
3. What are nodes of Ranvier?

2 Mark Questions

1. Draw and label the structure of a neuron.
2. State the functions of dendrites and axons.

3 Mark Questions

1. Describe the structure of a neuron.
2. Explain the conduction of a nerve impulse along a myelinated neuron.

Types of Neurons and Nerve Fibres

MCQ Questions (choose the correct option)

1. Neurons that carry impulses towards the CNS are
 - (A) sensory neurons
 - (B) motor neurons
 - (C) interneurons
 - (D) efferent neurons
2. Neurons that carry impulses away from the CNS are

- (A) motor neurons
 - (B) sensory neurons
 - (C) afferent neurons
 - (D) interneurons
3. A neuron with one axon and one dendrite is
- (A) bipolar
 - (B) multipolar
 - (C) unipolar
 - (D) apolar
4. A neuron with one axon and many dendrites is
- (A) multipolar
 - (B) bipolar
 - (C) unipolar
 - (D) apolar

1 Mark Questions

1. What are sensory neurons?
2. What are motor neurons?
3. What is a bipolar neuron?

2 Mark Questions

1. Distinguish between sensory and motor neurons.
2. Classify neurons on the basis of structure.

3 Mark Questions

1. Describe the types of neurons.
2. Explain the types of nerve fibres.

The Synapse and Chemical Transmission

MCQ Questions (choose the correct option)

1. The junction between two neurons is called a
 - (A) synapse
 - (B) node
 - (C) ganglion
 - (D) nerve
2. The chemical released at a synapse is called a
 - (A) neurotransmitter
 - (B) hormone
 - (C) enzyme
 - (D) pigment
3. A synapse that allows the impulse to pass in only one direction is a
 - (A) one-way synapse
 - (B) two-way synapse
 - (C) electrical synapse only

- (D) gap junction
4. The gap between two neurons at a synapse is the
- (A) synaptic cleft
 - (B) node of Ranvier
 - (C) axon hillock
 - (D) myelin sheath

1 Mark Questions

1. What is a synapse?
2. What is a neurotransmitter?
3. What is the synaptic cleft?

2 Mark Questions

1. Distinguish between electrical and chemical synapses.
2. State the role of acetylcholine at a synapse.

3 Mark Questions

1. Describe the structure of a synapse.
2. Explain chemical transmission across a synapse.

Receptors: Taste, Smell and Vision

MCQ Questions (choose the correct option)

1. The receptors for taste are the
 - (A) taste buds
 - (B) rods
 - (C) cones
 - (D) hair cells
2. The receptors for smell are located in the
 - (A) olfactory epithelium
 - (B) retina
 - (C) cochlea
 - (D) skin
3. The photoreceptors of the eye are
 - (A) rods and cones
 - (B) hair cells
 - (C) taste buds
 - (D) olfactory cells
4. Rods are responsible for
 - (A) vision in dim light
 - (B) colour vision
 - (C) smell
 - (D) taste

1 Mark Questions

1. What are taste buds?
2. Where are the smell receptors located?
3. Name the photoreceptors of the eye.

2 Mark Questions

1. Distinguish between rods and cones.
2. Explain how taste is perceived.

3 Mark Questions

1. Describe the receptors for taste, smell and vision.
2. Explain the role of rods and cones in vision.

Central Nervous System: The Brain

MCQ Questions (choose the correct option)

1. The three major parts of the brain are the
 - (A) forebrain, midbrain and hindbrain
 - (B) cerebrum and cerebellum
 - (C) brainstem only
 - (D) medulla only
2. The largest part of the human brain is the
 - (A) cerebrum
 - (B) cerebellum
 - (C) medulla
 - (D) pons
3. The part of the brain that controls balance and coordination is the
 - (A) cerebellum
 - (B) cerebrum
 - (C) medulla
 - (D) thalamus
4. The respiratory and cardiovascular centres are located in the
 - (A) medulla oblongata
 - (B) cerebrum
 - (C) cerebellum
 - (D) thalamus

1 Mark Questions

1. Name the three major parts of the brain.
2. Which part of the brain controls balance?
3. Where is the respiratory centre located?

2 Mark Questions

1. Distinguish between the cerebrum and cerebellum.
2. State two functions of the medulla oblongata.

3 Mark Questions

1. Describe the structure and functions of the human brain.
2. Explain the functions of the forebrain, midbrain and hindbrain.

The Spinal Cord and Reflex Action

MCQ Questions (choose the correct option)

1. The spinal cord is protected by the
 - (A) vertebral column
 - (B) skull
 - (C) rib cage
 - (D) pleura
2. A reflex action is a
 - (A) rapid involuntary response
 - (B) slow voluntary action
 - (C) learned action
 - (D) deliberate action
3. The pathway of a reflex action is called the
 - (A) reflex arc
 - (B) nerve impulse
 - (C) synapse
 - (D) action potential
4. The number of pairs of spinal nerves in humans is
 - (A) 31
 - (B) 12
 - (C) 24
 - (D) 10

1 Mark Questions

1. What is the spinal cord?
2. What is a reflex action?
3. What is a reflex arc?

2 Mark Questions

1. Distinguish between reflex action and voluntary action.
2. Name the parts of a reflex arc.

3 Mark Questions

1. Describe the structure of the spinal cord.
2. Explain a reflex arc with an example.

Nerve Impulse and Movements in Plants

MCQ Questions (choose the correct option)

1. A nerve impulse is transmitted as a
 - (A) wave of depolarisation

- (B) chemical only
 - (C) physical wave only
 - (D) sound wave
2. The resting potential of a neuron is maintained by the
- (A) sodium-potassium pump
 - (B) calcium pump
 - (C) chloride channel
 - (D) water channel
3. The movement of a plant in response to a stimulus is called
- (A) tropism
 - (B) reflex action
 - (C) nerve impulse
 - (D) synapse
4. The growth movement of a plant towards light is
- (A) phototropism
 - (B) geotropism
 - (C) thigmotropism
 - (D) hydrotropism

1 Mark Questions

1. What is a nerve impulse?
2. What maintains the resting potential?
3. What is a tropism?

2 Mark Questions

1. Distinguish between resting potential and action potential.
2. Name two types of tropic movements.

3 Mark Questions

1. Explain the conduction of a nerve impulse.
2. Describe the movements in plants with examples.