4.3 Muscle and nervous tissue

Name: _____ Class: _____ Date: _____ **Total: 24 marks**

KEY WORDS sarcomere

Objective

Identify the three muscle types and read the sarcomere's banding as the contraction mechanism.

1 Key knowledge and worked examples

■ **Fingerprints**

Skeletal: striated, peripheral nuclei. Cardiac: striated, branched, intercalated discs. Smooth: unstriated spindles.

■ **Worked example: the bands**

A-band (myosin) CONSTANT; I-band and H-zone narrow; filaments never shorten ✓ – the slide shows the sliding-filament model.

2 Practice

2.1 Which structure joins cardiac cells electrically and mechanically? [3]

2.2 In contraction, what happens to the A-band? [3]

2.3 Which cell type myelinates CNS axons? [3]

3 Exam-style questions

3.1 Identify each: (a) long parallel fibres, striated, nuclei at the periphery; (b) branched striated cells with dark cross-lines; (c) spindle cells, no striations, single central nuclei.

Name each tissue and its control (voluntary/involuntary). State one location for each. [8]

3.2 A nerve biopsy shows onion-bulb formations (fictional progressive weakness).

State what the onion bulbs are (concentric Schwann processes). Explain what they imply (repeated de/remyelination). State why a primary neuron disease would look different. [7]