

8.2 More About Acids

Question Paper

Course	DPIB Chemistry
Section	8. Acids & Bases
Topic	8.2 More About Acids
Difficulty	Easy

Time allowed: 20
Score: /10
Percentage: /100

Question 1

Four 1.0 M solutions of HCl, NH₃, NaOH and CH₃COOH have been mislabelled, but a student has a pH meter to test the pH of the solutions. Arrange the solutions in order of increasing pH:

- A. HCl(aq) < NH₃(aq) < NaOH(aq) < CH₃COOH(aq)
- B. CH₃COOH(aq) < HCl(aq) < NH₃(aq) < NaOH(aq)
- C. HCl(aq) < CH₃COOH(aq) < NH₃(aq) < NaOH(aq)
- D. NaOH(aq) < NH₃(aq) < CH₃COOH(aq) < HCl(aq)

[1 mark]

Question 2

Below are four statements about acid and bases. Which is the correct one?

- A. Strong acids are good proton donors and have weak conjugate bases.
- B. Strong bases are good proton donors and have weak conjugate acids.
- C. Weak acids are poor proton acceptors and have strong conjugate bases.
- D. Strong acids are good proton donors and have strong conjugate bases.

[1 mark]

Question 3

Which statement is correct about the action of weak acids and their conductivity?

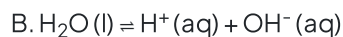
- A. Weak acids are proton donors and their solutions are good conductors.
- B. Weak acids are proton donors and their solutions are poor conductors.
- C. Weak acids are proton acceptors and their solutions are good conductors.
- D. Weak acids are proton acceptors and their solutions are good conductors.

[1 mark]

Question 4

Which is the correct expression for the ionic product of water at 25 °C is

A. $K_w = \frac{[H^+][OH^-]}{[H_2O]}$



C. $K_w = [H^+][OH^-]$

D. $1 \times 10^{-14} \text{ mol}^2 \text{ dm}^{-6}$

[1 mark]

Question 5

34.3 cm³ of 0.125 mol dm⁻³ sodium hydroxide solution reacts with 26.0 cm³ of sulfuric acid. What is the concentration of the acid?

A. $\frac{34.3 \times 0.125}{26.0}$

B. $\frac{2 \times 34.3 \times 0.125}{26.0}$

C. $\frac{34.3 \times 0.125}{2 \times 26.0}$

D. $\frac{26.0}{2 \times 34.3 \times 0.125}$

[1 mark]

Question 6

90 cm³ of water is added to 10 cm³ of sulfuric acid with a pH of 2. What is the new pH of the acid?

A. 1

B. 3

C. 5

D. 7

[1 mark]

Question 7

Which of the following is true about weak acids?

- I. They are poor conductors of electricity
- II. They have a high pH
- III. They react with carbonates to produce carbon dioxide

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

[1 mark]

Question 8

Which is true about 1.0 mol dm^{-3} solutions of weak and strong acids?

- A. Magnesium will react with strong acids but not weak acids
- B. Fewer moles of base are needed to neutralise weak acids
- C. Sodium carbonate reacts more slowly with weak acids
- D. Weak acids have a lower pH than strong acids

[1 mark]

Question 9

Four solutions, **K**, **L**, **M** and **N** have the following properties

K: pH=8 **L**: $[\text{H}^+] = 1 \times 10^{-3} \text{ mol dm}^{-3}$ **M**: pH=5 **N**: $[\text{H}^+] = 1 \times 10^{-7} \text{ mol dm}^{-3}$

What is their correct order of increasing acidity?

- A. **K < L < M < N**
- B. **N < L < M < K**
- C. **K < N < M < L**
- D. **N < M < L < K**

[1 mark]

Question 10

Two beakers contain solutions of hydrochloric acid at $\text{pH} = 2$ and $\text{pH} = 4$. How does the concentration of hydrogen ions compare in the two beakers?

- A. Twice as large
- B. Half as much
- C. $\frac{1}{10}$ of the value
- D. $\frac{1}{100}$ of the value

[1 mark]