Practice Questions Ch 6: Updated 11/15/2024

1. _____ is characterized by continued attachment of myosin heads to actin filaments due to a lack of ATP during cell death, and whole body tetany.

A. Tetanus
B. Rigor mortis
C. ALS
D. Hypotonia
E. Treppe
F. Botulism

2. _____ occurs as a warm-up in muscle cells when a low frequency stimulus causes a gradual increase in force of contraction with each stimulus, until it plateaus, but the frequency is low enough to allow the muscle to relax in between stimuli.

A. Tetanus
B. Treppe
C. Summation
D. Muscle twitch
E. Rigor mortis
F. Oxygen debt

3. _____ occurs in muscle cells when stimulus frequency increases to produce a greater (but not maximal) force contraction, with frequency too great to allow muscle relaxation in between stimuli.

A. Tetanus
B. Treppe
C. Summation
D. Muscle twitch
E. Rigor mortis
F. Oxygen debt

4. _____ occurs in muscle cells when stimulus frequency is very high, and the muscle contraction produces maximal force, but the muscle fatigues and gives out.

A. Tetanus
B. Treppe
C. Summation
D. Muscle twitch
E. Rigor mortis
F. Oxygen debt

5. A reserve of high energy phosphate, to regenerate ATP from ADP, is stored in muscle as

A. phosphocreatine.
B. adenosine triphosphate.
C. glucose 6-phosphate.
D. creatine kinase.

6. Myostatin is

A. a molecule that inhibits phosphorylation of ADP to ATP.
B. a molecule that stimulates phosphorylation of ADP to ATP.
C. a molecule that inhibits de-phosphorylation of ATP to ADP.
D. a molecule that stimulates de-phosphorylation of ATP to ADP.
E. a molecule that inhibits satellite cells and muscle growth.
F. a molecule that stimulates satellite cells and muscle growth.

7. A muscle disorder involving a sex-linked gene, seen more often in boys, in which there is a progressive loss of muscle function leading to balance and walking problems.

A. Duchenne's muscular dystrophy
B. Tetanus
C. ALS
D. Myasthenia gravis
E. Dermatomyositis

8. A muscle disorder characterized by an autoimmune attack on ACh receptors on muscle.

A. Duchenne's muscular dystrophy
B. Tetanus
C. ALS
D. Myasthenia gravis
E. Dermatomyositis

9. A muscle disorder characterized by a loss of motor neurons that stimulate muscle, and is thought to be due to a loss of superoxide dismutase and also excess glutamate (toxicity).

A. Duchenne's muscular dystrophy
B. Tetanus
C. ALS
D. Myasthenia gravis
E. Dermatomyositis

10. Which isoform of CPK is associated with brain damage?

A. CPK MM B. CPK BB C. CPK MB

11. Which motor unit produces the greatest force?

A. One motor neuron and one muscle fiber
B. One motor neuron and 5 muscle fibers
C. One motor neuron and 10 muscle fibers
D. 5 motor neurons and one muscle fiber.

12. Muscle unit of scale composed of repeating units of sarcomeres.

A. Organ
B. Myofibril
C. Myofilament
D. Fascicle
E. Fiber

13. Which of the following substances, which accumulate with muscle fatigue, is cleared from the bloodstream by the Cori cycle?

A. ADP
B. Phosphate
C. CO2
D. Myoglobin
E. Glycogen
F. Lactic acid
G. Oxygen

14. ADP is used in the sliding between myofilaments actin and myosin by

A. providing the energy to break the crossbridge between them.
B. providing the energy to recycle ADP back into ATP.
C. providing the energy to pump Ca+2 back into the sarcoplasmic reticulum.
D. providing the energy for myosin to grab active sites and actin and pull.

15. Choose the correct numerical sequence of events involved in the sliding filament theory of muscle contraction.

1. Ca^{+2} release from sarcoplasmic reticulum
2. ACh binds to nicotinic cholinergic receptor on muscle cells
3. Tropomyosin lifts off active sites on actin
4. AP forms in muscle cell
5. Ca^{+2} binds to troponin
6. AP travels down t-tubules
7. Myosin heads bind to active sites on actin and pulls
8. Na channels open and Na enters muscle cell
9. ACh released from motor neuron into synapse with muscle cell
10. Muscle contracts

A. 9, 2, 4, 8, 6, 1, 3, 5, 7, 10
B. 9, 2, 8, 4, 6, 1, 3, 5, 7, 10
C. 9, 2, 1, 4, 5, 3, 7, 6, 8, 10
D. 9, 2, 8, 4, 6, 1, 5, 3,7, 10
E. 9, 2, 8, 4, 6, 1, 3, 5, 7, 10

Ch 6. Answers:

1. B
2. B
3. C
4. A
5. A
6. E
7. A
8. D
9. C
10. B
11. C
12. B
13. F
14. D
15. D

How did you do?