Higher Combined version — Higher Tier (★) included; Separate-only (◆) removed.

Q1. Name the THREE types of neurone and state where each is found in the nervous system.

[3 marks]

Q2. Describe the complete pathway of a reflex arc when a person's hand touches a hot object.

[4 marks]

Q3. Explain why reflex actions are faster than voluntary actions.

[2 marks]

★ HIGHER TIER

Q4. ★ Explain the structure and function of a synapse.

[3 marks]

Total: 12 marks

Q1 (3 marks)

Name the THREE types of neurone and state where each is found in the nervous system.

- Sensory neurone: carries impulses from receptors to CNS [1]
- Relay neurone: carries impulses within the CNS (brain and spinal cord) [1]
- Motor neurone: carries impulses from CNS to effectors [1]

Q2 (4 marks)

Describe the complete pathway of a reflex arc when a person's hand touches a hot object.

- Thermoreceptors in skin detect heat stimulus [1]
- Sensory neurone carries impulse to spinal cord [1]
- Relay neurone carries impulse through spinal cord [1]
- Motor neurone carries impulse to effector (arm muscle) → hand moves away [1]

Q3 (2 marks)

Explain why reflex actions are faster than voluntary actions.

- Reflex arc does not involve the brain — signal routed through spinal cord only [1]
- Shorter neural pathway / fewer synapses → faster response [1]

Q4 (3 marks) [★ HT]

★ Explain the structure and function of a synapse.

- Synapse: tiny gap between two neurones [1]
- Electrical impulse → triggers release of neurotransmitters from vesicles in pre-synaptic membrane [1]
- Neurotransmitters diffuse across gap → bind to receptors on post-synaptic membrane → new impulse generated [1]