



PCAT^{Q&As}

Pharmacy College Admission Test

Pass PCAT PCAT Exam with 100% Guarantee

Free Download Real Questions & Answers **PDF** and **VCE** file from:

<https://www.pass4itsure.com/pcat.html>

100% Passing Guarantee
100% Money Back Assurance

Following Questions and Answers are all new published by PCAT
Official Exam Center

- ⚙️ **Instant Download** After Purchase
- ⚙️ **100% Money Back** Guarantee
- ⚙️ **365 Days** Free Update
- ⚙️ **800,000+** Satisfied Customers



**QUESTION 1**

Which of the following is found in the plasma membrane of a cell?

- A. phospholipid
- B. glycoprotein
- C. cholesterol
- D. all of the above

Correct Answer: D

The plasma membrane of a cell is composed of a phospholipid bilayer, a double layer of lipids combined with phosphate groups. The hydrophilic nature of the phosphate heads and the hydrophobic nature of the lipids create a double-sided membrane with phosphates on both sides and lipids trapped between. Cholesterol and glycoprotein molecules are embedded inside the phospholipid bilayers.

QUESTION 2

Which of the following does hemoglobin bond most strongly with?

- A. oxygen
- B. carbon dioxide
- C. carbon monoxide
- D. hydrogen

Correct Answer: C

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 3

What is the third derivative of $-3\sin(x)$?

- A. $-3\cos x$
- B. $3\cos x$
- C. $-3\sin x$
- D. $3\sin x$

Correct Answer: B



Recall that the derivative of $\sin(x) = \cos(x)$ and the derivative of $\cos(x) = -\sin(x)$. First derivative: $-3 \cos(x)$. Second derivative: $-3 \cdot (-\sin(x)) = 3\sin(x)$. Third derivative: $3 \cos(x)$.

QUESTION 4

Which cells make up the insulated wrapping on axons?

- A. Schwann cells
- B. astrocytes
- C. microglia
- D. macrocytes

Correct Answer: A

Axons are surrounded by insulating cells called Schwann cells. This insulation enables action potentials to travel rapidly throughout the nervous system.

QUESTION 5

Sickle cell disease (SCD) affects millions of individuals worldwide, and the Sickle Cell Disease Association of America estimates that 70,000 to 100,000 individuals have SCD and 3 million individuals have the sickle cell trait. While SCD is known to primarily affect individuals of African American descent, individuals from South America, the Caribbean, Central America, the Middle East, and the Mediterranean can also have SCD or the SCD trait. SCD is estimated to affect 1 in 500 African American infants, and 1 in 12 African Americans are estimated to have the sickle cell trait. SCD is characterized by episodes of acute and chronic pain. By increasing awareness about SCD and promoting patient education, health care professionals can help patients and their families cope with SCD and better manage the associated pain. Recurring episodes of acute and/or severe pain are hallmarks of SCD. SCD pain can often be debilitating, and episodes of pain vary from patient to patient in both frequency and intensity. SCD pain can be classified as acute, chronic, or mixed. At some point, most SCD patients experience episodes of pain often referred to as vaso-occlusive crisis (sickle cell crisis), the duration of which may range from hours to days. Some patients seldom have a sickle cell crisis, while others may experience crises several times a year. Some episodes may be so severe that hospitalization is warranted to manage the pain. An acute pain event is the most common type of pain, and the onset is typically abrupt. It is often the result of an ischemic tissue injury, which is due to the occlusion of microvascular beds by sickled erythrocytes during an acute crisis. Acute pain episodes can also be triggered by factors including extreme temperature changes, changes in altitude, physical and emotional stress, illnesses, infections, dehydration, cold climates, menstruation, and fatigue. Chronic pain is pain that lasts for 3 to 6 months or longer. Chronic pain often results from the destruction of bones, joints, and visceral organs due to recurrent crises. Sources of chronic sickle cell pain include aseptic necrosis, leg ulcerations, and osteomyelitis. Unfortunately, acute and chronic pain associated with SCD are commonly undertreated or inappropriately managed due to patient fear of potential addiction and adverse effects. Many studies report that some health care professionals are also concerned about the potential for addiction. When appropriate, pharmacologic management of SCD pain may involve the use of 3 major pharmacologic classes: nonopioids, opioids, and adjuvants.

Which of the following is NOT a possible cause of chronic pain in SCD patients?

- A. aseptic necrosis
- B. leg ulcerations
- C. changes in altitude



D. osteomyelitis

Correct Answer: C

"Changes in altitude" is described by the passage as a cause of acute pain, not chronic pain. The other three answer choices are all listed as possible causes of chronic pain in the passage.

QUESTION 6

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

Correct Answer: B

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 7

Which of the following alcohols is the most easily dehydrated?

- A. (CH₃)₃C-OH
- B. (CH₃)₂CH-OH
- C. CH₃CH₂-OH
- D. CH₃-OH

Correct Answer: A

Classify the alcohols as primary, secondary, or tertiary: (CH₃)₃C-OH is tertiary because the -OH group is directly attached to 3 alkyl groups; (CH₃)₂CH-OH is secondary because the carbon attached to the -OH is connected to 2 carbon atoms; CH₃CH₂-OH is primary because the carbon connected to the -OH group is connected to 1 carbon atom; and although CH₃-OH lacks an attached alkyl group, it is considered primary. As tertiary alcohols form the most stable carbocations.

QUESTION 8

Which is not active in bone resorption?

- A. osteoblasts
- B. osteoclasts



C. nephrons

D. small intestine

Correct Answer: A

Bone resorption, the decomposition of bone for absorption of minerals, including calcium, directly involves osteoclasts. Nephrons and the small intestine both absorb released Ca^{2+} . Osteoblasts function to construct, not decompose, bones.

QUESTION 9

The ____ is the ____ at which a protein has no net charge.

A. pH, pKa

B. pl, pKa

C. pH, pl

D. pl, pH

Correct Answer: D

A protein will have no net charge when its composite amino acids taken together yield no overall charge. The pl, or isoelectric point, is the pH at which a molecule, in this case protein, carries no net charge.

QUESTION 10

The primary seat of tubercular infection is generally in the upper part of the lung. The invading organisms settle on the surface here and cause a multiplication of the cells and an inflammatory exudate in a small area. With the continuous growth of the bacilli in the localized region, adjoining areas of the lung become affected, and there is further extension into the immediate vicinity by means of the lymphatics. Small nodules form and then coalesce to create a larger area. The body primarily defends itself with the formation of dense masses of cicatricial tissue, which function to wall off the affected area. This results in unfavorable growth conditions for the bacilli. This mode of defense, combined with the production of substances antagonistic to the toxins produced by the bacilli, is so efficacious that in the great majority of cases no further extension of the process takes place. In certain cases, however, the growth of the bacilli in the focus area is unchecked, then the surrounding tissue is killed and converted into a soft semi-fluid material; further extension then takes place. All parts of the enormous surface of the lungs are connected by a system of air tubes or bronchi, and as a result, the bacilli have favorable opportunity for distribution. This opportunity is facilitated by sudden movements of the air currents in the lung produced by coughing. The body's defense; however, can still keep pace with the attack, and even in an advanced stage, the infection can sometimes be permanently checked; in other cases, the check is temporary, the process of softening continues, and large cavities are produced by the destruction of the tissue. On the inner surface of these cavities there may be a rapid growth of bacilli. From the lungs, the bacilli are carried by the lymphatics to the lymph nodes at the root of the lungs, in which a similar process takes place; this, on the whole, is favorable, because further extension by this route is for a time blocked. The extension across surfaces continues and the abundant sputum, which is formed in the lungs and contains large numbers of bacilli, becomes the vehicle of transportation. The windpipe and larynx may become infected, as the back parts of each are more closely in contact with the sputum and are the parts most generally infected. A large part of the sputum is swallowed and infection of the intestine takes place with the lesions taking the form of large ulcers. From the intestinal ulcers there is further extension by means of the lymphatics to the large lymph nodes in the back of the abdominal cavity.

It is true that bacilli:



- A. are insensible to outside influence.
- B. attack lymph nodes first.
- C. produce toxins harmful to the body.
- D. do not destroy surrounding tissue.

Correct Answer: C

The passage states that the body tries to defend itself with the production of substances that are antagonistic to "toxins produced by the bacilli."

QUESTION 11

Since 1997, the American Heart Association (AHA) has attempted to increase awareness about cardiovascular disease (CVD) among women. Fortunately, great progress has been made to educate individuals about CVD and its consequences. According to the AHA's 2011 Guidelines for Prevention of Cardiovascular Disease in Women, the misconception that CVD is a "man's disease" has been somewhat disproved, as awareness among the general public increased from 30% in 1997 to 54% in 2009. Unfortunately, CVD continues to be the leading cause of death in the United States for both men and women. Since 1984, the number of deaths related to CVD in women exceeded those in men. In the United States, CVD death rates among women aged 35 to 54 years appear to be increasing by 1% annually, which is most likely attributable to the escalating obesity epidemic. According to the AHA, even though CVD is the number 1 cause of death among women, only 13% of women perceive CVD as a health threat. CVD is responsible for more deaths among women than the next 3 leading causes of death combined, including all forms of cancer. Due to the ongoing prevalence of CVD, increasing awareness and understanding of CVD, especially among the female population, is still a top priority for many health care professionals. As one of the most accessible health care professionals, pharmacists are in a pivotal position to educate and inform their patients of the risks associated with CVD, possible drug therapies, and preventive measures. The AHA has set a goal for 2020 to improve cardiovascular health in all Americans by 20%, while reducing deaths from CVD and stroke by 20%. According to the American Heart Association, in the United States a woman dies of some form of CVD every minute and more than 1 in 3 females have some form of CVD. Studies have demonstrated that gender differences may play an important role in the diagnosis, treatment, and prevention of CVD. Unfortunately, many women may not always recognize the warning signs and symptoms of a heart attack because they sometimes appear more subtle when compared with those typically experienced by men. Results from a study of 515 women who had heart attacks report that 43% did not experience any type of chest pain or pressure during the heart attack. Although the classic symptoms include chest pain, tingling in the left arm, sweating, and shortness of breath, women may also experience some "atypical" symptoms, such as extreme fatigue, nausea, dizziness, indigestion, vomiting, and pain in the neck or back. By learning and recognizing the warning signs, women can take a proactive approach to their cardiovascular health and get treatment earlier to prevent further complications.

The author relies upon all of the following EXCEPT which of the following to make his/her argument?

- A. Direct quotation
- B. Survey
- C. Anecdotal evidence
- D. Research studies

Correct Answer: C

In the first paragraph, the author provides a direct quotation. In the fifth paragraph, the author describes research that also acts as a survey of those who participated. The author does not rely on anecdotal evidence to support his or her



argument.

QUESTION 12

If a population's growth rate is zero, it has likely reached its

- A. Carrying capacity
- B. Full range
- C. Mature age structure
- D. Minimal viable population size E. Intrinsic growth rate

Correct Answer: A

The carrying capacity is the maximum number of individuals a habitat can sustain, so when the population size reaches this number, growth will stop.

QUESTION 13

Mary's karate class has 7 students with white belts and 21 students with green belts. What is the ratio of students with white belts to all the students in the class?

- A. 7 to 21
- B. 4 to 1
- C. 1 to 3
- D. 1 to 4

Correct Answer: D

$$7 / 28 = 1/4.$$

QUESTION 14

Stefan's scores on his English essays were 75, 65, 80, 95, and 65. What is the average of his test scores?

- A. 66
- B. 71
- C. 65
- D. 76

Correct Answer: D

$$(75 + 65 + 80 + 95 + 65) / 5 = 76.$$



QUESTION 15

Which of the following has the highest boiling point?

- A. methanol
- B. n-propanol
- C. isopropanol
- D. ethanol

Correct Answer: B

Boiling points primarily depend upon the cohesive forces between molecules. When dealing with molecules of relatively similar molecular weights, the boiling points will depend upon the functional groups involved, and as the molecular weight of the molecule increases, the boiling point also increases. Lastly, branching decreases boiling point. With these considerations, n-propanol will exhibit the highest boiling point of the options.

[PCAT Practice Test](#)

[PCAT Study Guide](#)

[PCAT Braindumps](#)