Question: The Ka for HCN is 6.2 x 10-10 . If there is a solution of 2.00 M ...

The K_a for HCN is 6.2 x 10^{-10} . If there is a solution of 2.00 M HCN, what concentration of NaCN is needed in order for the pH to be 9.2?

Expert Answer

Anonymous answered this
6,896 answers

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Henderson-Hasselbalch Eqn :-

$$pH = pKa + \log \frac{[NaCN]}{[HCN]}$$

$$9.2 = -\log(6.2 \times 10^{-10}) + \log \frac{[NaCN]}{[2.00]}$$

$$9.2 = 9.20 + \log \frac{[NaCN]}{2}$$

$$0 = \log \frac{[NaCN]}{2}$$

$$\text{Antilog}(0) = \frac{[NaCN]}{2}$$

$$1 \times 2 = [NaCN]$$

$$\Rightarrow [NaCN] = 2.00\ M$$

Comment

of liquid mercury is 59.11 kJ/mol. What quantity of energy as heat is required to vaporize a 60 mL of mercury

See answer

dissolving 0.02 moles of acetic acid (HOAc; pKa = 4.76) in water to give 1 liter of solution. To this solution was

See answer

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Q: You need to produce a buffer solution that has a pH of 5.50. You already have a solution that contains 10 mmol (millimoles) of acetic acid. How many millimoles of acetate (the conjugate base of acetic acid) will you need to add to this solution? The Pka of acetic acid is 4.74.

A: See step-by-step answer 97% (60 ratings)

Q: A solution of acetic acid (pKa=4.75) has a pH of 6.75. What will be the ratio of acid to conjugate base?

A: See answer

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