

Brett Robbins Academic Consulting

Chemistry 20 Practice Test

Unit C: Matter as Solutions, Acids and Bases

10 Questions

Original practice questions written to the Alberta curriculum, in the style of past diploma examinations. Work through each question, then check your answers with the key at the end.

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, contact Brett for clarification.

Question 1

A solution is prepared by dissolving 0.40 mol of solute in enough water to make 2.0 L of solution.

The concentration of the solution is

- A) 0.20 mol/L
- B) 0.80 mol/L
- C) 2.0 mol/L
- D) 5.0 mol/L

Question 2

Which statement about an aqueous solution is correct?

- A) Water is always the solute in an aqueous solution
- B) An aqueous solution must contain an ionic solute
- C) Water is the solvent in an aqueous solution
- D) An aqueous solution is always a strong electrolyte

Question 3

Which of the following substances, when dissolved in water, produces a solution that conducts electricity well?

- A) $\text{C}_6\text{H}_{12}\text{O}_6(\text{aq})$ (glucose)
- B) $\text{NaCl}(\text{aq})$
- C) $\text{C}_2\text{H}_5\text{OH}(\text{aq})$ (ethanol)
- D) $\text{C}_{12}\text{H}_{22}\text{O}_{11}(\text{aq})$ (sucrose)

Question 4

A solution with a pH of 2 is compared to a solution with a pH of 4.

The hydronium ion concentration of the pH 2 solution is greater by a factor of

- A) 2
- B) 10
- C) 20
- D) 100

Question 5

Which observation is a property of an acidic solution?

- A) It turns blue litmus red
- B) It turns red litmus blue
- C) It feels slippery to the touch
- D) It has a pH greater than 7

Question 6

A 100 mL sample of 2.0 mol/L hydrochloric acid is diluted with water to a final volume of 500 mL.

The concentration of the diluted acid is

- A) 0.10 mol/L
- B) 1.0 mol/L
- C) 0.40 mol/L
- D) 10 mol/L

Question 7

The amount of solute in 3.0 L of a 0.25 mol/L solution is

- A) 0.083 mol
- B) 0.75 mol
- C) 8.3 mol
- D) 12 mol

Question 8

A 25.0 mL sample of 6.0 mol/L HCl(aq) is diluted to a final volume of 250.0 mL.

The concentration of the diluted solution, to the nearest hundredth, is ____ mol/L.

Question 9

A solution that contains undissolved solute, and in which the rate of dissolving equals the rate of crystallizing, is

- A) unsaturated
- B) dilute
- C) concentrated
- D) saturated

Question 10

As the temperature of water increases, the solubility of oxygen gas in the water

A) decreases

B) increases

C) does not change

D) doubles

Answer Key

- | | | |
|------|---------|-------|
| 1. A | 5. A | 9. D |
| 2. C | 6. C | 10. A |
| 3. B | 7. B | |
| 4. D | 8. 0.60 | |

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