Copy of Exam 1 for printing - Results

Exit Preview

Attempt 1 of 2

Written Feb 28, 2024 10:12 AM - Feb 28, 2024 10:12 AM

Your quiz has been submitted successfully.

Attempt Score **0 / 50 - 0 %**

Question 1

0 / 1 point

Cardiac Output is increased by

- ○ increased sympathetic activity causing increased contractility, which increases stroke volume
- ○ increased parasympathetic activity causing increased contractility, which increases heart rate
- ○ increased parasympathetic activity causing increased heart rate
- ○ decreased sympathetic activity causing increased heart rate
- ○ increased parasympathetic activity causing increased contractility, which increases stroke volume

Question 2

0 / 1 point

from your textbook:

> ***internal respiration***:
> The diffusion of gases between interstitial fluid and cytoplasm

Uh-oh. The textbook goofed here. What is a not-wrong definition of internal respiration?

- The exchange of gases between systemic capillary blood and peripheral tissues
- the transport of O2 to systemic tissue and CO2 to the lung
- the consumption of O2 and generation of CO2 by the mitochondria
- The exchange of gases between alveolar air and pulmonary capillary blood
- the movement of air into and out of the lungs

Question 3 **0 / 1 point**

A portal vein is

- the vessel within a capillary network that directly transports blood from the arteriole to venule, bypassing the capillaries
- a type of vein without valves
- a connector vessel between two veins
- a vein of the pulmonary circuit that transports oxygenated blood
- a vein that transports blood from one capillary network to a 2nd capillary network

Question 4 **0 / 1 point**

the two major regulators of homeostasis of body fluid levels are

- exocrine and endocrine systems
- exocrine and autonomic nervous systems
- endocrine and autonomic nervous systems
- blood vascular and lymph systems
- somatic motor and autonomic nervous systems

Question 5 **0 / 1 point**

The theory that there exist many millions of lineages of lymphocyte, each expressing a unique lymphocyte receptor that can bind to a unique antigen, but that a line is not activated until a naive lymphocyte in the line binds to an APC presenting the matching antigen, and that all progeny of the activated lymphocyte will only express the specific lymphocyte receptor and/or antibody, is called

- clonal selection
- V(D)J recombination
- hypersensitive response
- immune surveillance
- immune tolerance

Question 6 **0 / 1 point**

Cytosolic (endogenous) protein fragments, including protein fragments of any intracellular virus or bacteria, are trafficked to the plasma membrane of

- (professional) antigen presenting cells only
- all nucleated cells except leukocytes
- all nucleated cells
- antibody producing cells
- leukocytes only

Question 7 **0 / 1 point**

The autonomic nervous system is

- a set of neuroendocrine neurons that regulate body organs by secretion of neurohormones
- a set of interneurons that control the unconscious processing in decision making
- a network of sensory, motor, and interneurons regulating the gastrointestinal tract
- a set of motor neurons that control the unconscious action of skeletal muscle
- a set of motor neurons that contribute to the regulation of homeostasis in many body systems

Question 8 **0 / 1 point**

Increased sympathetic activation stimulates

- increased heart rate and force of contraction
- increased energy (glucose and fatty acid) storage
- increased smooth muscle activity of the stomach and intestine
- increased exocrine activity of the pancreas
- increased secretion of HCl in the stomach

Question 9 **0 / 1 point**

The AV valves close because

- the filled ventricles push the valves closed
- pressure in the ventricles rises above the pressure in the atria
- special muscles in the wall of the atria contract, and pull the valves closed
- pressure in the ventricles fall below pressure in the aorta/pulmonary trunk
- the papillary muscles in the ventricles contract and pull on the chordae tendonae, which pull the valves closed

Question 10 **0 / 1 point**

The stimulus for heart contraction is initiated by cells in the

- parasympathetic neurons
- sympathetic neurons
- purkinje fibers
- sinoatrial node
- atrioventricular node

Question 11 **0 / 1 point**

mean arterial pressure is increased by all of the following EXCEPT

- increased diameter of arterioles
- increased hematocrit
- increased HR
- increased contractility
- increased end diastolic volume

Question 12 **0 / 1 point**

hemoglobin is a protein found in

- the cytoplasm of RBCs
- interstitial fluid
- special O2 filled vessicles in RBCs
- arteries but not veins
- blood plasma

Question 13 **0 / 1 point**

This cell type is a blood cell that travels to sites of inflammation and secretes toxins that kill parasitic worms. This cell type is a

- basophil
- Treg (regulatory T) cell
- Tc (Cytotoxic T) cell
- eosinophil
- neutrophil

Question 14 **0 / 1 point**

Lymph capillaries

- are thin walled tubes that connect afferent to efferent lymph vessels in lymph nodes, and are the site of lymph filtration
- are branches of blood capillaries that carry excess blood plasma to the organs of the lymph system in order to clean the blood
- occur near blood capillaries and are the start of the lymph vessels
- are vessels intimately bound to blood capillaries and are the site of blood filtration, creating the lymph fluid
- are specialized blood capillaries in lymphoid organs

Question 15 **0 / 1 point**

Increased blood CO2 is sensed by cells in the medulla that signal increased respiratory rate and alveolar ventilation. What kind of sensory receptor enables this?

- photoreceptors
- magnetoreceptors
- mechanoreceptors
- thermoreceptors
- chemoreceptors

Question 16 **0 / 1 point**

We really care about hematocrit because it is an important measure of

- the ability to regulate blood pressure
- the ability to transport O2 to tissues
- the ability to coagulate blood
- the ability to mount an adaptive immune response
- the ability to mount an innate immune response

Question 17 **0 / 1 point**

Air flows in and out of lungs due to pressure differences along the respiratory tract. What is the source of this pressure difference in *expiration*?

- the alveolar volume contracts, increasing alveolar pressure relative to outside air pressure
- the nasal cavity volume contracts, increasing nasal cavity pressure relative to alveolar air pressure
- the nasal cavity volume expands, decreasing nasal cavity pressure relative to alveolar air pressure
- the alveolar volume expands, decreasing alveolar pressure relative to outside air pressure
- the alveolar volume contracts, decreasing alveolar pressure relative to outside air pressure

Question 18 **0 / 1 point**

Baroreceptors are

- mechanoreceptors in the wall of some arteries
- mechanoreceptors in skeletal muscle
- chemoreceptors in the hypothalamus
- chemoreceptors in the endothelium of some arteries
- electroreceptors in the hypothalamus

Question 19 **0 / 1 point**

A function of helper T cells is

- immune surveillance
- activation of B cells
- secretion of antibody
- secretion of protein to opsonize bacteria
- phagocytosis of bacteria

Question 20 **0 / 1 point**

A super important family of defense molecules are interferons (IFN). The major (textbook) function of type I interferons is

- opsonize pathogen cells for phagocytosis
- act as toxins against multicellular parasites including worms
- make our urinary epithelium super leaky to facilitate the transport of bacteria into the urine
- bind to and neutralize toxins
- signal neighbor cells to synthesize proteins that inhibit viral reproduction

Question 21 **0 / 1 point**

Blood plasma is composed of all of the following EXCEPT

- proteins
- water molecules
- dissolved gases
- erythrocytes
- electrolytes

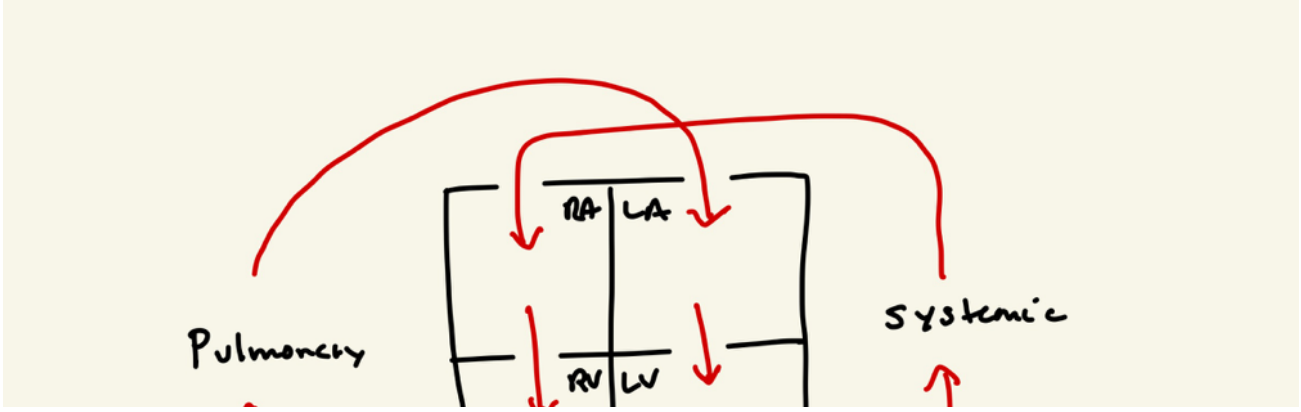
Question 22 **0 / 1 point**

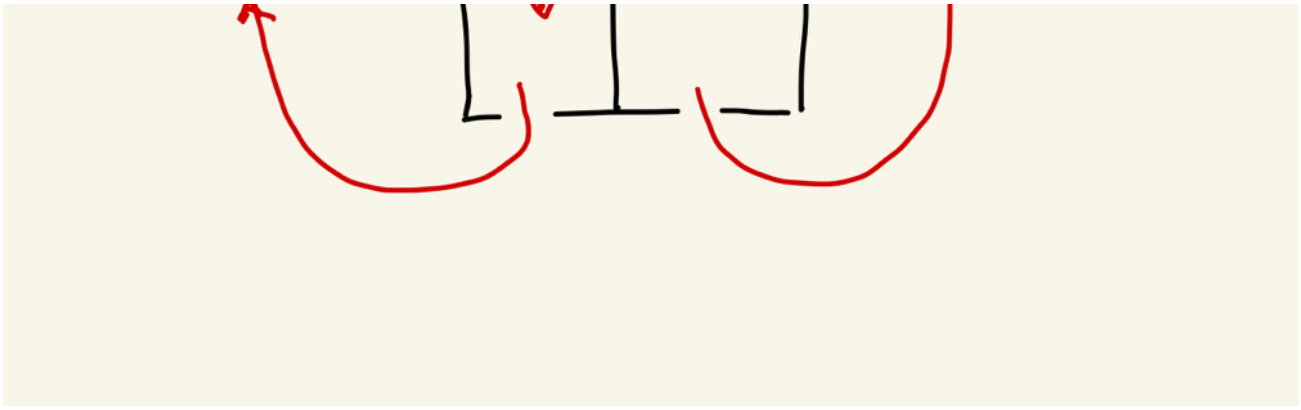
The major neurotransmitter of sympathetic signaling at the target organ is

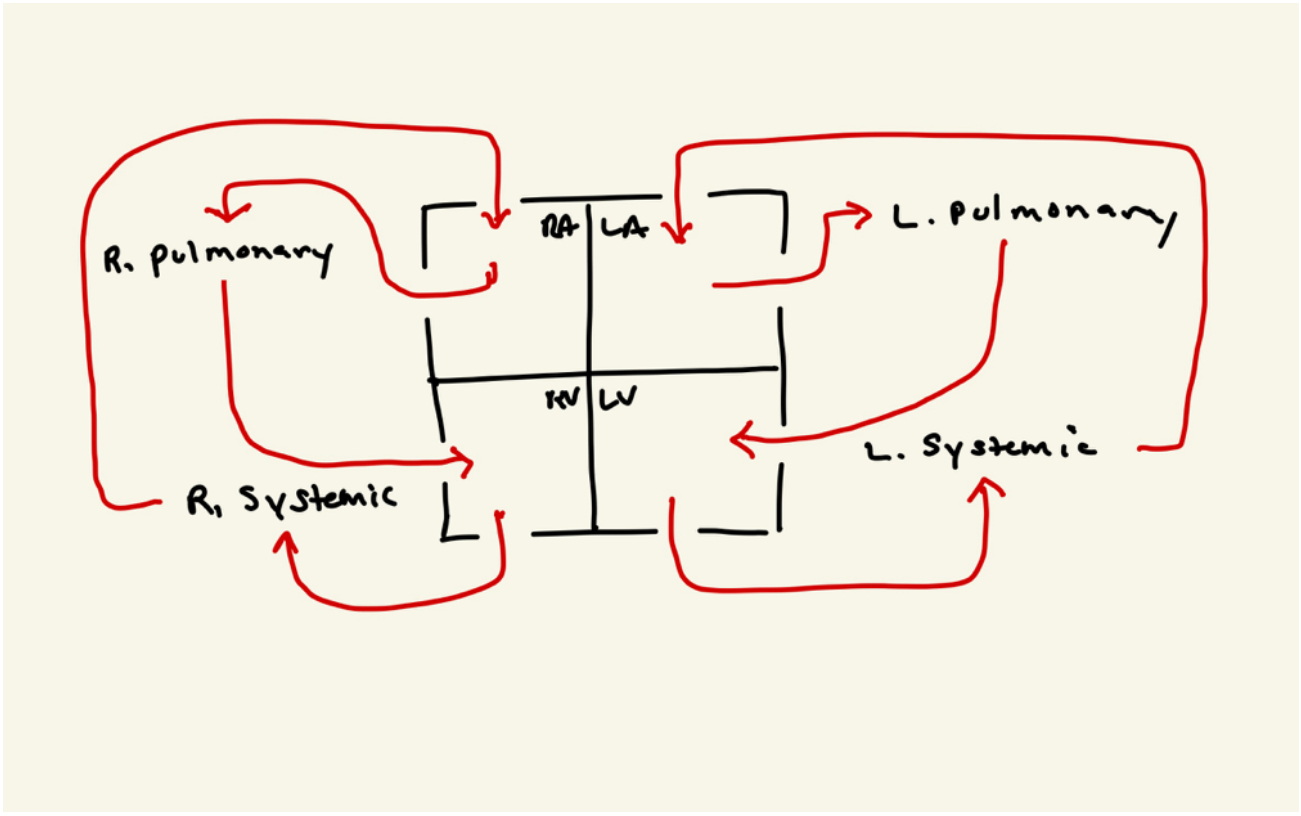
- acetylcholine
- oxytocin
- dopamine
- vasopressin
- norepinephrine

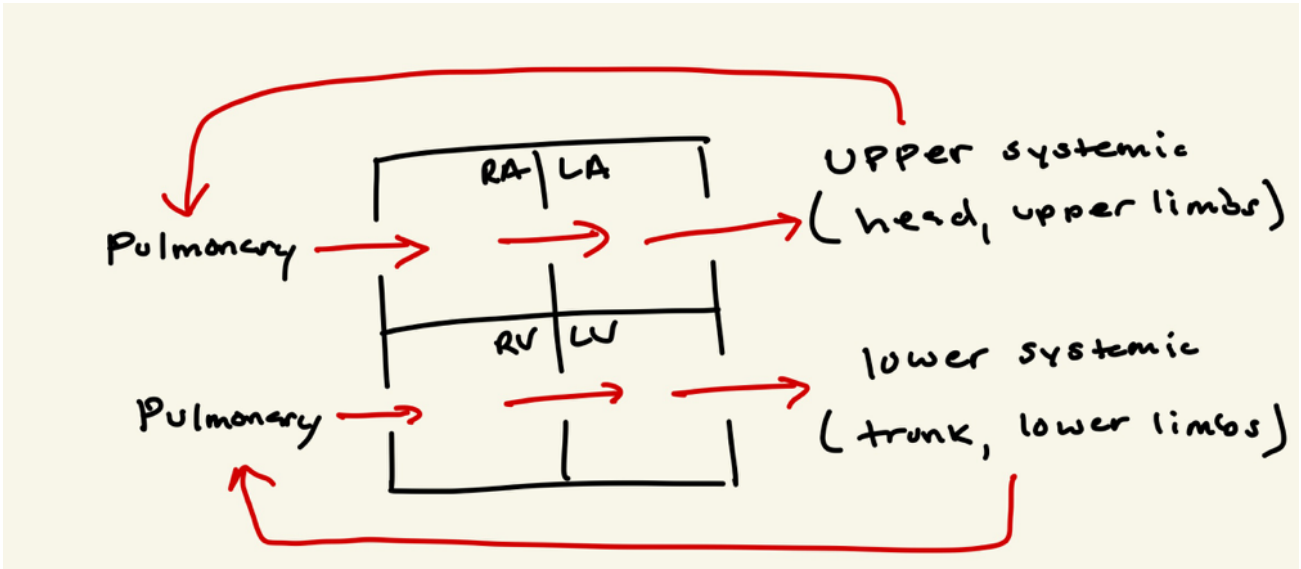
Question 23 **0 / 1 point**

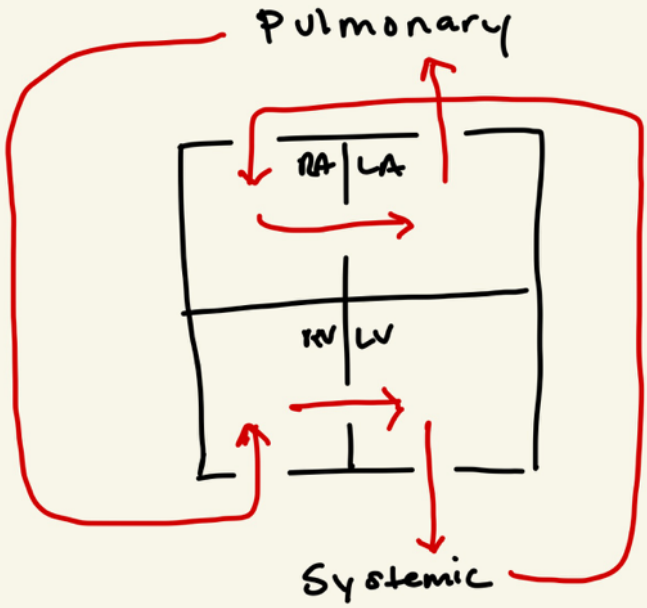
Which of the images below is the correct path of blood through the heart and anatomy of the pulmonary and systemic circuits?

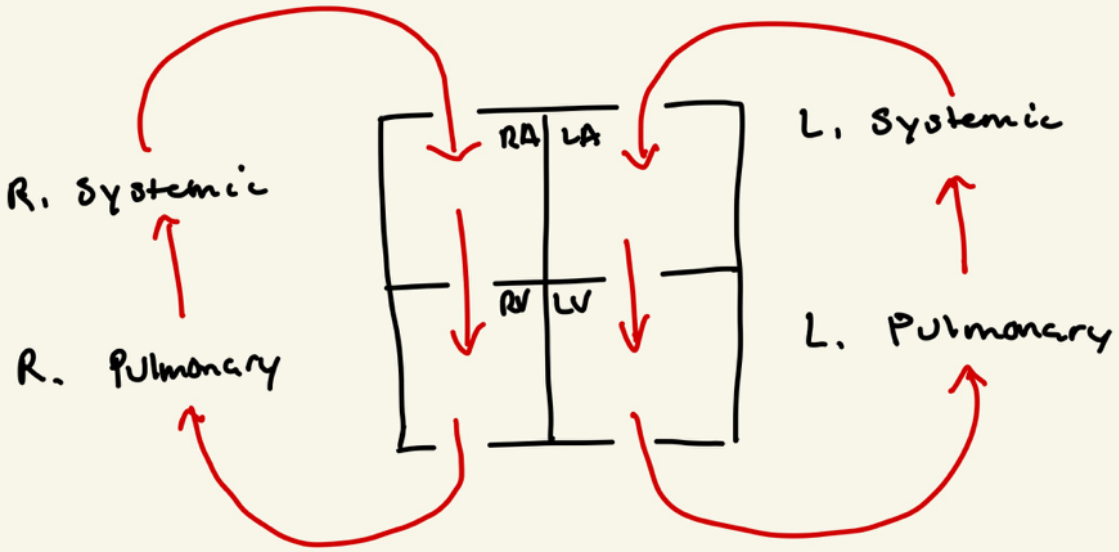





R. Pulmonary
RA
LA
L. Pulmonary
RV
LV
L. Systemic
R. Systemic

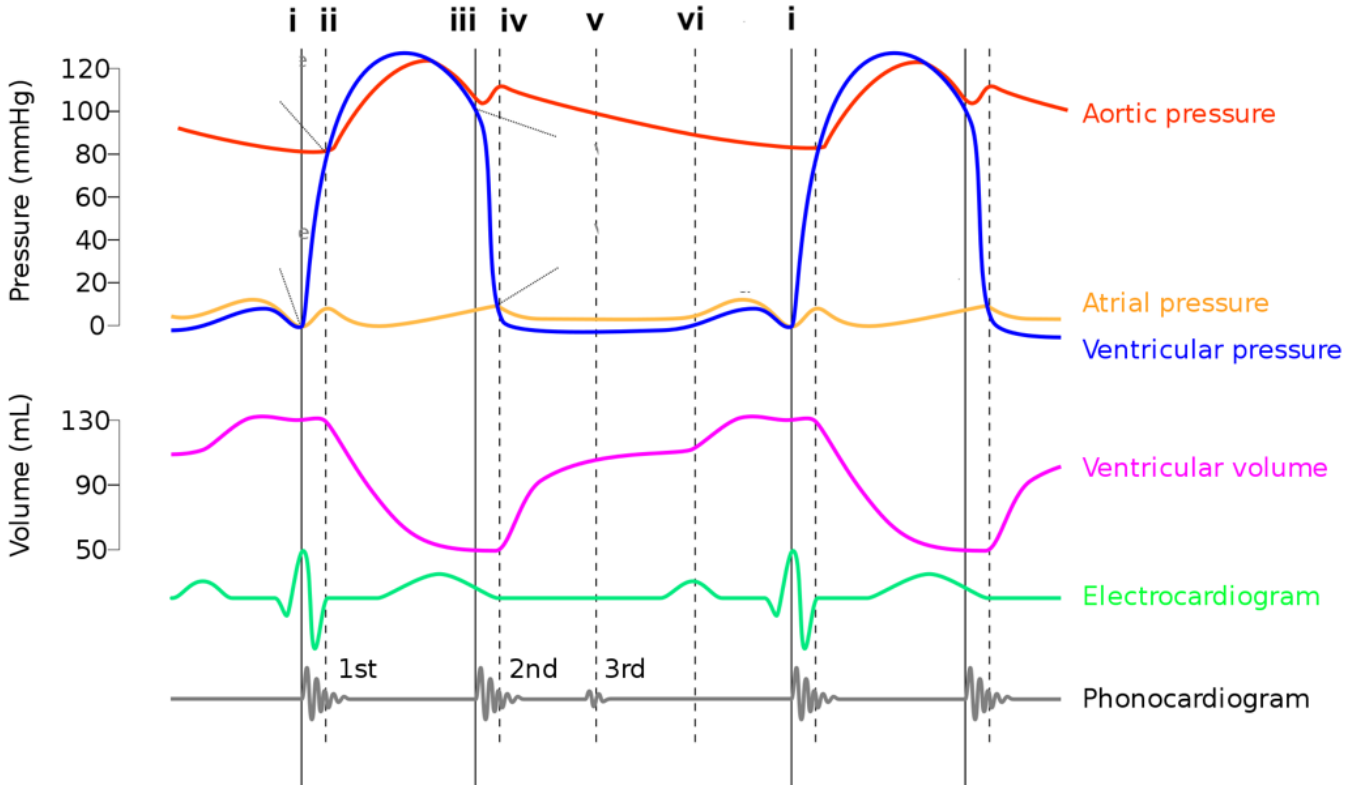

RA
LA
Upper systemic
(head, upper limbs)
Pulmonary
RV
LV
lower systemic
Pulmonary
(trunk, lower limbs)


Pulmonary
RA
LA
RV
LV
Systemic


R. Systemic
R. Pulmonary
RA
LA
RV
LV
L. Systemic
L. Pulmonary

Question 24

0 / 1 point



The image above marks important time points for understanding the cardiac cycle. One cycle starts at the label i to the left and ends at the label i to the right.

Using these labeled marks, increased preload would show

- increased ventricular volume at point i
- A right shift in point iii
- A right shift in point ii
- increased aortic pressure at point ii
- increased ventricular pressure at point ii

Question 25 **0 / 1 point**

antithrombin is important because, well, its "against" thrombin. Why is this important?

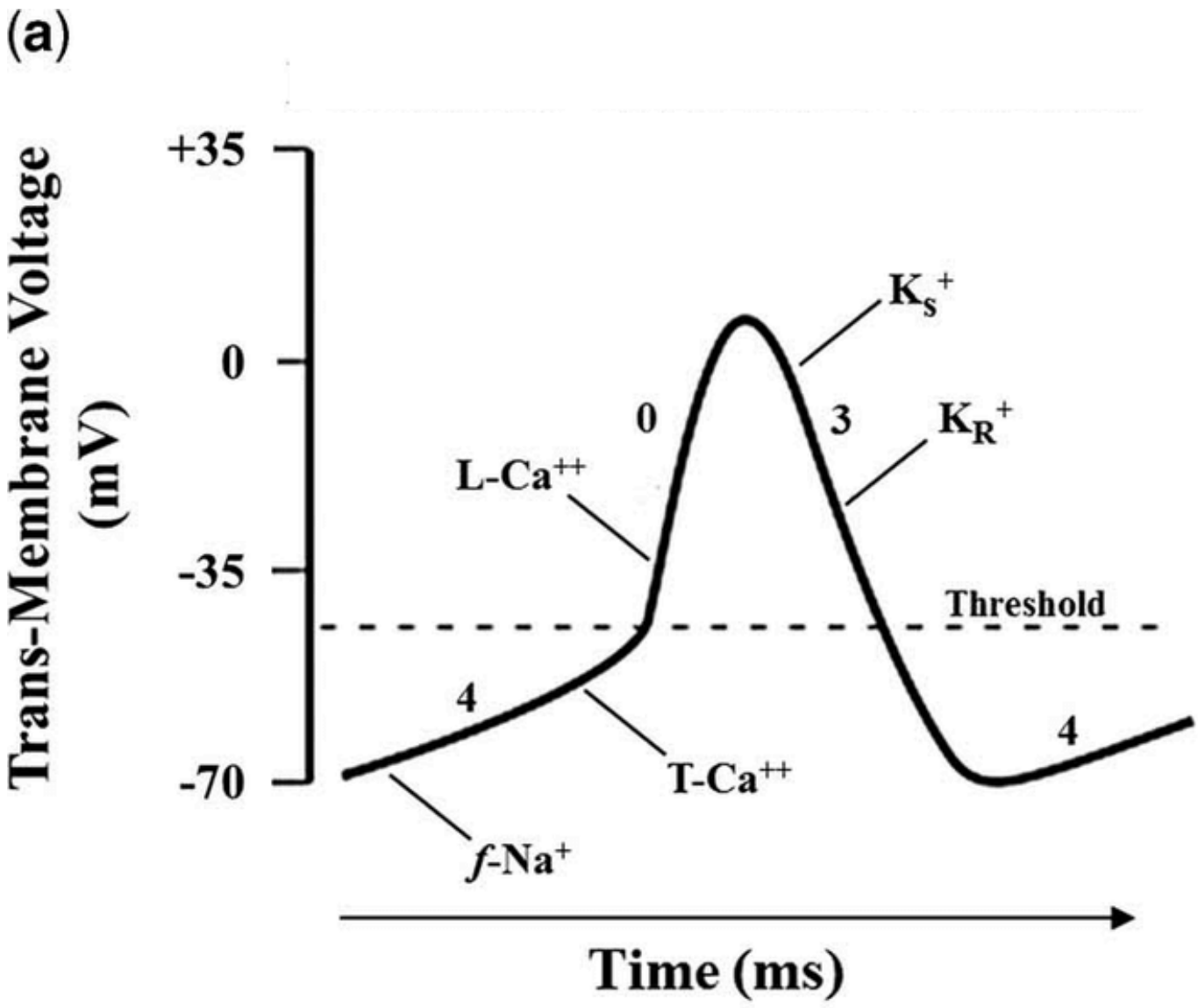
- Thrombin is the enzyme that binds platelets in the platelet plug. Therefore, deactivating thrombin decreases the risk of a platelet plug growing and blocking the vessel.
- Thrombin is the enzyme that generates fibrin. Therefore, deactivating thrombin decreases the risk of a clot growing and blocking the vessel.
- Thrombin is the insoluble protein that forms clots. Therefore, deactivating thrombin decreases the risk of a clot growing and blocking the vessel.
- Thrombin is the protein that initiates the blood coagulation cascade. Therefore, deactivating thrombin decreases the risk of a clot growing and blocking the vessel.
- Thrombin is the enzyme that breaks down clots. Therefore, deactivating thrombin maintains clot formation.

Question 26 **0 / 1 point**

increased afterload lowers stroke volume because

- reduced contractility
- reduced duration of ejecting blood from ventricle
- reduced thick and thin filament overlap
- reduced recruitment of cardiac contractile fibers
- reduced heart rate

Question 27 **0 / 1 point**



In the action potential illustrated above, the component labeled 4 occurs because of

- a current due to the coupled Na+ and Ca++ diffusion along the membrane
- a current due to outward diffusion of Na+ (early in the phase) and inward diffusion of Ca++ (late in the phase)
- a current due to inward diffusion of Na+ (early in the phase) and inward diffusion of Ca++ (late in the phase)
- a current due to inward diffusion of Na+ (early in the phase) and outward diffusion of Ca++ (late in the phase)
- a current due to outward diffusion of Na+ (early in the phase) and outward diffusion of Ca++ (late in the phase)

Question 28 **0 / 1 point**

The major hormone signaling skeletal muscle and adipose cells to uptake glucose from the blood is

- glucagon
- fibrin
- parathyroid hormone
- vasopressin
- insulin

Question 29 **0 / 1 point**

Each lung is surrounded by a completely closed, fluid filled space called the

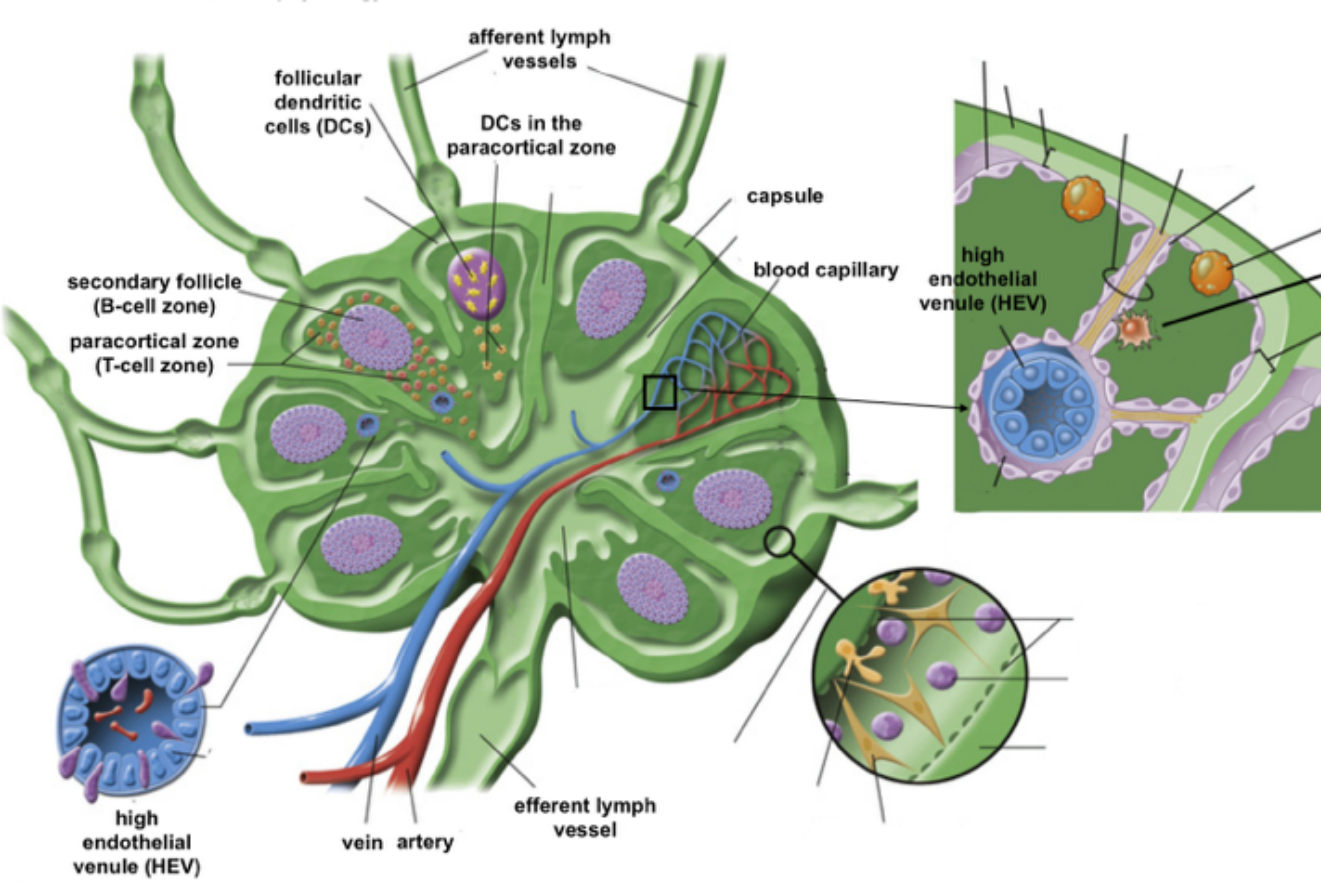
- peritoneal cavity
- dead air space
- thoraccic cavity
- alveoli
- pleural cavity

Question 30 **0 / 1 point**

When a pulmonary physiologist talks about internal and external respiration, what does she mean by "respiration"

- the consumption of O2 and synthesis of CO2 by the mitochondria
- the movement of air in and out of the lungs
- the exchange of O2 and CO2 across a pulmonary or systemic endothelium
- the transport of O2 from the lungs to the systemic capillaries
- the binding and unbinding of O2 on hemoglobin

Question 31 **0 / 1 point**



Naive T and B cells travel from node to node along a chain of lymph nodes by

- entering a lymph node in the efferent lymph vessel and exiting in a afferent lymph vessel
- entering a lymph node in the efferent lymph vessel and exiting in the HEV
- entering a lymph node in a afferent lymph vessel and exiting in the efferent lymph vessel
- entering and exiting a lymph node in the HEV
- entering a lymph node in a afferent lymph vessel and exiting in the HEV

Question 32

0 / 1 point

The hormone that stimulates satiety and inhibits hunger is

- leptin
- ghrelin
- epinephrine
- growth hormone
- thyroid hormone

Question 33

0 / 1 point

A major characteristic of unregulated diabetes mellitus is

- hyperglycemia
- high plasma triglycerides
- hypercalcemia
- hypercholesterolemia
- high plasma protein content

Question 34

0 / 1 point

The anterior pituitary secretes tropic hormones. What is a tropic hormone?

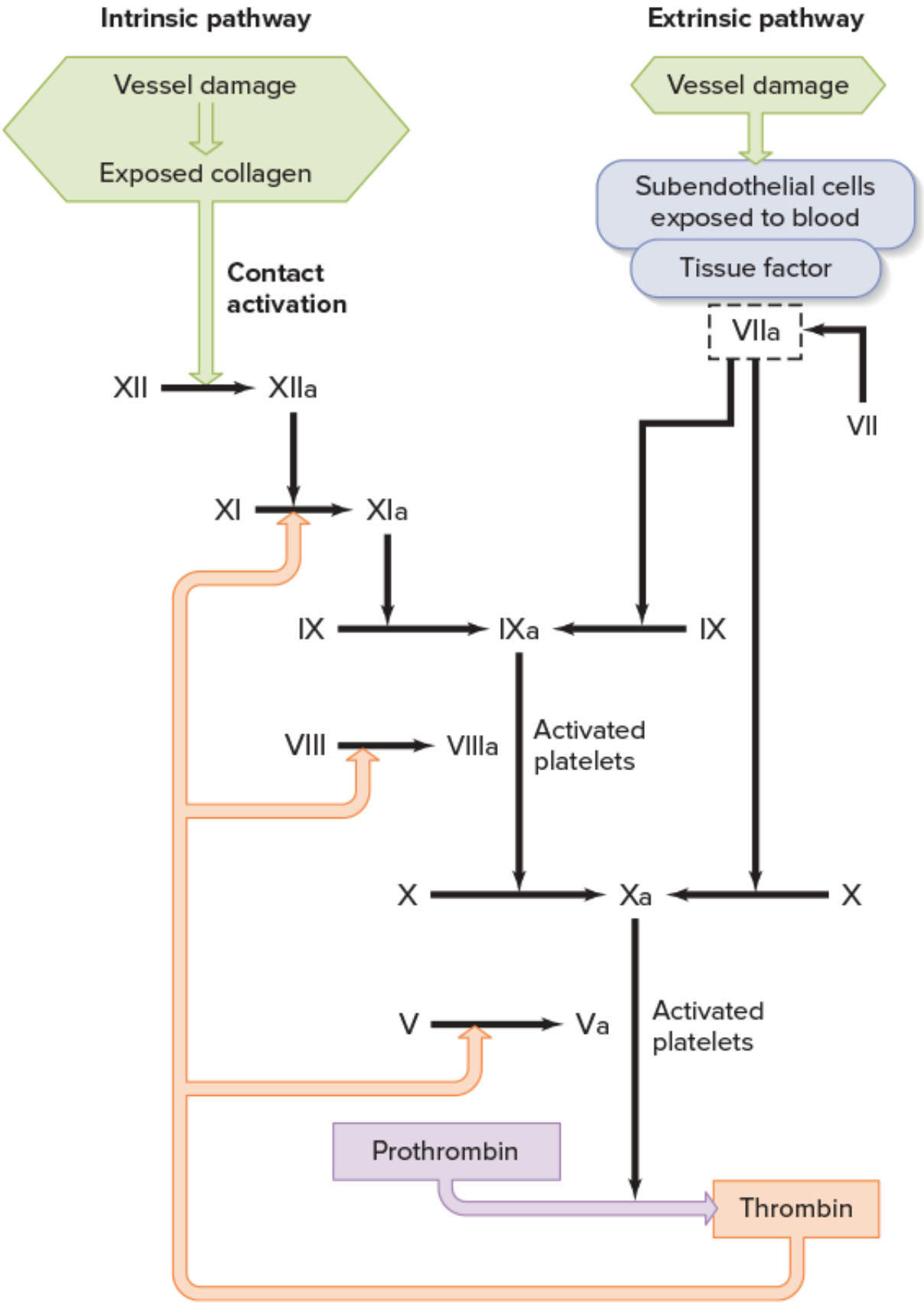
- A hormone that decreases cell metabolism
- A hormone increases cell metabolism
- A hormone that signals target cells to secrete hormone
- A hormone that activates a target cell
- A hormone that inhibits a target cell

Question 35 **0 / 1 point**

In nervous signaling, a postsynaptic receptor that is an ion channel is called a

- inhibitory receptor
- excitatory receptor
- matabotropic receptor
- ionotropic receptor
- G-protein coupled receptor

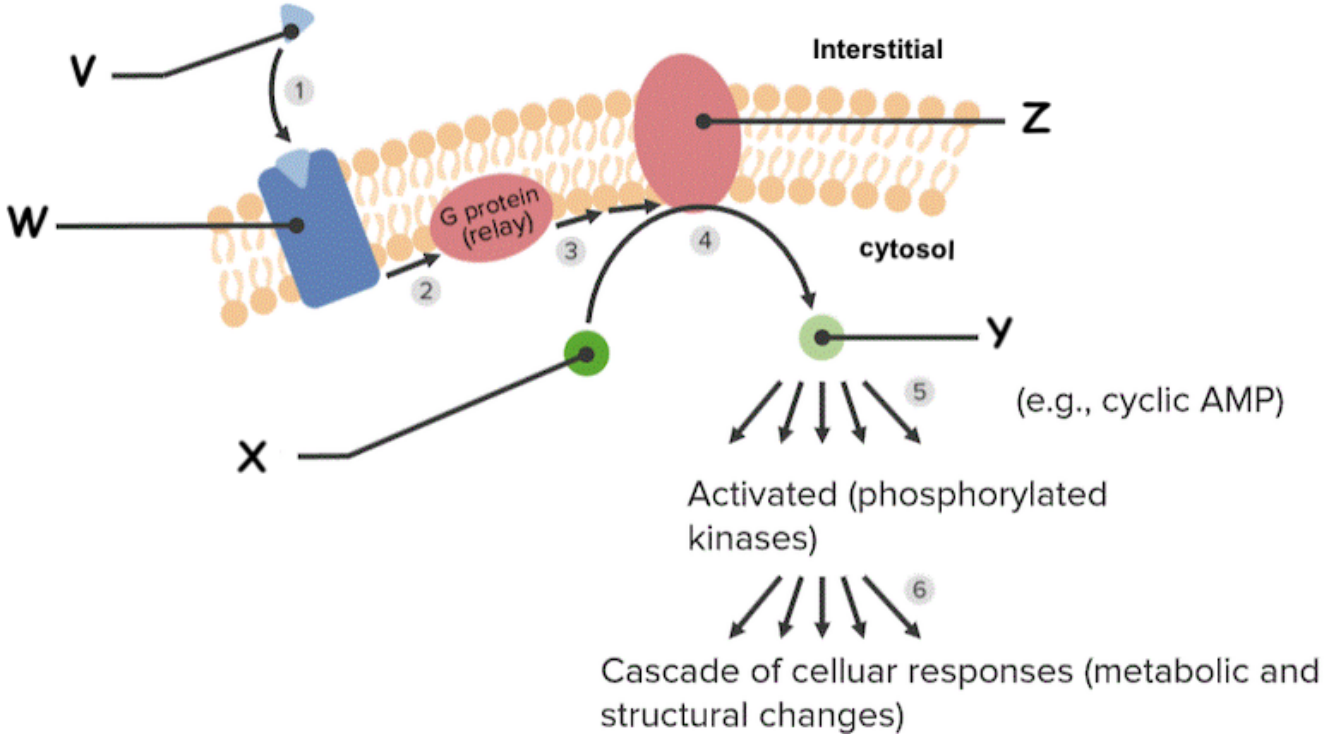
Question 36 **0 / 1 point**


Intrinsic pathway
Extrinsic pathway
Vessel damage
Exposed collagen
Vessel damage
Subendothelial cells exposed to blood
Tissue factor
Contact activation
VIIa
XII
XIIa
VII
XI
XIa
IX
IXa
IX
VIII
VIIIa
Activated platelets
X
Xa
X
V
Va
Activated platelets
Prothrombin
Thrombin

In the figure above, the "a" at the end of the things indicated by Roman numerals indicates

- the thing has been synthesized
- the thing is now circulating in the blood
- the thing is inhibited
- the thing has been modified into it's functional form
- the thing has been secreted

Question 37 **0 / 1 point**



Let's say this is an image of norepinephrine (NE) signaling. NE binds to a beta-adrenergic receptor on cardiac muscle. The class of drugs called beta-blockers bind to the NE receptor and inhibit NE binding. This is an example of

- physiological antagonism
- physiological agonism
- pharmacological (or receptor) agonism
- pharmacological (or receptor) antagonism

Question 38 **0 / 1 point**

Receptors of adrenal cortical hormones are

- receptor tyrosine kinases -- the receptor is an enzyme that activates docking proteins, which then activate signaling pathways
- G-protein coupled receptors -- they activate 2nd messengers
- metabotropic plasma membrane receptors -- they regulate signaling pathways
- nuclear receptors -- they bind to nuclear DNA and regulate transcription
- ionotropic plasma membrane receptors -- they regulate membrane potential

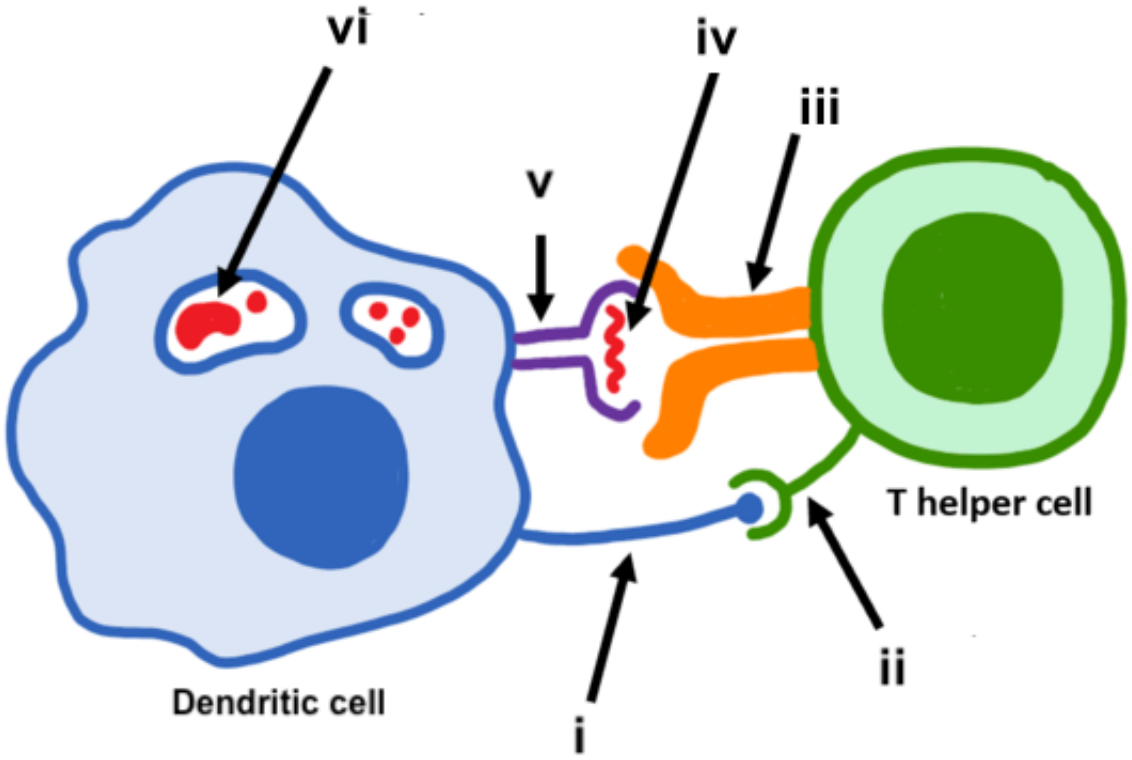
Question 39 **0 / 1 point**

A low tissue oxygen concentration

is a pretty good definition of

- dysoxia
- hypoxia
- deoxygenated
- anoxia
- hyperoxia

Question 40 **0 / 1 point**



In the figure above, the label iv is

- antigen
- interferon
- a bacterium
- a cytokine
- co-stimulatory ligand

Question 41 **0 / 1 point**

As blood flows through a pulmonary capillary

- O2 saturation decreases because capillary PO2 decreases
- O2 saturation decreases because capillary PO2 increases
- O2 saturation increases because a right shift in the oxyhemoglobin dissociation curve
- O2 saturation increases because capillary PO2 decreases
- O2 saturation increases because capillary PO2 increases

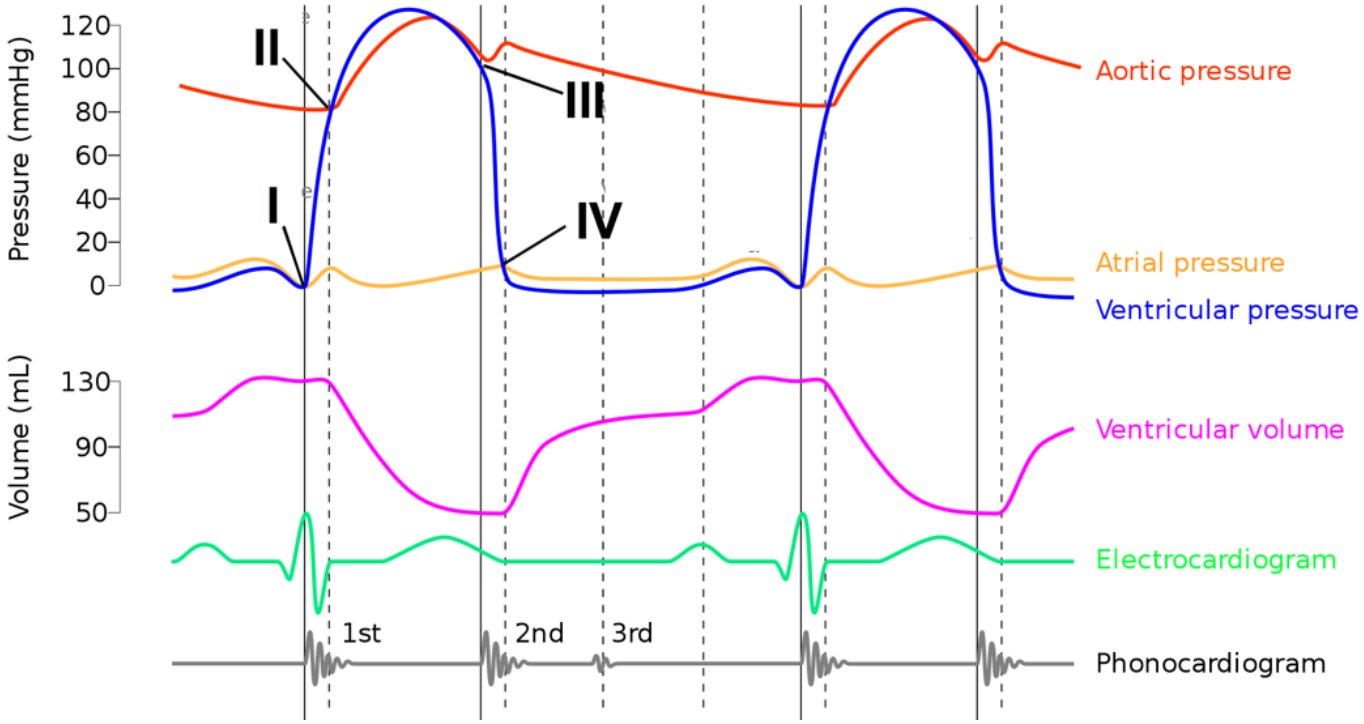
Question 42 **0 / 1 point**

A major function of vasopressin is

- increase gastrointestinal activity
- decrease whole body energy
- increase body fluid levels
- increase storage of glucose and fatty acids
- decrease blood pressure

Question 43

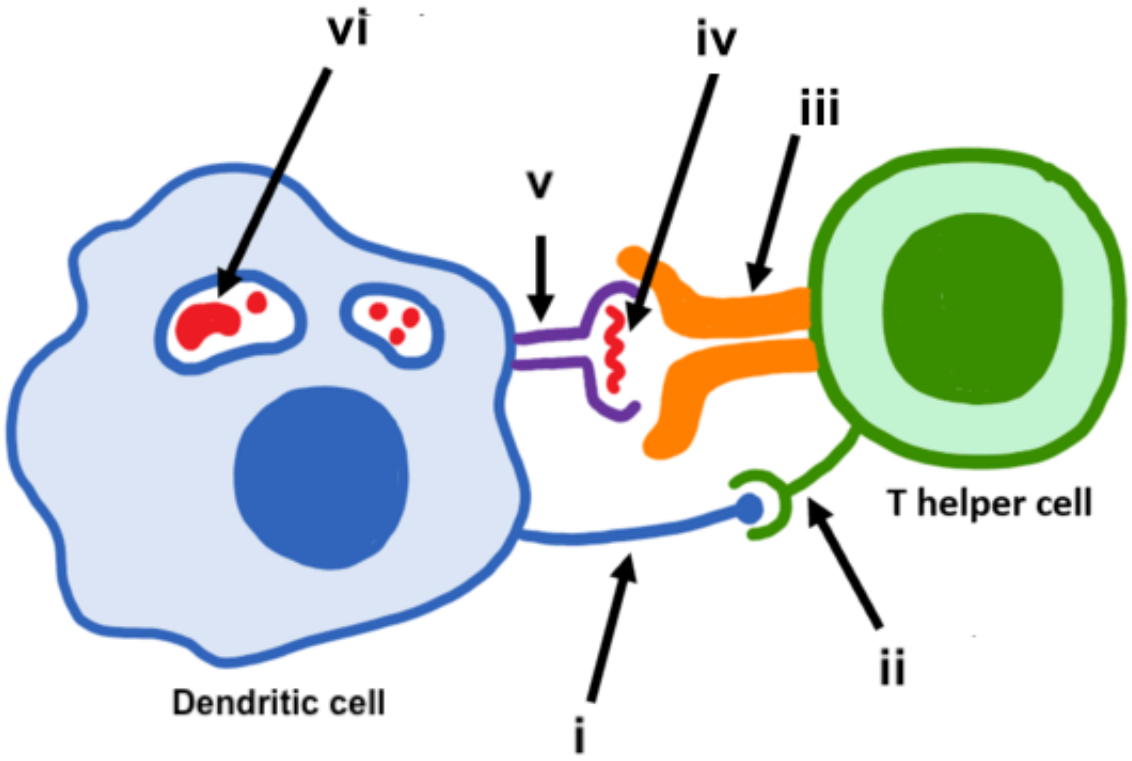
0 / 1 point



Which of the following statements concerning the image above is true

- The aortic and pulmonary semilunar valves open at the point labeled II
- The aortic and pulmonary semilunar valves both close at the point labeled II and again at the point labeled III
- The pulmonary valve opens at the point labeled II and the aortic valve opens at the point labeled III
- The aortic and pulmonary semilunar valves both close at the point labeled I and again at the point labeled IV
- The aortic valve opens at the point labeled II and the pulmonary valve opens at the point labeled III

Question 44 **0 / 1 point**



In the image above, the structure labeled iii is

- antibody
- antigen
- MHC II
- T cell receptor
- MHC I

Question 45 **0 / 1 point**

These two hormones have many redundant effects

- cortisol and insulin, which decrease blood glucose levels and inhibit the effects of glucagon
- cortisol and insulin, which both increase blood glucose levels and inhibit the effects of glucagon
- glucagon and insulin, which both decrease blood glucose levels and inhibit the effects of glucagon
- glucagon and insulin, which both increase blood glucose levels and inhibit the effects of cortisol
- cortisol and glucagon, which both increase blood glucose levels and inhibit the effects of insulin

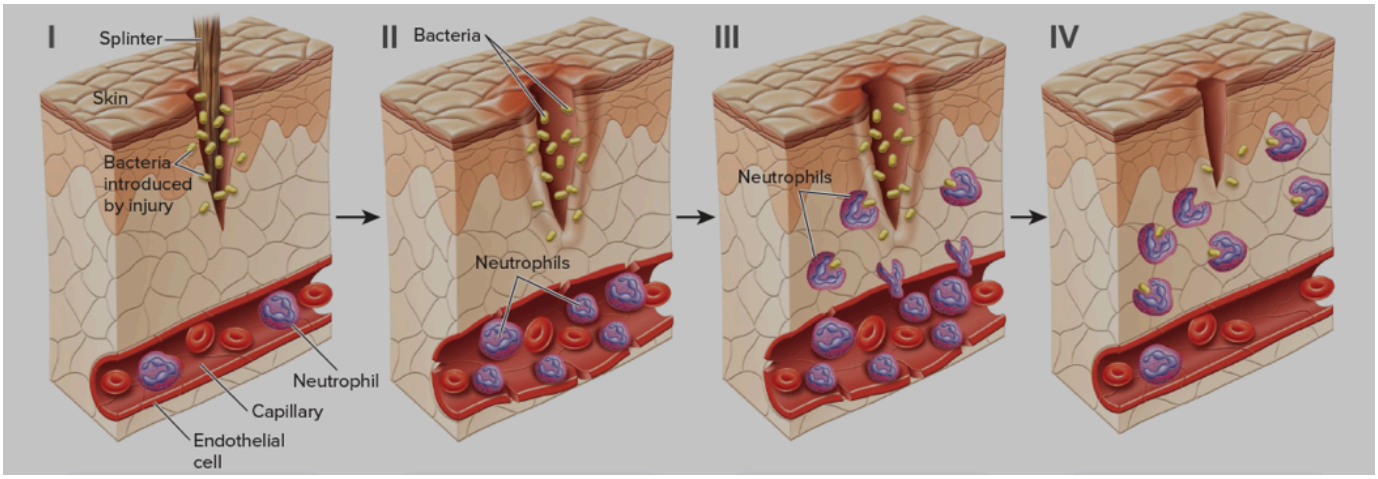
Question 46 **0 / 1 point**

The targeting of virus-infected or cancerous cells by NK cells is called

- immune surveillance
- hemostasis
- opsonization
- cytokine storm
- adaptive immunity

Question 47

0 / 1 point



Step III in the image above shows neutrophils moving toward the site of injury, where bacteria can enter the body. How do the neutrophils "know" to move to this site?

- Neutrophils have light sensing photoreceptors that can "see" the light entering the tissue through the open wound and orient themselves in the direction of and move in the direction of this light.
- The image is misleading: Neutrophils move in random directions and only some neutrophils will encounter the bacteria
- Neutrophils have an innate sense to always move to the surface of the skin
- Neutrophils move by diffusion down the chemical gradients of "chemoattractants" secreted by self and bacterial cells
- Activated neutrophils have a polarized organization of chemical sensors which allows them to sense and move up chemical gradients of "chemoattractants" secreted by self and bacterial cells

Question 48 **0 / 1 point**

endothelial cells in the wall of small arterioles (small arteries) secrete NO (nitric oxide) that signals adjacent smooth muscle cells to relax. This dilates the vessel. This is an example of

- endocrine signaling
- paracrine signaling
- a 2nd messenger
- positive feedback
- physiological antagonism

Question 49 **0 / 1 point**

Respiratory minute volume (V = respiratory rate X tidal volume) is a

measure of

- force
- energy
- volume
- pressure
- flow

Question 50 **0 / 1 point**

A virus is

- a microscopic, multicellular worm
- the simplest cellular microbe
- a small infectious particle made of a nucleic acid and protein
- single cell protists that are small enough to colonize host cells
- a protein that causes neighboring proteins to misfold

Done