

Neural Control and Coordination — CBSE Pattern Test 1

Class 11 Biology · 90 minutes · 40 marks · Sections A–D with answer key · Narayan Gurukul Academy

Test 1 — CBSE Pattern (90 minutes, 40 marks)

Class 11 Biology · Neural Control and Coordination · Narayan Gurukul Academy (ClassApna)

General Instructions: (1) This paper has four sections — Section A (1×10), Section B (2×4), Section C (3×4) and Section D (5×2) — total 40 marks. Time allowed: 90 minutes.
(2) All questions are compulsory. No overall choice is given; internal choice, where allowed, is clearly marked.
(3) For MCQ questions choose the single correct option; for VSA answers write a single line.
(4) Take $g = 10 \text{ m/s}^2$. All symbols carry their usual meaning. Use of a calculator is not permitted.

Section A — MCQ & VSA ($10 \times 1 = 10$ marks)

- The functional unit of the nervous system is the
 - neuron
 - nephron
 - neuroglia
 - axon
- The cell body of a neuron is called the
 - cyton
 - axon
 - dendrite
 - synapse
- The gaps in the myelin sheath are called
 - nodes of Ranvier
 - synapses
 - dendrites
 - nissl bodies
- Neurons that carry impulses towards the CNS are
 - sensory neurons
 - motor neurons
 - interneurons
 - efferent neurons
- The junction between two neurons is called a
 - synapse
 - node
 - ganglion
 - nerve
- The largest part of the human brain is the
 - cerebrum
 - cerebellum
 - medulla
 - pons
- The part of the brain that controls balance and coordination is the
 - cerebellum

- (B) cerebrum
 - (C) medulla
 - (D) thalamus
8. The pathway of a reflex action is called the
- (A) reflex arc
 - (B) nerve impulse
 - (C) synapse
 - (D) action potential
9. Define synapse.
10. What is a reflex action?

Section B — Short Answer I ($4 \times 2 = 8$ marks)

11. Name the two main divisions of the nervous system.
12. What is a neurotransmitter?
13. Where are the smell receptors located?
14. What maintains the resting potential of a neuron?

Section C — Short Answer II ($4 \times 3 = 12$ marks)

15. Distinguish between the somatic and autonomic nervous systems.
16. Distinguish between sensory and motor neurons.
17. Distinguish between the cerebrum and cerebellum.
18. Distinguish between reflex action and voluntary action.

Section D — Long Answers ($2 \times 5 = 10$ marks)

19. (a) Describe the structure of a neuron. (b) Explain chemical transmission across a synapse.
20. (a) Describe the structure and functions of the human brain. (b) Explain a reflex arc with an example.

Answer Key (Marking Scheme)

- Q1 — (A) neuron. Q2 — (A) cyton. Q3 — (A) nodes of Ranvier. Q4 — (A) sensory neurons. Q5 — (A) synapse. Q6 — (A) cerebrum. Q7 — (A) cerebellum. Q8 — (A) reflex arc.
- Q9 — A synapse is the junction between two neurons where impulses are transmitted.
- Q10 — A reflex action is a rapid, involuntary response to a stimulus.
- Q11 — Central and peripheral nervous systems.
- Q12 — A chemical released at a synapse to transmit the impulse.
- Q13 — In the olfactory epithelium of the nose.
- Q14 — The sodium-potassium pump.
- Q15 — Somatic controls voluntary movements; autonomic controls involuntary activities.
- Q16 — Sensory carry impulses towards the CNS; motor carry impulses away.
- Q17 — Cerebrum: intelligence, memory, voluntary movement; cerebellum: balance and coordination.
- Q18 — Reflex action is rapid and involuntary; voluntary action is deliberate and controlled by the cerebrum.

Q19 — (a) Cyton, dendrites, axon, myelin sheath, nodes of Ranvier. (b) Neurotransmitter (acetylcholine) is released into the synaptic cleft and binds the postsynaptic membrane.

Q20 — (a) Forebrain (cerebrum, thalamus, hypothalamus), midbrain, hindbrain (cerebellum, pons, medulla). (b) Receptor → sensory neuron → CNS → motor neuron → effector, e.g. withdrawing the hand from a hot object.