

Exercise 7.42 – Distinguishing between strong and weak acids and bases

Q742-01 Which of the following is the weakest acid in aqueous solution?

- A. Ethanoic acid
 - B. Sulphuric acid
 - C. Hydrochloric acid
 - D. Nitric acid
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Q742-02 Which of the following 1 mol dm⁻³ solutions will be the poorest conductor of electricity?

- A. hydrochloric acid
 - B. ethanoic acid
 - C. sodium hydroxide
 - D. ammonium chloride
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Q742-03 Which will be the same for separate 1 mol dm⁻³ solutions of a strong acid and a weak acid?

- I - Electrical conductivity
- II - Concentration of H⁺ ions

- A. I only
 - B. II only
 - C. Both I and II
 - D. Neither I nor II
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Q742-04 Which statement best describes the difference between solutions of strong and weak acids of equal concentration?

- A. Weak acid solutions have lower pH values than strong acids.
 - B. Weak acid solutions react more slowly with sodium carbonate than strong acids.
 - C. Weak acid solutions require fewer moles of base for neutralisation than strong acids.
 - D. Weak acid solutions do not react with magnesium while strong acids do.
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Q742-05 Given a weak monoprotic acid, such as HCN, at equilibrium in aqueous solution, the addition of a strong acid, such as HBr, to the solution would cause:

- A. no change in the concentration of H⁺ or CN⁻.
 - B. the concentrations of both HCN and CN⁻ concentration to increase.
 - C. the HCN concentration to increase and the CN⁻ concentration to decrease.
 - D. the HCN concentration to decrease and the CN⁻ concentration to increase
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Q742-06 Which statement best describes the difference between solutions of strong and weak acids of equal concentration?

- A. Weak acid solutions have lower pH values than strong acids.
 - B. Weak acid solutions react more slowly with sodium carbonate than strong acids.
 - C. Weak acid solutions require fewer moles of base for neutralisation than strong acids.
 - D. Weak acid solutions do not react with magnesium while strong acids do.
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Exercise 7.42 – Distinguishing between strong and weak acids and bases

Q742-07 When the following solutions are arranged in order of increasing electrical conductivity (lowest first), what is the correct order?

- I 0.10 mol dm⁻³ CH₃COOH
- II 0.10 mol dm⁻³ CH₃CH₂OH
- III 0.10 mol dm⁻³ CH₃COONa

- A. I, II, III
 - B. III, II, I
 - C. I, III, II
 - D. II, I, III
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Q742-08 Which of the following statements about aqueous solutions of most weak acids is/are correct?

- I. They react with carbonates to produce carbon dioxide
- II. They conduct electricity better than strong acids

- A. I only
 - B. II only
 - C. Both I and II
 - D. Neither I nor II
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Q742-09 Which substance can be dissolved in water to give a 0.1 mol dm⁻³ solution with a high pH and a high electrical conductivity?

- A. HCl
 - B. NaCl
 - C. NH₃
 - D. NaOH
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Q742-10 Which methods can distinguish between solutions of a strong monoprotic acid and a weak monoprotic acid?

- I - Add magnesium to each solution and measure the rate of formation of gas bubbles
- II - Add aqueous sodium hydroxide to each solution and measure the temperature change
- III - Use each solution in a circuit with a battery and lamp and see how bright the lamp glows.

- A. I and II only
 - B. I and III only
 - C. II and III only
 - D. I, II and III
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