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Grade	**14.00** out of 14.00 (**100**%)

Question 1

Correct

Mark 1.00 out of 1.00

Motor neurones:

Select one:

- a. Are just like muscle fibres in that each receives terminals of a single afferent (sensory) nerve fibre.
- b. If small, are more responsive to a set level of synaptic activity than if they are larger. ✓
- c. If large, are more responsive to a set level of synaptic activity than if they are smaller.
- d. Are unable to fire repetitively.
- e. All conduct APs at about the same velocity.

The correct answer is: If small, are more responsive to a set level of synaptic activity than if they are larger.

Question 2

Correct

Mark 1.00 out of 1.00

Which of the following is INCORRECT? In a motoneurone,

Select one:

- a. the action potential is generated first in the axon hillock region.
- b. the cell body is unable to conduct all-or-nothing action potentials. ✓
- c. synaptic potentials may be generated out in the dendrites.
- d. once generated, an action potential can travel both forwards into the axon and backwards into the cell body.
- e. synaptic potentials are able to sum with one another.

The correct answer is: the cell body is unable to conduct all-or-nothing action potentials.

Question 3

Correct

Mark 1.00 out of 1.00

Muscle Spindles:

Select one:

- a. Lie in series with muscle fibres and so are ideally sited to monitor muscle tension.
- b. Are believed to be monitors of muscle length. ✓
- c. Are concerned with providing the central nervous system with information about potentially damaging stimuli to the muscle.
- d. Are inbuilt monitors of muscle energy consumption.
- e. Consist of a spray of nerve endings on strands of tendon.

The correct answer is: Are believed to be monitors of muscle length.

Question 4

Correct

Mark 1.00 out of 1.00

Which ONE of the following statements concerning muscle spindles is CORRECT?

Select one:

- a. They are arranged in series with the ordinary muscle fibres.
- b. Afferent volleys in 1A fibres inhibit the homonymous motoneurones.
- c. They are most commonly located at the muscle-tendon junction.
- d. Impulses in the spiral sensory ending are set up by shortening of the ending leading to compression of the spirals.
- e. The polar, striated portions of the intrafusal fibres are contractile. ✓

The correct answer is: The polar, striated portions of the intrafusal fibres are contractile.

Question 5

Correct

Mark 1.00 out of 1.00

Muscle Spindles:

Select one:

- a. Are muscle contraction sensors.
- b. Are excited by muscle stretch as a result of the opening of the spiral sensory nerve terminals on intrafusal muscle fibres. ✓
- c. Recieve their own private motor innervation which, when active, allows the spindle to fall silent.
- d. Respond to sustained pressure on the skin with a brief burst of APs whose intensity is proportional to the speed of skin indentation.
- e. Are able to respond only to the initial portion of stretch stimulus because most of the rest of the stretch is absorbed by the fluid-filled capsule.

The correct answer is: Are excited by muscle stretch as a result of the opening of the spiral sensory nerve terminals on intrafusal muscle fibres.

Question 6

Correct

Mark 1.00 out of 1.00

Velocity of muscle contraction is detected by

Select one:

- a. Static nuclear chain receptors signaling along Type II afferents
- b. Dynamic and static nuclear bag receptors signaling along Type Ia afferents
- c. Dynamic nuclear bag receptors signaling on type Ia afferents ✓
- d. Dynamic nuclear chain receptors signaling on type Ia afferents
- e. Golgi tendon organ signaling on type Ib afferents

The correct answer is: Dynamic nuclear bag receptors signaling on type Ia afferents

Question 7

Correct

Mark 1.00 out of 1.00

Fusimotor neurones:

Select one:

- a. provide the efferent innervation of muscle spindles. ✓
- b. innervate tendon organs.
- c. receive monosynaptic connections from primary afferents of muscle spindles.
- d. have axons that run in the sympathetic chain.
- e. are the neurones supplying the small, fatigue-resistant motor units which are recruited at the start of a graded voluntary contraction.

The correct answer is: provide the efferent innervation of muscle spindles.

Question 8

Correct

Mark 1.00 out of 1.00

Group Ib afferents

Select one:

- a. inhibit synergists and excite antagonists
- b. inhibit antagonist and inhibit synergists
- c. excite agonist and inhibit antagonists
- d. excite the Ib inhibitory interneuron
- e. a and d above ✓

The correct answer is: a and d above

Question 9

Correct

Mark 1.00 out of 1.00

The approximate conduction velocity ranges of group I a/b and group II fiberrespectively are

Select one:

- a. 60-120m/sec and 30-60m/sec ✓
- b. 100-120 m/sec and 50-100 m/sec
- c. 50-70m/sec and 20-50 m/sec
- d. 30-60m/sec and 15-30m/sec
- e. 60-200m/sec and 30-60 m/sec

The correct answer is: 60-120m/sec and 30-60m/sec

Question 10

Correct

Mark 1.00 out of 1.00

Gamma efferent fibers innervate

Select one:

- a. static nuclear bag receptors only
- b. dynamic nuclear bag receptors only
- c. static nuclear chain receptors only
- d. a and b above
- e. a, b, and c above ✓

The correct answer is: a, b, and c above

Question 11

Correct

Mark 1.00 out of 1.00

The purpose of alpha-gamma coactivation is

Select one:

- a. prevent the collapse of intrafusal fibers when extrafusal fibers contract ✓
- b. to make sure that muscle spindles are able to detect changes in muscle tension
- c. to make sure the extrafusal fibers contract to the correct length
- d. to oppose the stiffness setting of the stretch reflex
- e. so that the extrafusal fibers can detect changes in the length of intrafusal fibers

The correct answer is: prevent the collapse of intrafusal fibers when extrafusal fibers contract

Question 12

Correct

Mark 1.00 out of 1.00

Tendon organs:

Select one:

- a. Are there to monitor dangerously high levels of tension in the muscle.
- b. Lie alongside muscle fibres so are ideally placed to signal muscle length.
- c. Are served by small myelinated or unmyelinated nerve fibres which signal the soreness from unaccustomed exercise.
- d. Provide the central nervous system with information about the accumulation of exercise metabolites like lactic acid.
- e. Generate impulses which are thought to inhibit motoneurones supplying the muscle in which they lie. ✓

The correct answer is: Generate impulses which are thought to inhibit motoneurones supplying the muscle in which they lie.

Question 13

Correct

Mark 1.00 out of 1.00

The Golgi tendon organ would be more likely to produce

Select one:

- a. A higher rate of discharge during passive stretch of a muscle
- b. *1-A higher rate of discharge during active contraction of a muscle
- c. Information about the change in length of a muscle during active contraction
- d. *2. Information about the power generated by a muscle during active contraction ✓
- e. Both of the options labelled *1 and *2 in the list of choices

The correct answers are: *2. Information about the power generated by a muscle during active contraction, Both of the options labelled *1 and *2 in the list of choices

Question 14

Correct

Mark 1.00 out of 1.00

Choose the **MOST** likely option below to be **TRUE**

Select one:

- a. the tendon organ is parallel with muscle fibers and signal change in muscle length
- b. the spindle is in parallel with muscle fibers and signals change in muscle tension
- c. dynamic nuclear bag receptors signal velocity of muscle contraction ✓
- d. only nuclear bag receptors are innervated by gamma efferents
- e. tendon organs signal along type II afferents

The correct answer is: dynamic nuclear bag receptors signal velocity of muscle contraction