

# 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, NH<sub>3</sub>, NaOH and CH<sub>3</sub>COOH 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) < NH<sub>3</sub>(aq) < NaOH(aq) < CH<sub>3</sub>COOH(aq)
- B. CH<sub>3</sub>COOH(aq) < HCl(aq) < NH<sub>3</sub>(aq) < NaOH(aq)
- C. HCl(aq) < CH<sub>3</sub>COOH(aq) < NH<sub>3</sub>(aq) < NaOH(aq)
- D. NaOH(aq) < NH<sub>3</sub>(aq) < CH<sub>3</sub>COOH(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?

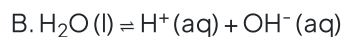
- A. Weak acids are proton donors and their solutions are good conductors.
- B. Weak acids are proton donors and their solutions are poor conductors.
- C. Weak acids are proton acceptors and their solutions are good conductors.
- D. Weak acids are proton acceptors and their solutions are good conductors.

[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 cm<sup>3</sup> of 0.125 mol dm<sup>-3</sup> sodium hydroxide solution reacts with 26.0 cm<sup>3</sup> 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 cm<sup>3</sup> of water is added to 10 cm<sup>3</sup> 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  $1.0 \text{ mol dm}^{-3}$  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]**