

In skeletal muscle

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

Cell membrane

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

Question **14**

Correct

Mark 1 out of 1



Flag question

Facilitated diffusion

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

Question **3**

Incorrect

Mark 0 out of 1



Flag question

Facilitated diffusion

- ☐ a. is the way by which lipid-soluble substances can cross cell membrane.
- ☐ b. is the only way to transport glucose through cell membrane
- ☐ c. differs from active transport in being has a specific carrier protein. ✗
- ☒ d. occurs through receptor protein with a weak binding force.

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

- ☒ a. True
- ☐ b. False



Local potential is all or non-law potential

- ☒ a. False
- ☐ b. True



The whole muscle does not obey all or non-law



True .a ☒

False .b ☐

سؤال 2

صحيح

درجة 1 من 1

٣ علم هذا السؤال

Control of breathing is a good example of rhythmical activity



True .a ☒

False .b ☐

Action potential spreads in both directions
across the nerve fiber



False .a ☒

True .b ☐

سؤال 4

صحيح

درجة 1 من 1

٣ علم هذا السؤال

Lack of intracellular calcium increases
excitability in neurons



False .a ☒

True .b ☐

One statement about Na⁺/K⁺ Pump is incorrect

- a ☐ similar to facilitated diffusion in .being depend on carrier protein
- ✓ b ☒ similar to facilitated diffusion in .being needs energy
- c ☐ plays a potential role in re-establishing membrane potential .to resting state
- d ☐ acts as an active electrogenic .pump

سؤال 7

صحيح

درجة 1 من 1

٣ علم هذا السؤال

In renal tubules, intercalated cells participate in regulating blood pH



- a ☒ True
- b ☐ False



The resting membrane potential of a neuron

- a ☐ differs from that in skeletal muscle fiber
- b ☒ decreased in cardiac sinoatrial node
- c ☐ is maintained to a low extent by K leak channels
- d ☐ its movement towards zero is called hyperpolarization

سؤال 9

صحيح

درجة 1 من 1

٣ علم هذا السؤال

Skeletal muscle becomes less excitable when its resting potential is increased

- a ☐ False
- b ☒ True



سؤال 10

صحيح

درجة 1 من 1

٣ علم هذا السؤال

Calcium is actively pumped into endoplasmic reticulum by primary transport



True .a ☒

False .b ☐

سؤال 11

صحيح

درجة 1 من 1

٣ علم هذا السؤال

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

False .a ☒

True .b ☐



Facilitated diffusion

a ☐ is the only way to transport glucose through cell membrane

b ☐ differs from active transport in being has a specific carrier protein.

c ☒ occurs through receptor protein with a weak binding force.

d ☐ is the way by which lipid-soluble substances can cross cell membrane.

سؤال 13

صحيح

درجة 1 من 1

علم هذا السؤال

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

False .a ☐

True .b ☒



سؤال 14

صحيح

درجة 1 من 1

علم هذا السؤال

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

False .a ☐

True .b ☒



In skeletal muscle



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

سؤال 16

صحيح

درجة 1 من 1

علم هذا السؤال

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



False .a ☒

True .b ☐

سؤال 18

صحيح

درجة 1 من 1

علم هذا السؤال

Facilitated diffusion

a ☐ differs from active transport in

.being has carrier protein

b ☐ differs from simple diffusion in

.being need no energy

c ☒ occurs through integral

.proteins in the cell membrane

d ☐ is the way by which sodium can

.cross the cell membrane

سؤال 20

صحيح

درجة 1 من 1

٣ علم هذا السؤال

Osmotic pressure is the amount of pressure required to facilitate osmosis



False .a ☒

True .b ☐

سؤال 21

صحيح

درجة 1 من 1

٣ علم هذا السؤال

The relative refractory period coincides with plateau in cardiac muscle



False .a ☒

True .b ☐



سؤال 22

صحيح

درجة 1 من 1

علم هذا السؤال

Titin molecule acts as a template for initial formation of tropomyosin



a. False ☒

b. True ☐

سؤال 23

صحيح

درجة 1 من 1

٣ علم هذا السؤال

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

- a. ☐ pressure difference across the membrane
- b. ☐ membrane electrical potential
- c. ☐ concentration difference across a membrane
- d. ☒ rate of activity of membrane carrier proteins

سؤال 24

صحيح

درجة 1 من 1

علم هذا السؤال

Cell membrane

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

سؤال 25

صحيح

درجة 1 من 1

علم هذا السؤال

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



False .a ☒

True .b ☐

سؤال 26

صحيح

درجة 1 من 1

علم هذا السؤال

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

False .a ☐

True .b ☒



سؤال 28

صحيح

درجة 1 من 1

علم هذا السؤال

Isometric muscle contraction differs from isotonic contraction in being

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

سؤال 30

خطأ

درجة 0 من 1

علم هذا السؤال

Neuronal excitability is decreased if intracellular chloride is increased

True .a ☐

False .b ☒



سؤال 31

صحيح

درجة 1 من 1

علم هذا السؤال

Myosin head has 2 heavy chains and 2 light chains



False .a ☒

True .b ☐

سؤال 32

صحيح

درجة 1 من 1

علم هذا السؤال

Osmotic pressure is determined mainly by molecular weight of the particle



True .a ☐

False .b ☒

سؤال 33

صحيح

درجة 1 من 1

علم هذا السؤال

The action potential

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

سؤال 34

صحيح

درجة 1 من 1

علم هذا السؤال

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

True .a ☐

False .b ☒



سؤال 35

صحيح

درجة 1 من 1

علم هذا السؤال

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

سؤال 36

صحيح

درجة 1 من 1

علم هذا السؤال

Acetylcholine acts through voltage gated ion channels



a. False ☒

b. True ☐

سؤال 37

صحيح

درجة 1 من 1

٣ علم هذا السؤال

The depolarization stage coincides with plateau in cardiac muscle



True .a ☒

False .b ☐

سؤال 38

صحيح

درجة 1 من 1

٣ علم هذا السؤال

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



True .a ☐

False .b ☒

The resting membrane potential of a nerve cell

- a ☐ is maintained mainly by Na/K pump.
- b ☐ Decreased with increasing intracellular chloride ions.
- c ☒ decreased in excitable neurons than normal ones.
- d ☐ increased in cardiac sinoatrial node.

The nerve impulse

is terminated by increasing active .a ☐
.K⁺ efflux

its duration is shorter in nerves .b ☐
.than sinoatrial node

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

✗ spreads in one direction across .d ☒
.the nerve fiber

In skeletal muscle one statement is incorrect

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

muscle tetanization means rapid .b ☐
successive contraction with partial
.relaxation

✗ both relaxation and contraction .c ☒
.are active processes

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

The nerve impulse

is terminated by increasing active .a ☐
.K⁺ efflux

its duration is shorter in nerves .b ☐
.than sinoatrial node

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

✗ spreads in one direction across .d ☒
.the nerve fiber

In a neuron

excitability is increased if .a ☐
.intracellular chloride is increased

dendrites convey impulses .b ☐
towards axon

excitability is increased if .c ☒
extracellular potassium is
.decreased

✗ there is an active efflux of K^+ .d ☐
.during hyperpolarization

Question **15**

Complete

 Flag question

Ryanodine receptors are calcium release channels in sarcoplasmic reticulum

Select one:



a. True

b. False

The correct answer is: True

Question **20**

Complete

 Flag question

In muscle each one of the cross-bridges is believed to operate independently

Select one:



a. True

b. False

The correct answer is: True

The resting membrane potential of a neuron

Select one:

- ☒ a. its movement towards zero is called repolarization.
- ☐ b. similar to that in skeletal muscle fiber.
- ☐ c. increased in cardiac sinoatrial node (SAN).
- ☐ d. is maintained mainly by Na/K pump.

The correct answer is: similar to that in skeletal muscle fiber.

The action potential

Select one:

- a. its conduction is slower in myelinated fibers than unmyelinated ones.
- b. its duration is shorter in cardiac than skeletal muscles.
- c. is associated with a transient increase in membrane permeability to sodium.
- d. it has an amplitude which varies with the stimulus strength.+AKA-

The correct answer is: is associated with a transient increase in membrane permeability to sodium.

Skeletal muscle myofilaments has the following features except

Select one:

- ☒ a. myosin and tropomyosin combine to form the thick filaments.
- ☐ b. tropomyosin prevents the interaction of actin and myosin in resting state.
- ☐ c. troponin C has the calcium binding site.
- ☐ d. F-actin represents one of the thin filaments.

The correct answer is: myosin and tropomyosin combine to form the thick filaments.

Question 4

Complete

 Flag question

Skeletal muscle becomes less excitable when its resting potential is decreased

Select one:



- a. True
- b. False

The correct answer is: False

In skeletal muscle one statement is incorrect

Select one:

- ☒ a. on contraction the length of the sarcomere is shorten and actin overlap myosin.
- ☒ b. Action potential spreads through T tubule-sarcoplasmic reticulum system to release calcium.
- ☒ c. sarcoplasmic reticulum has a ligand gated dihydropyridine receptors.
- ☒ d. both relaxation and contraction are active processes.

The correct answer is: sarcoplasmic reticulum has a ligand gated dihydropyridine receptors.

Question 15

Not yet
answered

Marked out of
1.0

 Flag
question

Presynaptic inhibition occurs mainly in motor pathways

Select one:

- ☐ a. True
- ☒ b. False

Question 20

Not yet
answered

Marked out of
10

Flag
question

Plateau in cardiac muscle coincides with depolarization stage

Select one:

☐

a. False

☒

b. True

Question 11

Complete

Flag question

Plateau in cardiac muscle is a safety factor because it coincides with relative refractory period

Select one:

- ☒ a. True
- ☐ b. False

The correct answer is: False

Question 23
Not yet
answered
Marked out of
1.00
Flag
Question

Opsonization means release of free radicals from neutrophils

Select one

- ☒ a. false
- ☐ b. true

Question 43

Not yet
answered
Marked out of 1.00

Flag
Question

GABAB receptors make their inhibitory action through K^+ influx

Select one:

- ☒ a. False
- ☐ b. True

Eosinophils are expected to be increased in parasitic infection

Select one:

- ☐ a. False
- ☒ b. True

In skeletal muscle one statement is incorrect

Select one:

- ☒ a. The duration of action potential is similar to that in neuron.
- ☐ b. both relaxation and contraction are active processes.
- ☐ c. on contraction the length of the sarcomere is shorten.
- ☐ d. sarcoplasmic reticulum has a voltage gated dihydropyridine receptors.

Question 1

Not yet
answered

Marked out of
1.0



Facilitated diffusion

Select one:

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

Question 2

Not yet
answered

Marked out of
1.0

Flag
question

Facilitated diffusion

Select one:

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

Question 3

Not yet
answered

Marked out of
1.0

Flag
question

Parasympathetic nervous system

Select one:

- ☐ a. dilates bronchi of lungs.
- ☒ b. releases acetylcholine at both pre- and postganglionic axons.
- ☐ c. tends to have longer postganglionic than preganglionic axons.
- ☐ d. inhibits the secretion of adrenal medulla.

Question 4

Not yet
answered

Marked out of
1.0

Flag
question

The action potential

Select one:

- ☒ a. its magnitude does not varies with the stimulus strength
- ☐ b. its duration is shorter in cardiac than skeletal muscles.
- ☐ c. is associated with a transient decrease in membrane permeability to sodium.
- ☐ d. its conduction is faster in unmyelinated fibers than myelinated ones.

Question 5

Not yet
answered

Marked out of
1.0

Flag
question

The action potential

Select one:

- ☐ a. is generated in postsynaptic neuron at a high threshold initial segment.
- ☐ b. is associated with a transient decrease in membrane permeability to sodium.
- ☒ c. its duration is shorter in nerves than sinoatrial node.
- ☐ d. it has a magnitude which varies with the stimulus strength.

Question 6

Not yet
answered

Marked out of
1.0

Flag
question

One statement about acetylcholine is incorrect

Select one:

- ☒ a. is inactivated at postsynaptic membranes mainly by active reuptake.
- ☐ b. its nicotinic receptor acts through ligand-gated ion channels
- ☐ c. has a stimulatory effect on the intestine.
- ☐ d. is synthesized in presynaptic nerve terminal by choline acetyltransferase enzyme.

Question 7

Not yet
answered

Marked out of
1.0

 Flag
question

Erythrocytes

Select one:

- ☐ a. In chronic blood loss they give rise to microcytic hypochromic anemia.
- ☐ b. their number tends to be increased in kidney disease
- ☐ c. contain nucleus
- ☒ d. carry iron in plasma in the form of transferrin

Question 8

Not yet
answered

Marked out of
1.0

Flag
question

One statement about Na^+/K^+ Pump is incorrect

Select one:

- ☐ a. acts as an active electrogenic pump.
- ☒ b. similar to facilitated diffusion in being needs energy.
- ☐ c. plays a major role in re-establishing the resting membrane potential.
- ☐ d. has a minor role in maintaining resting membrane potential.

Question 9

Not yet
answered

Marked out of
1.0

Flag
question

Red blood cells

Select one:

- ☐ a. In chronic blood loss they give rise to microcytic hyperchromic anemia.
- ☒ b. their number tends to be decreased in kidney disease
- ☐ c. have a life span of 180 days in the circulation
- ☐ d. contain nucleus

Question 10

Not yet
answered

Marked out of
1.0

Flag
question

Neutrophils

Select one:

- ☐ a. Part of them are formed in the thymus.
- ☐ b. are found only in the circulation.
- ☒ c. their movement towards the inflamed tissue is called chemotaxis
- ☐ d. do not show phagocytic activity.

Question 11

Not yet
answered

Marked out of
1.0

Flag
question

In a nerve cell

Select one:

- ☒ a. excitability is increased if extracellular potassium is decreased.
- ☐ b. Acidosis increases neuronal excitability.
- ☐ c. excitability is increased if intracellular chloride is increased.
- ☐ d. there is an active efflux of K^+ during hyperpolarization.

Question 12

Not yet
answered

Marked out of
1.0

Flag
question

Neutrophils differ from macrophages in being 

Select one:

- ☐ a. have more powerful phagocytic activity
- ☒ b. their lysosomes do not contain lipase enzymes
- ☐ c. have the ability to engulf much larger particles
- ☐ d. phagocytize larger number of bacteria

Question 13

Not yet
answered

Marked out of
1.0

Flag
question

Facilitated diffusion

Select one:

- ☐ a. is the way by which lipid-soluble substances can cross the cell membrane.
- ☒ b. Similar to active transport in being has carrier protein.
- ☐ c. is the way by which potassium can cross the cell membrane.
- ☐ d. differs from simple diffusion in being need no energy.

Question 14

Not yet
answered

Marked out of
1.0

Flag
question

Isometric muscle contraction differs from isotonic contraction in being

Select one:

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

Question 15

Not yet
answered

Marked out of
1.0

Flag
question

One statement about acetylcholine is incorrect

Select one:

- ☐ a. is synthesized in presynaptic nerve terminal by choline acetyltransferase enzyme.
- ☐ b. has an inhibitory effect on the heart.
- ☒ c. its muscarinic receptor acts through ligand-gated ion channels
- ☐ d. is inactivated at postsynaptic membranes mainly by cholinesterase enzyme.

Question 16

Not yet
answered

Marked out of
1.0

Flag
question

The most numerous cells in normal human blood are

Select one:

- ☐ a. monocytes.
- ☒ b. red blood cells.
- ☐ c. neutrophils.
- ☐ d. lymphocytes.

Question 17

Not yet
answered

Marked out of
1.0

Flag
question

One statement about vitamin B12 is incorrect

Select one:

- ☒ a. its deficiency as a result of gastrectomy causes microcytic anemia.
- ☐ b. its absorption needs intrinsic factor secreted by parietal cells of stomach.
- ☐ c. its absorption is difficult in people with sprue.
- ☐ d. cannot be manufactured in liver

Question 18

Not yet
answered

Marked out of
1.0

Flag
question

Metabotropic receptor

Select one:

- ☒ a. acts through G-protein second messenger system.
- ☐ b. acts through ligand-gated ion channels.
- ☐ c. is not a glutamate receptor
- ☐ d. Unlike N-methyl D-aspartate (NMDA) receptor is believed to be involved in memory.

Question 19

Not yet
answered

Marked out of
1.0

Flag
question

Hemoglobin

Select one:

- ☐ a. has abnormal α chains in sickle cell anemia.
- ☒ b. its affinity to oxygen decreased with increased CO_2 in tissue
- ☐ c. its affinity to oxygen is increased in a person living at high altitude
- ☒ d. its affinity to oxygen is lesser in fetus than in mother

Question 20

Not yet
answered

Marked out of
1.0

Flag
question

Regarding skeletal muscle myofilaments

Select one:

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

Question 21

Not yet
answered

Marked out of
1.0

Flag
question

One statement about Na^+/K^+ Pump is incorrect

Select one:

- ☐ a. has a minor role in maintaining resting membrane potential.
- ☐ b. acts as an electrogenic active pump.
- ☒ c. differs from facilitated diffusion in being depend on carrier protein.
- ☐ d. differs from facilitated diffusion in being needs energy.

Question 22

Not yet
answered

Marked out of
1.0

Flag
question

In skeletal muscle one statement is incorrect

Select one:

- ☒ a. muscle tetanization means rapid successive contraction with partial relaxation.
- ☐ b. Motor unit is all the muscle fibers innervated by a single nerve fiber.
- ☐ c. Gastrocnemius muscle has isometric duration more than ocular muscle
- ☐ d. sarcoplasmic reticulum has a voltage gated dihydropyridine receptors.

Question 23

Not yet
answered

Marked out of
1.0

Flag
question

The nerve impulse

Select one:

- ☐ a. its duration is longer in skeletal than cardiac muscles.
- ☐ b. it has a magnitude which varies with the stimulus strength.
- ☒ c. is associated with a transient increase in membrane permeability to sodium.
- ☐ d. its conduction is slower in myelinated fibers than unmyelinated ones.

Question 24

Not yet
answered

Marked out of
1.0

Flag
question

Skeletal muscle myofilaments has the following features except

Select one:

- ☐ 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. myosin is the only thick filament.

Question 25

Not yet answered

Marked out of 1.0

Flag question

The resting membrane potential of a neuron

Select one:

- ☐ a. increased in sinoatrial node.
- ☐ b. its movement towards zero is called hyperpolarization.
- ☐ c. increased in facilitated neurons than normal ones.
- ☒ d. decreased with increasing neuronal excitability.

Question 26

Not yet answered

Marked out of 1.0

Flag question

Hemoglobin

Select one:

- ☐ a. its affinity to oxygen increased with increased CO₂ in tissue
- ☒ b. its affinity to oxygen is lesser in mother than that in fetus.
- ☐ c. has abnormal α chains in sickle cell anemia.
- ☐ d. its affinity to oxygen is increased in a person living at high altitude

Question 27

Not yet
answered

Marked out of
1.0

Flag
question

In skeletal muscle

Select one:

- ☒ a. Fast fibers have large number of mitochondria to supply energy for contraction.
- ☐ b. Force of contraction is proportional to number of cross-bridges in contact with actin.
- ☐ c. All cross-bridges work simultaneously to give strong contraction.
- ☐ d. The major source of energy is glycolysis.

Question 28

Not yet
answered

Marked out of
1.0

Flag
question

One statement about erythropoietin is incorrect

Select one:

- ☐ a. enhances erythrocytes production under hypoxic condition
- ☐ b. its rate of production increases when a person is placed at high altitude.
- ☒ c. tends to be decreased in pulmonary disease
- ☐ d. its administration is helpful in treatment of anemia associated with renal failure

Question 29

Not yet
answered

Marked out of
1.0

Flag
question

The nerve impulse

Select one:

- ☐ a. is elicited by a subthreshold stimulus applied to a nerve fiber.
- ☒ b. spreads in both directions across the nerve fiber.
- ☐ c. is terminated by increasing active K^+ efflux.
- ☐ d. its conduction is faster in unmyelinated fibers than myelinated ones.

Question 30

Not yet
answered

Marked out of
1.0

Flag
question

Isometric muscle contraction differs from isotonic contraction in being

Select one:

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

Question 31

Not yet
answered

Marked out of
1.0

Flag
question

In skeletal muscle

..... بهاد السؤال كل الاجابات غلط

Select one:

c ولكن ممكن حسب المبدأ نعتبر

- ☐ a. Fast muscle fibers are innervated by smaller nerve fibers than slow fibers
- ☐ b. Relaxation is a passive process.
- ☐ c. The resting membrane potential is similar to that in neuron.
- ☐ d. Soleus muscle has isometric duration less than gastrocnemius

Question 32

Not yet
answered

Marked out of
1.0

Flag
question

Norepinephrine

Select one:

- ☒ a. is a stronger blood vessels vasoconstrictor than epinephrine.
- ☐ b. decreases peristalsis and sphincter tone of the gut.
- ☐ c. is inactivated mainly by monoamine oxidase and catechol-O-methyl transferase enzymes.
- ☐ d. excites G-proteins-linked beta receptors rather than alpha receptors

Question 33

Not yet
answered

Marked out of
1.0

Flag
question

The resting membrane potential of a neuron

Select one:

- ☐ a. is maintained to a low extent by K leak channels.
- ☐ b. its movement towards zero is called hyperpolarization.
- ☐ c. differs from that in skeletal muscle fiber.
- ☒ d. decreased in cardiac sinoatrial node (SAN).

Question 34

Not yet
answered

Marked out of
1.0

Flag
question

In a neuron

Select one:

- ☐ a. Alkalosis decreases neuronal excitability.
- ☒ b. excitability is increased if intracellular chloride is decreased.
- ☐ c. excitability is increased if extracellular potassium is increased.
- ☐ d. there is an active efflux of K^+ during hyperpolarization.

Question 35

Not yet
answered

Marked out of
1.0

Flag
question

N-methyl D- aspartate (NMDA) receptor

Select one:

- ☒ a. acts through ligand-gated ion channel.
- ☐ b. is inhibited by the presence of glycine.
- ☐ c. Unlike metabotropic receptor is believed to be involved in memory.
- ☐ d. is a not a glutamate receptor.

Question 36

Not yet
answered

Marked out of
1.0

Flag
question

One statement about bilirubin is incorrect

Select one:

- ☐ a. is produced by red blood cell burst.
- ☒ b. contains iron.
- ☐ c. is excreted in bile.
- ☐ d. is a porphyrin pigment derived from hem.

Question 37

Not yet
answered

Marked out of
1.0

Flag
question

In skeletal muscle one statement is incorrect

Select one:

- ☒ a. The duration of action potential is similar to that in neuron.
- ☐ b. on contraction the length of the sarcomere is shorten.
- ☐ c. both relaxation and contraction are active processes.
- ☐ d. sarcoplasmic reticulum has a voltage gated dihydropyridine receptors.

Question 38

Not yet
answered

Marked out of
1.0

Flag
question

The resting membrane potential

Select one:

- ☒ a. decreased in facilitated neurons than normal ones.
- ☐ b. its movement towards zero is called repolarization.
- ☐ c. increased with increasing neuronal excitability.
- ☐ d. increased in cardiac sinoatrial node.

Question 39

Not yet
answered

Marked out of
1.0

Flag
question

The nerve impulse

Select one:

- ☐ a. its conduction is faster in unmyelinated fibers than myelinated ones.
- ☒ b. is terminated by increasing passive K^+ efflux.
- ☐ c. spreads in one direction across the nerve fiber.
- ☐ d. is elicited by a subthreshold stimulus applied to a nerve fiber.

Question 40

Not yet
answered

Marked out of
1.0

Flag
question

Blood platelets



Select one:

- ☐ a. increased their number in leukemic patients
- ☐ b. derived from lymphoid tissues in bone marrow
- ☐ c. unlike leucocytes, they derived from pluripotential stem cell in bone marrow
- ☒ d. decreased their number in leukemic patients

Question 1

Not yet answered

Marked out of 1.0

Flag question

Excitatory postsynaptic potential is all or non-law potential

Select one:

- ☒ a. True
- ☐ b. False

Question 2

Not yet answered

Marked out of 1.0

Flag question

GABAA receptors make their inhibitory action through Cl^- efflux

Select one:

- ☐ a. True
- ☐ b. False

F

Question 3

Not yet
answered

Marked out of
1.0

Flag
question

Iron is transported in plasma in the form of transferrin

Select one:



a. True



b. False

Question 4

Not yet
answered

Marked out of
1.0

Myosin head has 2 heavy chains and 2 light chains

Select one:



a. False



b. True

Question 5

Not yet
answered

Marked out of
1.0

 Flag
question

Polycythemia vera is a genetic disorder characterized by high blood viscosity

Select one:

- ☐ a. False
- ☒ b. True

Question 6

Not yet
answered

Marked out of
1.0

Flag
question

Nitric oxide is synthesized and stored in vesicles in presynaptic terminals

Select one:

☐ a. True

☒ b. False

Question 7

Not yet
answered

Marked out of
1.0

Flag
question

Lack of calcium increases excitatory postsynaptic potential in response to stimulation

Select one:

- ☐ a. True
- ☒ b. False

Question 8

Not yet
answered

Marked out of
1.0

Flag
question

Skeletal muscle becomes less excitable when its resting potential is increased

Select one:

- ☐ a. False
- ☒ b. True

Question 9

Not yet
answered

Marked out of
1.0

 flag
question

Iron is stored in tissues mainly in the form of transferrin

Select one:

- ☒ a. False
- ☐ b. True

Question 10

Not yet
answered

Marked out of
1.0

 Flag
question

K⁺ leak channels play a major role in generating resting membrane potential

Select one:

- ☐ a. False
- ☒ b. True

Question 11

Not yet
answered

Marked out of
1.0



GABA is synthesized in cell bodies and then transported to axon terminals

Select one:

☒ a. True

☐ b. False

Question 12

Not yet
answered

Marked out of
1.0

Flag
question

Second macrophage invasion into inflamed tissue provides a second line of defense

Select one:

- ☐ a. True
- ☒ b. False

Question 13

Not yet
answered

Marked out of
1.0

 Flag
question

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

Select one:

- ☐ a. False
- ☒ b. True

Question 14

Not yet
answered

Marked out of
1.0

 Flag
question

Strychnine increases neuronal excitability by its inhibitory effect on glycine

Select one:

- ☒ a. True
- ☐ b. False

Question 15

Not yet
answered

Marked out of
1.0

Flag
question

Unlike red blood cell, reticulocyte contains nucleus

Select one:

- ☒ a. False
☐ b. True

Question 16

Not yet
answered

Marked out of
1.0

Flag
question

RBC appears biconcave rather than spherical in hereditary spherocytosis

Select one:

- ☐ a. True
☒ b. False

Question 17

Not yet
answered

Marked out of
1.0



The whole muscle does not obey all or non-law

Select one:

- ☐ a. False
- ☒ b. True

Question 18

Not yet
answered

Marked out of
1.0

Flag
question

Lymphocytes are manufactured only in bone marrow

Select one:

☐ a. True

☒ b. False

Question 19

Not yet
answered

Marked out of
1.0



Neuronal excitability is decreased if intracellular chloride is increased

Select one:

- ☐ a. False
- ☒ b. True

Question 20

Not yet
answered

Marked out of
1.0



The selectivity of potassium channels depends mainly on their negative charges

Select one:

- ☒ a. False
- ☐ b. True

Question 21

Not yet answered

Marked out of 1.0

Flag question

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

Select one:

- ☐ a. True
- ☒ b. False

Question 22

Not yet answered

Marked out of 1.0

Flag question

The selectivity of potassium channels depends mainly on their diameter

Select one:

- ☒ a. False
- ☐ b. True

Question **23**

Not yet
answered

Marked out of
1.0

 Flag
question

Superoxide (O_2^-) radicals are bactericidal agents released from both neutrophils and macrophages

Select one:



a. True



b. False

Question **24**

Not yet
answered

Marked out of
1.0

 Flag
question

Lymphocytes are produced only in lymphogenous tissues

Select one:

- ☐ a. True
- ☒ b. False

Question 25

Not yet
answered

Marked out of
1.0

 Flag
question

Basophils are expected to be increased in parasitic infection

Select one:

- ☒ a. False
- ☐ b. True

Question **26**

Not yet
answered

Marked out of
1.0

Flag
question

Stick of neutrophils to adhesion molecules of endothelium is called diapedesis

Select one:

- ☒ a. False
- ☐ b. True

Question 27

Not yet
answered

Marked out of
1.0

Flag
question

Walking reflexes occur at the level of spinal cord

Select one:

☒ a. True

☐ b. False

Question **28**

Not yet
answered

Marked out of
1.0

 flag
question

Leukemic patients have a bleeding tendency caused by thrombocytopenia

Select one:

- ☐ a. False
- ☒ b. True

Question 31

Not yet
answered

Marked out of
1.0

Flag
question

Atropine blocks the action of acetylcholine on muscarinic receptors

Select one:



a. True



b. false

Question 32

Not yet
answered

Marked out of
1.0

Flag
question

All blood cells are derived from pluripotential stem cell in bone marrow

Select one:

- ☒ a. True
- ☐ b. False

Question **33**

Not yet
answered

Marked out of
1.0

Flag
question

Walking reflexes occur at the level of medulla oblongata

Select one:

☒ a. False

☐ b. True

Question 34

Not yet
answered

Marked out of
1.0

Flag
question

Metabotropic receptors are postsynaptic ionotropic receptors

Select one:

- ☒ a. False
- ☐ b. True

Question 35

Not yet
answered

Marked out of
1.0

Flag
question

Opsonization means release of bactericidal agents from macrophages

Select one:

- ☒ a. True
☐ b. False

Question 36

Not yet
answered

Marked out of
1.0

Flag
question

Titin molecule acts as a template for initial formation of tropomyosin.

Select one:

- ☒ a. False
☐ b. True

Question 37

Not yet
answered

Marked out of
1.0

Flag
question

Erythrocytes growth in bone marrow is controlled by interleukin-3

Select one:

- ☐ a. False
- ☒ b. True

Question 38

Not yet
answered

Marked out of
1.0

🚩 flag
question

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

Select one:

- ☐ a. True
- ☒ b. False

Question 41

Not yet
answered

Marked out of
1.0

 Flag
question

Erythrocytes carry iron in the form of transferrin

Select one:

- ☐ a. True
- ☒ b. False



Question **42**

Not yet
answered

Marked out of
1.0

Flag
question

Propranolol blocks sympathetic alpha receptors

Select one:

- ☐ a. True
- ☒ b. False

Question **43**

Not yet
answered

Marked out of
1.0

Flag
question

Cytokines cause invasion of neutrophils to the inflamed area

Select one:

☐ a. False

☒ b. True

Question 44

Not yet
answered

Marked out of
1.0

Flag
question

Presynaptic inhibition occurs mainly in sensory pathways

Select one:

- ☐ a. False
- ☒ b. True

Question 45

Not yet
answered

Marked out of
1.0

Flag
question

Osmotic pressure is determined mainly by the mass of the particles

Select one:

- ☒ a. False
☐ b. True

Question 46

Not yet
answered

Marked out of
1.0

Flag
question

Bilirubin is the product of hemoglobin destruction by macrophages

Select one:

- ☒ a. True
☐ b. False

Question 47

Not yet
answered

Marked out of
1.0

Dendrites convey impulses towards cell body

Select one:



a. True



b. False

Question **48**

Not yet
answered

Marked out of
1.0

 Flag
question

Calcium is actively pumped into endoplasmic reticulum by primary transport

Select one:

☐ a. False

☒ b. True

Question 49

Not yet
answered

Marked out of
1.0

Flag
question

Temporal summation means summation of many presynaptic terminals EPSPs simultaneously to generate action potential

Select one:

☒ a. False

☐ b. True

Question **52**

Not yet
answered

Marked out of
1.0

 Flag
question

Atropine blocks the action of acetylcholine on nicotinic receptors

Select one:

- ☐ a. True
- ☒ b. False

Question **53**

Not yet
answered

Marked out of
1.0

 Flag
question

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

Select one:

- ☐ a. False
- ☒ b. True

Question **54**

Not yet
answered

Marked out of
1.0

 Flag
question

The relative refractory period coincides with plateau in cardiac muscle

Select one:

☐ a. True

☒ b. False

Question 55

Not yet
answered

Marked out of
1.0

Flag
question

Binding of immunoglobulin E to eosinophils causes histaminic allergy

Select one:

- ☐ a. True
- ☒ b. False

1.Facilitated diffusion

Select one:

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

2.Parasympathetic nervous system

Select one:

- a. dilates bronchi of lungs.
- b. releases acetylcholine at both pre- and postganglionic axons.
- c. tends to have longer postganglionic than preganglionic axons.
- d. inhibits the secretion of adrenal medulla.

3.The action potential

Select one:

- a. its magnitude does not varies with the stimulus strength.
- b. Its duration is shorter in cardiac than Skeletal muscles.
- c. is associated with a transient decrease in membrane permeability to sodium.
- d. its conduction is ster in unmyelinated fibers than myelinated ones.

Facilitated diffusion

Select one:

- a. is the way by which sodium can cross the cell membrane.
- b. similar to simple diffusion in being need no energy.
- c. occurs through receptor channel proteins in the cell membrane.

4.One statement about acetylcholine is incorrect

Select one:

- a. is inactivated at postsynaptic membranes mainly by active reuptake.
- b. its nicotinic receptor acts though liga gated ion Channels
- c. has a stimulatory effect on the intestine.
- d. is synthesized in presynaptic nerve terminal by choline acetyltransferase enzyme.

5.Erythrocytes

Select one:

- a. In chronic blood loss they give rise to microcytic hypochromic anemia.
- b. their number tends to increased in kidney disease
- c. contain nucleus
- d. carry iron in plasma in the form of transferrin

6.one statement about Na⁺/K⁺ Pump is incorrect

Select one:

- a. acts as an active electrogenic pump.
- b. similar to facilitated diffusion in being needs energy.
- c.Plays a major rol re-establishing the resting membrane potential.
- d. has a minor role in maintaining resting membrane potential.

7.Red blood cells

Select one:

- a. In chronic blood loss they give rise to microcytic hyperchromic anemia.
- b. their number te s to be decreased in kidney disease
- c. have a life span Of 180 days in the circulation
- d. contain nucleus

8. Neutrophils

Select one:

- a. part of them are formed in
- b. are found only in the circulation.
- c. their movement towards the inflamed tissue is called chemotaxis
- d. do not show phagocytic activity.

9. In a nerve cell

Select one:

- a. excitability is increased if extracellular potassium is decreased.
- b. Acidosis increases neuronal excitability.
- c. excitability is increased if intracellular Chloride is increased.
- d. there is an active efflux of during hyperpolarization.

10. Neutrophils differ from macrophages in being

Select one:

- a. have more powerful phagocytic activity
- b. their lysosomes do not contain lipase enzymes
- c. have the ability to engulf much larger particles
- d. phagocytize larger number of bacteria

11. Facilitated diffusion

Select one:

- a. is the way by which lipid-soluble substances can cross the cell membrane.
- b. Similar to active transport in being has carrier protein.
- c. is the way by which potassium can cross the cell membrane.
- d. differs from simple diffusion in being need no energy.

12. Isometric muscle contraction differs from isotonic contraction in being

Select one:

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

13. One statement about acetylcholine is incorrect

Select one:

- a. is synthesized in presynaptic nerve terminal by choline acetyltransferase enzyme.
- b. has an inhibitory effect on the heart
- c. its muscarinic receptor acts through ligand-gated ion channels
- d. is inactivated at postsynaptic membranes mainly by cholinesterase enzyme.

14. The most numerous cells in normal human blood are

Select one:

- a. monocytes.
- b. red blood cells.
- c. neutrophils.
- d. lymphocytes

15. One statement about vitamin B12 is incorrect

Select one:

- a. its deficiency as a result of gastrectomy causes microcytic anemia.
- b. its absorption needs intrinsic factor secreted by parietal cells of stomach.
- c. its absorption is difficult in people with sprue.
- d. cannot be manufactured in liver

16. Metabotropic receptor

Select one:

- a. acts through G—protein second messenger system.
- b. acts through ligand-gated ion channels.
- c. is not a glutamate receptor
- d. Unlike N-methyl D-aspartate (NMDA) receptor is believed to be involved in memory.

17. Hemoglobin

Select one:

- a. has abnormal α chains in sickle cell anemia.
- b. its affinity to oxygen decreased with increased CO_2 in tissue
- c. its affinity to oxygen is increased in a person living at high altitude
- d. its affinity to oxygen is lesser in fetus than in mother.

18. Regarding skeletal muscle myofilament

Select one:

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

19. One Statement about K^+ Pump is incorrect

Select one:

- a. has a minor role in maintaining resting membrane potential.
- b. acts as an electrogenic active pump.
- c. differs from facilitated diffusion in being dependent on carrier protein.
- d. differs from facilitated diffusion in being needs energy.

20. In skeletal muscle one statement is incorrect

Select one:

- a. muscle tetanization means rapid successive contraction with partial relaxation.
- b. Motor unit is all the muscle fibers innervated by a single nerve fiber.
- c. Gastrocnemius muscle has isometric duration more than ocular muscle
- d. sarcoplasmic reticulum has voltage gated dihydropyridine receptors

21. The nerve impulse

Select one:

- a. its duration is longer in skeletal than cardiac muscles.
- b. it has a magnitude which varies with the stimulus strength.
- c. is associated with a transient increase in membrane permeability to sodium.
- d. its conduction is slower in myelinated fibers than unmyelinated ones.

22. Skeletal muscle myofilaments has the following features except

Select one:

- 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

23. The resting membrane potential of a neuron

Select one

- a. increased in sinoatrial node.

- b. its movement towards zero is called hyperpolarization.
- c. increased in facilitated neurons normal ones.
- d. decreased with increasing neuronal excitability.

24. Hemoglobin

Select one:

- a. its affinity to oxygen increased with increased CO₂ in tissue
- b. its affinity to oxygen is lesser in mother than that in fetus.
- c. has abnormal α chains in sickle cell anemia.
- d. its affinity to oxygen is increased in a person living at high altitude

25. In skeletal muscle

Select one:

- a. Fast fibers have large number of mitochondria to supply energy for contraction.
- b. Force of contraction is proportional to number of cross-bridges in contact with actin.
- c. All cross-bridges work simultaneously to give strong contraction.
- d. The major source of energy is glycolysis.

26. One statement about erythropoietin is incorrect

Select one:

- a. enhances erythrocytes production under hypoxic condition
- b. its rate of production increases when a person is placed at high altitude.
- c. tends to be decreased in pulmonary disease
- d. its administration is helpful in treatment of anemia associated with renal failure

27. The nerve impulse

Select one:

- a. is elicited by a subthreshold stimulus applied to a nerve fiber.
- b. spreads in both directions across the nerve fiber.
- c. is terminated by increasing active K⁺ efflux
- d. its conduction is faster in unmyelinated fibers than myelinated ones.

28. Isometric muscle contraction differs from isotonic contraction in being

Select one:

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

29. In skeletal muscle

Select one:

- a. Fast muscle fibers are innervated by smaller nerve fibers than slow fibers
- b. Relaxation is a passive process.
- c. The resting membrane potential is similar to that in neuron.
- d. Soleus muscle has isometric duration less than gastrocnemius

30. Norepinephrine

Select one:

- a. is a stronger blood vessels vasoconstrictor than epinephrine.
- b. decreases peristalsis and sphincter tone of the gut.
- c. is inactivated mainly by monoamine oxidase and catechol-O-methyl transferase enzymes.
- d. excites G-proteins-linked beta receptors rather than alpha receptors

31. The resting membrane potential of a neuron

Select one:

- a. is maintained to a low extent by K leak channels.
- b. its movement towards zero is called hyperpolarization.
- c. differs from that in skeletal muscle fiber.
- d. decreased in cardiac sinoatrial node (SAN).

32. In a neuron

Select one:

- a. Alkalosis decreases neuronal excitability.
- b. excitability is increased if intracellular chloride is decreased.
- c. excitability is increased if extracellular potassium is increased.
- d. there is an active efflux of K⁺ during hyperpolarization.

33. N-methyl D-aspartate (NMDA) receptor

Select one:

- a. acts through ligand-gated Ca^{2+} ion channel.
- b. is inhibited by the presence of glycine.
- c. Unlike metabotropic receptor is believed to be involved in memory.
- d. is not a glutamate receptor.

34. One statement about bilirubin is incorrect

Select one:

- a. is produced by red blood cell burst.
- b. contains iron.
- c. is excreted in bile.
- d. is a porphyrin pigment derived from hem.

35. In skeletal muscle one statement is incorrect

Select one:

- a. The duration of action potential is similar to that in neuron.
- b. on contraction the length of the sarcomere is shortened.
- c. both relaxation and contraction are active processes.
- d. sarcoplasmic reticulum has voltage-gated dihydropyridine receptors.

36. The resting membrane potential

Select one:

- a. decreased in facilitated neurons than normal ones.
- b. its movement towards zero is called repolarization.
- c. increased with increasing neuronal excitability.
- d. increased in cardiac sinoatrial node.

37. The nerve impulse

Select one:

- a. its conduction is faster in unmyelinated fibers than myelinated ones.
- b. is terminated by increasing passive K⁺ efflux.
- c. spreads in one direction across the nerve fiber.
- d. is elicited by a subthreshold stimulus applied to a nerve fiber.

38. Blood platelets

Select one:

- a. increased their number in leukemic patients
- b. derived from lymphoid tissues in bone marrow

c. unlike leukocytes, they derived from pluripotential stem cell in bone marrow
d. decreased their number in leukemic patients

39. Excitatory postsynaptic potential is all or non—law potential

Select one:

- a. True
- b. False

40. GABAA receptors make their inhibitory action through Cl⁻ efflux

Select one:

- a. True
- b. False

41. Iron is transported in plasma in the form of transferrin

Select one:

- a. True
- b. False

42. Myosin head has 2 heavy chains and 2 light chains

Select one:

- a. False
- b. True

43. Polycythemia vera is a genetic disorder characterized by high blood viscosity

Select one:

- a. False
- b. True

44. Nitric oxide is synthesized and stored in vesicles in presynaptic terminals

Select one:

- a. True
- b. False

45. Lack of calcium increases excitatory postsynaptic potential in response to stimulation terminal

- a. True
- b. False

46. Skeletal muscle becomes less excitable when its resting potential is increased

Select one:

- a. False
- b. True

47. Iron is stored in tissues mainly in the form of transferrin

Select one:

- a. False
- b. True

48. K⁺ leak channels play a major role in generating resting membrane potential

Select one:

- a. False
- b. True

49. GABA is synthesized in cell bodies and then transported to axon terminals

Select one:

- a. True

b. False

50. Second macrophage invasion into tissue provides a second line of defense

Select one:

- a. True
- b. False

51. The walk—along theory of skeletal muscle describes mainly the power stroke

Select one:

- a. False
- b. True

52. Strychnine increases neuronal excitability by its inhibitory effect on glycine

Select one:

- a. True
- b. False

53. Unlike red blood cell, reticulocyte contains nucleus

Select one:

- a. False
- b. True

54. RBC appears biconcave rather than spherical in hereditary spherocytosis

Select one:

- a. True
- b. False

55. The whole muscle does not obey all or none-law

Select one:

- a. False
- b. True

56. Lymphocytes are manufactured only in bone marrow

Select one:

- a. True
- b. False

57. Neuronal excitability is decreased if intracellular chloride is increased

Select one:

- a. False
- b. True

58. The selectivity of potassium channels depends mainly on their negative charges

Select one:

- a. False
- b. True

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

Select one:

- a. True
- b. False

60. The selectivity of potassium channels depends mainly on their diameter

Select one:

- a. False
- b. True

61. Superoxide (O_2^-) radicals are bactericidal agents released from both neutrophils and macrophages

Select one:

- a. True
- b. False

62. Lymphocytes are produced only in lymphogenous tissues

Select one:

- a. True
- b. False

63. Basophils are expected to be increased in parasitic infection

Select one:

- a. False
- b. True

64. Stick of neutrophils to adhesion molecules of endothelium is called diapedesis

Select one:

- a. False
- b. True

65. walking reflexes occur at the level of spinal cord

Select one:

- a. True
- b. False

66. Leukemic patients have a bleeding tendency caused by thrombocytopenia

Select one:

- a. False
- b. True

67. Atropine blocks the action of acetylcholine on muscarinic receptors

Select one:

- a. True
- b. False

68. All blood cells are derived from pluripotential stem cell in bone marrow

Select one:

- a. True
- b. False

69. walking reflexes occur at the level of medulla oblongata

Select one:

- a. False
- b. True

70. Metabotropic receptors are postsynaptic ionotropic receptors

Select one:

- a. False
- b. True

71. Opsonization means release of bactericidal agents from macrophages

Select one:

- a. True
- b. False

72. Titin molecule acts as a template for initial formation tropomyosin.

Select one:

- a. False
- b. True

73. Erythrocytes growth in bone marrow is controlled by interleukin-3

Select one:

- a. False
- b. True

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

Select one:

- a. True
- b. False

75. Erythrocytes carry iron in the form of transferrin

Select one:

- a. True
- b. False

76. propranol blocks sympathetic alpha receptors

Select one:

- a. True
- b. False

77. Cytokines cause invasion of neutrophils to the inflamed area

Select one:

- a. False
- b. True

78. Presynaptic inhibition occurs mainly in sensory pathways

Select one:

- a. False
- b. True

79. Osmotic pressure is determined mainly by the mass of the particles

Select one:

- a. False
- b. True

80. Bilirubin is the product of hemoglobin destruction by macrophages

Select one:

- a. True
- b. False

81. Dendrites convey impulses towards cell body

Select one:

- a. True
- b. False

82. Calcium is actively pumped into endoplasmic reticulum by primary transport

Select one:

- a. False
- b. True

83. Temporal summation means summation of many presynaptic terminals EPSPs simultaneously to generate action potential

Select one:

- a. False
- b. True

84. Atropine blocks the action of acetylcholine on nicotinic receptors

Select one:

- a. True
- b. False

85. Fast fibers have a lower level of oxidative metabolism than slow fibers

Select one:

- a. False
- b. True

86. The relative refractory period coincides with plateau in cardiac muscle

Select one:

- a. True
- b. False

87. Binding of immunoglobulin E to eosinophils causes histaminic allergy

Select one:

- a. True
- b. False

88. Voltage-gated channels open in response to the binding of signaling molecules **F**

89. Lipid-soluble signaling molecules bind to receptors in the nucleus **F**

90. Nicotinic acetylcholine receptors are G-protein receptors **F**

91. The resting membrane potential of a neuron:

- a. is the potential maintained by a non-conducting neuron's plasma membrane.
- b. is maintained at about -70 mV.
- c. its establishment does not need energy
- d. is mainly produced by K⁺ ions.

92. Erythropoietin:

- a. increases the average half-life of erythrocytes.
- b. is a hormone secreted mainly by kidney.
- c. the main stimulus of its production is hypoxia.
- d. its main site of action is the bone marrow

93. Facilitated diffusion:

- a. is faster than simple diffusion.
- b. exhibits specificity for transported molecules.
- c. required no energy to facilitate transport of molecules.
- d. not permit large polar molecules to traverse plasma membrane.

94. Integral membrane proteins

- a. attached to the inner leaflet
- b. function in both passive and active transport
- c. not attached to the outer leaflet
- d. include amphipathic transmembrane proteins

95. Na⁺/K⁺ Pump

- a. is an antiport transport system
- b. Plays a major role in maintenance potential difference across cell membrane

- c. Mediated by the peripheral protein Na⁺/K⁺ ATPase
- d. decreases water flow into the cell

96. Voltage-gated channels open in response to the binding of signaling molecules **F**

97. Sympathetic nervous system:

- a. stimulates skeletal muscle contraction during exercise.
- b. generally has antagonistic effects to those of parasympathetic system.
- c. release acetylcholine at preganglionic axons and noradrenaline at postganglionic axons.
- d. tends to have shorter preganglionic than postganglionic axons.

98. The resting membrane potential of a neuron: except

- a. is the potential maintained by a non conducting neuron's plasma membrane.
- b. is maintained at about -70 mV.
- c. its establishment does not need energy
- d. is mainly produced by K⁺ ions.

99. Action potential: all true except

- a. is initiated by an increase in membrane potential to a critical value
- b. is conducted faster in myelinated fibers than unmyelinated ones
- c. obeys all or none law
- d. travels in one direction across the synapse.

100. Erythropoietin: all true except

- a. increases the average half-life of erythrocytes.
- b. is a hormone secreted mainly by kidney.
- c. the main stimulus of its production is hypoxia.
- d. its main site of action is the bone marrow.

101. Depolarization means Na⁺

influx and hyperpolarization means K⁺ efflux across cell membrane **T**

102. In contrast to glutamate, -aminobutyric acid (GABA) is the main inhibitory neurotransmitter in the central nervous system **T**

103. Examples of positive feedback include all true except

- a. regulation of blood CO₂ .
- b. blood clotting.
- c. childbirth.
- d. generation of nerve signals.

104. Nervous system all true except

- a. has integrative portion that include brain and spinal cord.
- b. its autonomic portion controls function of skeletal muscles.
- c. has sensory input portion that detect state of surroundings..
- d. has motor output portion that transmit appropriate signals to muscles

105. Extracellular fluid differs from intracellular fluid in that All true except

- a. it has a lesser volume.
- b. it has a lower tonicity.
- c. its anions are mainly inorganic.
- d. it has a higher sodium:potassium ratio

106. Na⁺/K⁺ pump All true except

- a. prevents cell lysis by continuous Na^+ influx.
- b. like facilitated diffusion it depends on carrier protein.
- c. unlike facilitated diffusion it requires energy that derived directly from ATP .
- d. participates in genesis of resting membrane potential.

107. Cell membrane All true except

- a. is permeable to fat-soluble substances.
- b. consists of a layer of protein sandwiched between two layers of lipid.
- c. normally contains enzymes
- d. has cholesterol molecules that help in determining the degree of its permeability

108. Calcium pump in the membrane of sarcoplasmic reticulum pumps calcium to the outside F

109. Osmotic pressure is determined by particle mass/unit volume of fluid F

110.. Facilitated diffusion differs from simple diffusion in being requires energy F

111. The resting membrane potential of a neuron: all true except

- a. is the potential maintained by a nonconducting neuron's plasma membrane.
- b. its movement away from zero is called hyperpolarization.
- c. is achieved by active extrusion of potassium ions out of the neuron.
- d. its movement towards zero is called depolarization.

112. Bilirubin all true except

- a. is produced by RBC burst
- b. is a porphyrin pigment derived from hem
- c. contains iron
- d. is excreted in bile

113. Facilitated diffusion all true except

- a. occurs through receptor protein with a weak binding force.
- b. differs from simple diffusion in being needs energy.
- c. is the way by which glucose can cross the cell membrane.
- d. differs from simple diffusion in that its rate approaches a maximum as the concentration of diffusing substance increases.

114. The nerve impulse All true except

- a. is associated with a transient increase in membrane permeability to sodium
- b. causes propagation of electrical current along the nerve fibre
- c. is generated in the postsynaptic neuron at a high threshold initial segment.
- d. is terminated by increasing K^+ efflux.

115 In normal human blood all true except

- a. the neutrophils is the most common type of white blood cell
- b. the iron is mostly in hemoglobin
- c. there are more white blood cells than red blood cells.
- d. there are more red blood cells than platelets

116 The action potential: all true except

- a. it has an amplitude which varies directly to the strength of stimulus

- b. is initiated by a decrease in the membrane potential to a critical value.
- c. travels in one direction across the synapse.
- d. can release neurotransmitter from synaptic knob by the opening of voltage

117. Neutrophils All true except

- a. are not confined to the circulation.
- b. show phagocytic activity.
- c. are the most numerous leukocytes in blood.
- d. Part of them are formed in the thymus.

118 In the neurons All true except

- a. the axons convey impulse away from the cell body
- b. neurotransmitters are synthesized in cell bodies and then transported to axons
- c. there is an influx of Na^+ and efflux of K^+ during depolarization
- d. the excitability is increased if the extracellular calcium concentration is decreased

119. The following are true about blood platelets except

- a. they are formed in the bone marrow.
- b. their normal concentration in circulation is about quarter a million/l
- c. releases phospholipids which have a role in the clotting process
- d. they have nuclei to be reproduced

120 Hemoglobin all true except

- a. carried oxygen in a molecular form to tissues
- b. its affinity to oxygen is decreased in a person living at high altitude
- c. its affinity to oxygen is greater in mother than that in fetus.
- d. its destruction increases bilirubin level in blood..

121. Acetylcholine all true except

- a. is synthesized in presynaptic nerve terminals by the enzyme cholineacetyltransferase
- b. secreted at preganglionic neurons of autonomic nervous system
- c. has excitatory effect on the heart
- d. degraded by the enzyme cholinesterase at postsynaptic neurones

122. Na^+/K^+ Pump All true except

- a. is an active pump with large and small -subunits
- d. plays a major role in the maintenance of a potential difference across the cell membrane.
- b. controls cell volume through controlling water osmosis
- c. acts as an electrogenic pump.

123. Gamma aminobutyric acid (GABA) is the major inhibitory neurotransmitter in the CNS **T**

124. Erythropoietin increases the average half life of red blood cells **F**

125. The interaction of G-proteins-linked receptors with signaling molecule results in activation or inhibition of cyclic AMP **F**

126. Osmotic pressure is the amount of pressure required to facilitate osmosis **F**

127.. IgE can cause allergy to the foetus **T**

128. Adrenaline is secreted at postganglionic neurons of sympathetic nervous system **F**

129. Like facilitated diffusion, primary and secondary active transport depends on carrier protein **F**

130. The most common cells to exhibit amoeboid locomotion in the human all true except body are
a. neutrophils
b. red blood cells
c. fibroblasts
d. macrophages

131. Nervous system all true except
a. has integrative portion that include brain and spinal cord.
b. its autonomic portion controls function of skeletal muscles.
c. has sensory input portion that detect state of surroundings..
d. has motor output portion that transmit appropriate signals to muscles.

132. The resting membrane potential of a neuron: all true except
a. is the potential maintained by a nonconducting neuron's plasma membrane.
b. it is generated mainly by K^+ leakage channels.
c. is maintained at about -70 mV.
d. its movement towards zero is called repolarization.

133. The action potential all true except
a. has amplitude which does not vary with stimulus strength.
b. is initiated by increase membrane potential to a critical value
c. is generated in the postsynaptic neuron at a low threshold initial segment
d. is terminated by increasing K^+ conductance

134. Extracellular fluid differs from intracellular fluid in that All true except
a. it has a lesser volume.
b. it has a lower tonicity.
c. its anions are mainly inorganic.
d. it has a higher sodium:potassium ratio.

135. Na^+/K^+ pump All true except
a. prevents cell lysis by continuous Na^+ influx.
b. like facilitated diffusion it depends on carrier protein.
c. unlike facilitated diffusion it requires energy that derived directly from ATP .
d. participates in genesis of resting membrane potential.

136. Cell membrane all true except
a. is permeable to fat-soluble substances.
b. consists of a layer of protein sandwiched between two layers of lipid.
c. normally contains enzymes
d. has cholesterol molecules that help in determining the degree of its permeability

137. Motor proteins of muscles are actin filaments **F**

138. Na⁺/K⁺ pump plays a minor role in generating resting membrane potential **T**

139. Acetylcholine acts through voltage gated channels **F**

140. Calcium pump in the membrane of sarcoplasmic reticulum pumps calcium to the outside **F**

141. Osmotic pressure is determined by particle mass/unit volume of fluid **F**

142. Depolarization of cardiac muscle is achieved mainly by calcium ions influx **T**

143. Facilitated diffusion differs from simple diffusion in being requires energy **F**

145. Hemoglobin All true except

- a. carried oxygen in a molecular form to tissues
- b. its affinity to oxygen is decreased in a person living at high altitude
- c. its affinity to oxygen is greater in mother than that in fetus.
- d. its destruction increases bilirubin level in blood..

158. Glutamate is the major excitatory neurotransmitter in the CNS **T**

159. Tropomyosin is a thick filament protein covers the active sites of actin in skeletal muscle **F**

178. Vitamin B12 all true except

- a. its daily requirements is 1-3 gm
- b. can not be manufactured in liver
- c. its absorption needs intrinsic factor secreted by stomach
- d. its deficiency causes microcytic anaemia

193. Lymphocytes all true except

- a. all originate from bone marrow
- b. are affected by interleukines
- c. most of them are mobile
- d. are part of the body's defense against cancer

198. In Sickle cell anemia, RBCs have abnormal Hb called hemoglobin S with faulty α -chains **T**

199. Eosinophils are produced in large quantities in people with parasitic infection **T**

205. Calcium is actively pumped into endoplasmic reticulum by primary transport

False.

True

206. 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

207. In skeletal muscle

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

208. Lack of intracellular calcium increases excitability in neurons

True

False

209. In skeletal muscle

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

210. The resting membrane potential of a neuron

- a. its movement towards zero is called hyperpolarization
- b. is maintained to a low extent by K leak channels
- c. decreased in cardiac sinoatrial node
- d. differs from that in skeletal muscle

211. In renal tubules, intercalated cells participate in regulating blood pH

False

True

212. One statement about Na⁺/K⁺ Pump is incorrect

- a. similar to facilitated diffusion in being depend on carrier protein
- b. acts as an active electrogenic pump
- c. similar to facilitated diffusion in being needs energy
- d. plays a potential role in re-establishing membrane potential to resting state

213. Local potential is all or non-law potential

False

True

214. Facilitated diffusion

- a. occurs through receptor protein with a weak binding force
- b. is the only way to transport glucose through cell membrane

c.differs from active transport in being.has a specific carrier protein
d.is the way by which lipid-soluble substances can cross cell membrane

215.Skeletal muscle becomes less excitable when its resting potential is increased

False

True

216.Acetylcholine acts through voltage gated ion channels

False.

True

217.The whole muscle does not obey all or non-law

True

False

218.Skeletal muscle myofibrils have 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

219.The depolarization stage coincides with plateau in cardiac muscle

True

False

220.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

221.Control of breathing is a good example of rhythmic activity

False

True

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

False .

True .

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

True

False

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

True

False

225.Osmotic pressure is determined mainly by molecular weight of the particle

False

True

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

False

True

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

a.pressure difference across the membrane

b.rate of activity of membrane carrier proteins

c.concentration difference across a membrane

d.membrane electrical potential

228.The relative refractory period coincides with plateau in cardiac muscle

False

True .

229.The resting membrane potential of a nerve cell

a.is maintained mainly by Na/K pump

b.decreased in excitable neurons.than normal ones

c.Decreased with increasing intracellular chloride ions

d.increased in cardiac sinoatrial node

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

True

False

231.Titin molecule acts as a template for initial formation of tropomyosin

True

False

232.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

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

True

False

234.Neuronal excitability is decreased if intracellular chloride is increased

True

False .

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

False

True

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

True
False

237.The nerve impulse

- a.its duration is shorter in nerves than.sinoatrial node
- b.its duration is shorter in skeletal muscles .than nerves
- c.is terminated by increasing active K^+ efflux
- d.spreads in one direction across the nerve fiber

238.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.

239.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

240.Action potential spreads in both directions across the nerve fiber

False
True

