Name:

Chapter 7 Review Quiz

Multiple Choice

Identify the choice that best completes the statement or answers the question.

1. The equivalence point is when:
   a. there are equal number of moles of each reactant.
   b. the reactants are all used up.
   c. the limiting reactant is used up.
   d. the molar ratio of reactants is the same as in the balanced equation.

2. Reading a measuring cylinder when the meniscus is at eye level:
   a. increases reliability.
   b. reduces validity.
   c. reduces parallax error.
   d. increases the volume.

3. The point in a titration when the colour change occurs is called the:
   a. starting point.
   b. equivalence point.
   c. mid-point.
   d. end point.

4. Which of the following statements regarding the rinsing of apparatus is correct?
   a. The burette is rinsed with distilled water.
   b. The pipette is rinsed with distilled water.
   c. The volumetric flask is rinsed with distilled water.
   d. The burette does not need to be rinsed.

5. Acid–base indicators are made of:
   a. a weak acid.
   b. a strong base.
   c. a neutral substance.
   d. a strong acid.

6. A primary standard is:
   a. a chemical that can be made into a solution of a known concentration.
   b. a chemical that can make a solution.
   c. a chemical that is insoluble.
   d. an acid solution of known concentration.

7. Which of the following is *not* a characteristic of a primary standard?
   a. High purity
   b. Stable in air
   c. Large molar mass
   d. Absorbs water

8. The solution in the burette is called the:
   a. burant.
   b. analyte.
   c. titrant.
   d. filtrate.

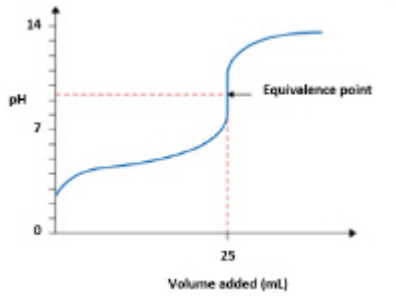
9. The best indicator for an acid-base reaction depends on:
   a. the base.
   b. the salt produced.

c. the acid.
d. the concentration of the primary standard.

▼ 10. The end point for a reaction between a strong acid and a weak base would most likely be:
a. acidic.
b. neutral.
c. basic.
d. none of the above.

▼ 11. Which of the following titration curves would be appropriate for a titration where hydrochloric acid is added from the burette to a solution of ammonia?

A



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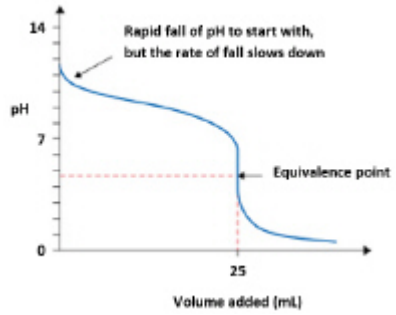
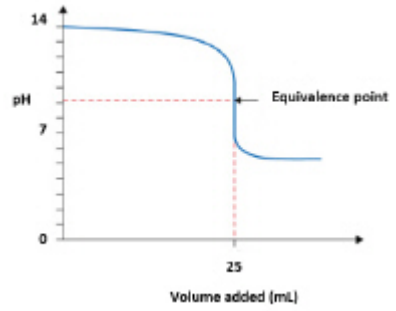
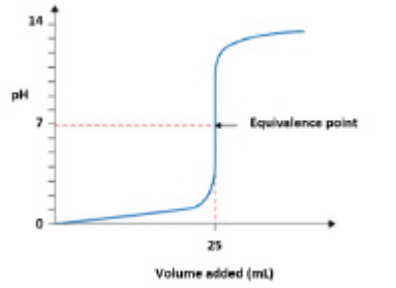


C



D



a. A
b. B
c. C
d. D

▼ 12. Weak acid/weak base titrations are generally not performed because:
a. they are not needed.
b. there is no sudden change in pH at the equivalence point and therefore it is hard to identify

the equivalence point.
c. the indicators do not work in weak acid/weak base reactions.
d. the pH changes too quickly at the equivalence point, so it is easily missed.

▼ 13. A back titration is often used to determine the percentage of calcium carbonate in limestone. In this process:
a. the limestone is dissolved in distilled water.
b. the calcium carbonate reacts with excess base.
c. the calcium carbonate reacts with excess acid.
d. an indicator is used to determine the pH of the calcium carbonate.

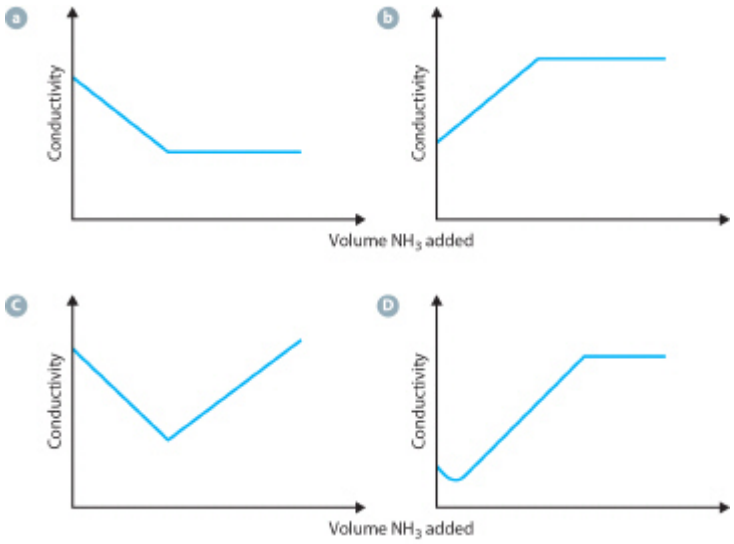
▼ 14. If potassium permanganate was added to a colourless solution in a redox titration the colour change at the end point would be:
a. colourless to pale purple.
b. deep purple to pale pink.
c. colourless to deep purple.
d. deep purple to colourless.

▼ 15. A redox titration would *not* be suitable for determining:
a. the concentration of Vitamin C in oranges.
b. the concentration of sulfur dioxide in wine.
c. the concentration of hydrogen peroxide in toothpaste
d. the concentration of ammonia in cleaning products.

▼ 16. What indicator changes colour in the range of pH 6.2–7.6?
a. phenolphthalein
b. methyl red
c. methyl orange
d. bromothymol blue

▼ 17. 50 mL of a 0.06 mol L^{-1} solution of NaOH was needed to neutralise 60 mL of a HCl solution. What is the concentration of the HCl solution?
a. 0.03 mol L^{-1}
b. 0.05 mol L^{-1}
c. 0.06 mol L^{-1}
d. 0.10 mol L^{-1}

▼ 18. The electrical conductivity of a mixture is measured as a solution of NH_3 is added to a solution of HCl. Which of the graphs below correctly show the conductivity changes that occur?



a. a
b. b
c. c
d. d

19. Buffer solutions are important for animals and plants in the environment because they protect against sharp changes in pH. A buffer solution is usually composed of a mixture of:
    a. strong acid and strong base.
    b. weak acid and weak base.
    c. strong acid and weak base.
    d. weak acid and strong base.

20. Which of the following pairs would be the lease effective as a buffer?
    a. HPO_4^{2-} and $H_2PO_4^-$
    b. CO_2 and HCO_3^-
    c. CH_3COOH and CH_3COO^-
    d. HNO_3 and NO_3^-

Check Your Work Start Over