Test Prep

PCAT

Pharmacy College Admission Test

QUESTION & ANSWERS

Question: 1

Which of the following would NOT occur during sympathetic stimulation?

A. secretion of glucagon

B. dilation of bronchioles

C. dilation of intestinal blood vessels

D. dilation of pupils

Answer: C

Explanation/Reference:

The blood flow to visceral organs decreases during sympathetic stimulation, but increases under parasympathetic stimulation. One function of the sympathetic nervous system is to increase blood flow to organs in demand of air or nutrients. During the fight-or-flight response, vasodilation works to move blood away from the digestive system and towards the muscles.

Question: 2

Which of the following would increase the pH of the blood?

A. severe damage to the kidneys

B. the digestion of a big meal

C. an increase in anaerobic respiration

D. an increase of the blood pCO_2

Answer: B

Explanation/Reference:

During the digestion of a large meal, parietal cells in the stomach generate hydrochloric acid (HCl) in exchange for a bicarbonate ion which enters the blood plasma, increasing the pH.

Question: 3

Which of the following yields the least ATP directly?

A. TCA cycle

B. oxidative phosphorylation

C. glycolysis

D. Beta Oxidation

Answer: A

Explanation/Reference:

The TCA cycle yields 2 GTPs (molecules that can be converted to ATP but are not ATP themselves), oxidative phosphorylation, which includes the ETC, can yield from 32 to 34 ATP. Glycolysis yields 2 ATP. Beta oxidation yields a range over 100 ATP that depends on the length of the fatty acid being degraded.

Question: 4

The T-tubules transmit an action potential, causing the opening of ____ channels in the ____.

A. Na+, Sarcoplasm

B. Ca2+, Sarcoplasmic Reticulum

C. Na+, Sarcoplasmic Reticulum

D. Ca2+, Sarcoplasm

Answer: B

Explanation/Reference:

The T-tubules conduct action potentials that cause channels to open on the surface of the sarcoplasmic reticulum. The opening of these channels results in a release of Ca2+ into the sarcoplasm of the muscle fiber.

Question: 5

Which of the following decompose disaccharides into monosaccharides?

A. salivary amylase

B. pancreatic enzymes

C. gastrin

D. brush border enzymes

Answer: D

Explanation/Reference:

Disaccharides such as sucrose, maltose, and lactose, etc., are broken down further into monosaccharides (primarily glucose) in the small intestine by way of brush border enzymes lining microvilli of the small intestine.

Question: 6

Which of the following does hemoglobin bond most strongly with?

A. oxygen

B. carbon dioxide

C. carbon monoxide

D. hydrogen

Answer: C

Explanation/Reference:

Hemoglobin bonds most strongly with carbon monoxide as a result of the interaction of the orbitals of the hemoglobin and the carbon monoxide molecule. The carbon forms an ionic bond with the hemoglobin's iron, and because of the joint configuration, the iron is able to donate additional electrons to the carbon monoxide.

Question: 7

Which of the following is not secreted by the hypothalamus?

A. glucocorticoids

B. GnRH

C. Dopamine

D. GHIH

Answer: A

Explanation/Reference:

Glucocorticoids are steroids synthesized and secreted by the adrenal cortex not the hypothalamus.

Question: 8

A virulent phage is one which infects via: