

Calcium is actively pumped into endoplasmic reticulum by primary transport



False .a ☐

True .b ☒

Facilitated diffusion

- a ☐ is the way by which sodium can cross
.the cell membrane
- ✓ b ☒ occurs through integral proteins in
.the cell membrane
- c ☐ differs from active transport in being
.has carrier protein
- d ☐ differs from simple diffusion in being
.need no energy

In skeletal muscle

- fast fibers have large number of mitochondria to supply energy for contraction .a ☐
- the major source of energy is glycolysis .b ☐
- all cross-bridges work simultaneously to give strong contraction .c ☐
- ✓ force of contraction is proportional to number of cross-bridges in contact with actin .d ☒

Lack of intracellular calcium increases excitability in neurons

True .a ☐

False .b ☒



In skeletal muscle

- ✓ the resting membrane potential is .a ☒
 similar to that in cardiac muscle
- soleus muscle has isometric duration .b ☐
 less than gastrocnemius
- fast muscle fibers are innervated by .c ☐
 smaller nerve fibers than slow fibers
- .relaxation is a passive process .d ☐

The resting membrane potential of a neuron

its movement towards zero is called .a ☐
.hyperpolarization

is maintained to a low extent by K leak .b ☐
.channels

✓ decreased in cardiac sinoatrial .c ☒
.node

differs from that in skeletal muscle .d ☐
.fiber

In renal tubules, intercalated cells participate
in regulating blood pH

False .a ☐

True .b ☒



One statement about Na⁺/K⁺ Pump is
incorrect

similar to facilitated diffusion in being .a ☐
.depend on carrier protein

.acts as an active electrogenic pump .b ☐

✓ similar to facilitated diffusion in .c ☒
.being needs energy

plays a potential role in re-establishing .d ☐
.membrane potential to resting state

Myosin head has 2 heavy chains and 2 light chains



True .a ☐

False .b ☒

The walk-along theory of skeletal muscle describes mainly the power stroke



False .a ☐

True .b ☒

Osmotic pressure is the amount of pressure required to facilitate osmosis



False .a ☒

True .b ☐

In skeletal muscle one statement is incorrect

✓ muscle tetanization means rapid .a ☒
successive contraction with partial
.relaxation

Motor unit is all the muscle fibers .b ☐
.innervated by a single nerve fiber

both relaxation and contraction are .c ☐
.active processes

The duration of action potential is less .d ☐
.than sinoatrial node

Local potential is all or non-law potential



False .a ☒

True .b ☐

Facilitated diffusion



occurs through receptor protein .a ☒

.with a weak binding force

is the only way to transport glucose .b ☐

through cell membrane

differs from active transport in being .c ☐

.has a specific carrier protein

is the way by which lipid-soluble .d ☐

.substances can cross cell membrane

Skeletal muscle becomes less excitable when its resting potential is increased



False .a ☐

True .b ☒

Acetylcholine acts through voltage gated ion channels



False .a ☒

True .b ☐

The whole muscle does not obey all or non-law



True .a ☒

False .b ☐

Skeletal muscle myofilaments has the following features except

- .a ☐ F-actin represents one of the thin filaments
- ✓ .b ☒ troponin prevents the interaction of actin and myosin in resting state
- .c ☐ myosin is the only thick filament
- .d ☐ tropomyosin is a double helical strand protein

The depolarization stage coincides with plateau in cardiac muscle



True .a ☒

False .b ☐

Isometric muscle contraction differs from isotonic contraction in being

- ✓ .a ☒ occurs when the force of muscle contraction is lesser than the load
- .b ☐ has constant muscle tension
- .c ☐ its duration increases in muscles with fast contraction
- .d ☐ has decreasing muscle tension

Control of breathing is a good example of
rhythmical activity



False .a ☐

True .b ☒

Muscle tone is normally controlled by signals from brain and muscle itself



False .a ☐

True .b ☒

Glucose can be transported through cell membrane by both active and passive transport



True .a ☒

False .b ☐

Long lasting calcium channels are the main contributor to hyperpolarization in sinoatrial node potential



True .a ☐

False .b ☒

Osmotic pressure is determined mainly by molecular weight of the particle



False .a ☒

True .b ☐

Voltage gated potassium channels have a major contribution in maintaining resting membrane potential



False .a ☒

True .b ☐

One of the following factors does not affect
the net rate of diffusion

pressure difference across the .a ☐
membrane

✓ rate of activity of membrane .b ☒
carrier proteins

concentration difference across a .c ☐
membrane

membrane electrical potential .d ☐

The relative refractory period coincides with plateau in cardiac muscle



False .a ☒

True .b ☐

The resting membrane potential of a nerve cell

.is maintained mainly by Na/K pump .a ☐

✓ decreased in excitable neurons .b ☒
.than normal ones

Decreased with increasing .c ☐
.intracellular chloride ions

.increased in cardiac sinoatrial node .d ☐

Fast fibers have a lower levels of oxidative metabolism than slow fibers



True .a ☒

False .b ☐

Titin molecule acts as a template for initial formation of tropomyosin



True .a ☐

False .b ☒

The action potential

- ✓ .a ☒ has an amplitude which does not
.vary with stimulus strength
- .b ☐ its conduction is faster in
unmyelinated fibers than myelinated
.ones
- .c ☐ is associated with a transient
decrease in membrane permeability to
.sodium
- .d ☐ its duration is shorter in sinoatrial
.node than nerve

Calcium ions are released from sarcoplasmic reticulum through voltage sensitive dihydropyridine channels

True .a ☐

False .b ☒



Neuronal excitability is decreased if intracellular chloride is increased



True .a ☒

False .b ☐

Regeneration of contractile proteins occurs through ATP-dependent ubiquitin-proteasome pathway



False .a ☒

True .b ☐

Plateau in cardiac muscle is caused by opening of voltage gated Na channels

True .a ☐

False .b ☒



The nerve impulse

✓ its duration is shorter in nerves than .a ☒ .sinoatrial node

its duration is shorter in skeletal muscles .b ☐ .than nerves

is terminated by increasing active K^+ .c ☐ .efflux

spreads in one direction across the nerve .d ☐ .fiber

In a neuron

- ☒ a. excitability is increased if extracellular potassium is decreased. 
- ☐ b. there is an active efflux of K^+ during hyperpolarization.
- ☐ c. excitability is increased if intracellular chloride is increased.
- ☐ d. dendrites convey impulses towards axon.

Cell membrane

- a ☐ consists of a layer of protein sandwiched between two layers of lipid.
- ✓ b ☒ its selectivity is largely determined by its ion channels.
- c ☐ is permeable to water and water-soluble substances.
- d ☐ is impermeable to fat-soluble substances.

Action potential spreads in both directions
across the nerve fiber

False .a ☐

True .b ☒

