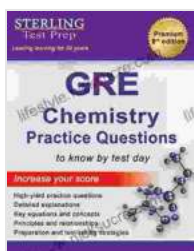


Master High Yield GRE Chemistry Questions: Comprehensive Guide with Detailed Explanations

Conquering the GRE Chemistry section requires strategic preparation and a deep understanding of high yield topics. This comprehensive guide arms you with a curated collection of such questions, meticulously explained by subject matter experts. Prepare to tackle the GRE with confidence and achieve the score you deserve!



Sterling Test Prep GRE Chemistry Practice Questions: High Yield GRE Chemistry Questions with Detailed Explanations by Sterling Test Prep

★★★★☆ 4.3 out of 5

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Screen Reader : Supported

Print length : 590 pages



High Yield Topics for GRE Chemistry

- Atomic Structure and Properties
- Chemical Bonding
- Chemical Reactions
- Equilibrium
- Thermodynamics

- Kinetics
- Organic Chemistry
- Inorganic Chemistry

High Yield GRE Chemistry Questions and Detailed Explanations

Question 1

Which of the following compounds has the highest electronegativity?

- LiF
- NaCl
- KCl
- RbCl

Electronegativity increases as you move from left to right across a period and from bottom to top within a group. Among the given compounds, fluorine (F) is the most electronegative element. Therefore, LiF has the highest electronegativity.

Question 2

What is the hybridization of the carbon atom in the following molecule:
 $\text{CH}_2=\text{CH}_2$?

- sp
- sp²
- sp³

d. sp^3d

The carbon atom in $CH_2=CH_2$ is bonded to two other carbon atoms through double bonds. Each double bond consists of a sigma bond and a pi bond. The carbon atom also has two hydrogen atoms attached to it. Therefore, the carbon atom has a total of three sigma bonds and two pi bonds. This corresponds to the sp^2 hybridization.

Question 3

What is the product of the following reaction: $CH_3CH_2OH + HBr \rightarrow ?$

- a. CH_3CH_2Br
- b. CH_3CH_2O
- c. $CH_3CH_2Br + H_2O$
- d. $CH_3CH_2O + H_2$

This is a nucleophilic substitution reaction, where the hydroxide ion (OH^-) from CH_3CH_2OH attacks the electrophilic carbon atom of HBr . The product is CH_3CH_2Br , formed by the displacement of the bromide ion (Br^-) by the hydroxide ion.

Question 4

Which of the following solutions has the highest pH?

- a. $[H^+] = 1 \times 10^{-7} M$
- b. $[H^+] = 1 \times 10^{-8} M$
- c. $[H^+] = 1 \times 10^{-9} M$

d. $[H^+] = 1 \times 10^{-10} \text{ M}$

pH is a measure of the acidity or alkalinity of a solution. It is calculated as the negative logarithm of the hydrogen ion concentration: $\text{pH} = -\log[H^+]$. Therefore, the solution with the lowest hydrogen ion concentration will have the highest pH. In this case, $[H^+] = 1 \times 10^{-7} \text{ M}$ has the lowest hydrogen ion concentration and therefore the highest pH.

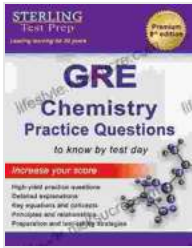
Question 5

What is the rate law for the following reaction: $2\text{NO} + 2\text{H}_2 \rightarrow \text{N}_2 + 2\text{H}_2\text{O}$?

- a. $\text{Rate} = k[\text{NO}][\text{H}_2]$
- b. $\text{Rate} = k[\text{NO}][\text{H}_2]^2$
- c. $\text{Rate} = k[\text{NO}]^2[\text{H}_2]$
- d. $\text{Rate} = k[\text{NO}]^2[\text{H}_2]^2$

The rate law for a reaction is determined experimentally. The rate law for this reaction is found to be $\text{Rate} = k[\text{NO}][\text{H}_2]^2$. This means that the rate of the reaction is directly proportional to the square of the hydrogen concentration and directly proportional to the concentration of nitric oxide.

These high yield GRE Chemistry questions and detailed explanations provide a solid foundation for your preparation. By thoroughly understanding these concepts, you will significantly enhance your chances of excelling in the Chemistry section of the GRE. Remember to practice regularly, review the explanations carefully, and identify your areas of improvement. With determination and a strategic approach, you can conquer the GRE Chemistry section and achieve your desired score.



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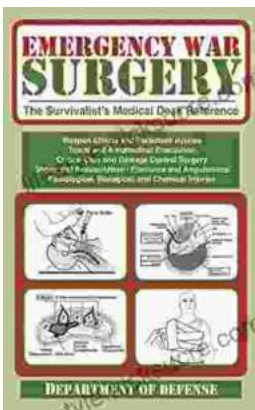
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