

Exercise 7.84 – Indicators

Q784-01 Which 0.1 M solution will turn phenolphthalein pink?

- A. HBr(aq)
 - B. CO₂(aq)
 - C. LiOH(aq)
 - D. CH₃OH(aq)
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Q784-02 The indicator ravishing red has a color change from yellow to red in the pH range 6.5-7.5. This indicator would be used to titrate:

- A. a weak acid with a strong base
 - B. a strong acid with a weak base
 - C. a weak acid with a weaker acid
 - D. a strong acid with a strong base
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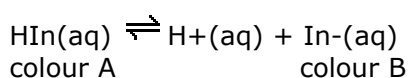
Q784-03 Which solution will change red litmus to blue?

- A. HCl(aq)
 - B. NaCl(aq)
 - C. CH₃OH(aq)
 - D. NaOH(aq)
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Q784-04 When conducting analyses of substances that are weak acids by titrating solutions with a standardised strong base, the end-point indicator is chosen so that

- A. its color change occurs around the neutralization pH of 7.00.
 - B. its color change occurs when the pH is about the same as the pK_a of the weak acid.
 - C. its color change occurs at a pH that is more basic than pH = 7.00.
 - D. its color change occurs at a pH that is the same as that of the standardised base solution.
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Q784-05 An acid-base indicator, HIn, dissociates according to the following equation:



Which of the following statement(s) about the indicator is/are correct?

- I - In a strongly acidic solution colour B would be seen
 - II - In a neutral solution the concentrations of HIn(aq) and In⁻(aq) must be equal
 - III - It is suitable for use in titrations involving weak acids and weak bases
- A. I only
 - B. II only
 - C. III only
 - D. None of the above
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Q784-06 Which neutralisation reaction could use phenolphthalein (K_a = 9.3) and not methyl orange (pK_a = 3.7) as an indicator?

- A. NaOH(aq) and HNO₃(aq)
 - B. NH₃(aq) and CH₃COOH(aq)
 - C. NaOH(aq) and CH₃COOH(aq)
 - D. NH₃(aq) and HNO₃(aq)
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Q784-07 Which solution will change methyl orange to yellow?

- A. HCl(aq)
 - B. NaCl(aq)
 - C. CH₃OH(aq)
 - D. NaOH(aq)
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Q784-08 Which statement about indicators is always correct?

- A. The mid-point of an indicator's colour change is at pH=7
 - B. The pH range is greater for indicators with higher pK_a values
 - C. The colour red indicates an acidic solution
 - D. The pK_a value of the indicator is within its pH range
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