

# 8.3 Acid Deposition

## Question Paper

Course	DPIB Chemistry
Section	8. Acids & Bases
Topic	8.3 Acid Deposition
Difficulty	Medium

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

### Question 1

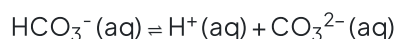
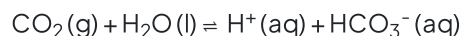
The pH of clean rain water is around 5.5. Which substance is responsible for this?

- A. Methane
- B. Carbon dioxide
- C. Nitrogen oxides
- D. Sulfur dioxide

[1 mark]

### Question 2

Which statement is **not** true about the increasing levels of atmospheric carbon dioxide?



- A. The concentration of  $\text{HCO}_3^-$  increases in water bodies
- B. The concentration of  $\text{H}^+$  increases in water bodies
- C. The pH of lakes and oceans falls as the  $\text{CO}_2$  levels increase
- D. The increasing concentration of  $\text{CO}_3^{2-}$  enables marine organisms to build thicker shells

[1 mark]

### Question 3

What is a major acid responsible for acid rain and originates from car engines?

- A.  $\text{H}_2\text{SO}_4$
- B.  $\text{HNO}_3$
- C.  $\text{SO}_2$
- D.  $\text{NO}_2$

[1 mark]

### Question 4

What are three consequences of acid rain?

- I. Corrosion of marble statues
- II. Ozone depletion
- III. Leaching of  $\text{Al}^{3+}$

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

[1 mark]

### Question 5

Some coal contains as much as 3% sulfur. How much sulfur dioxide ( $M = 64.07 \text{ g mol}^{-1}$ ) is produced by burning a lump of coal of mass 125 g? ( $A_r \text{ S} = 32.07$ )

- A.  $\frac{32.07 \times 100 \times 64.07}{125 \times 3}$
- B.  $\frac{125 \times 3 \times 64.07}{100 \times 32.07}$
- C.  $\frac{125 \times 64.07}{32.07}$
- D.  $\frac{125 \times 3 \times 32.07}{100 \times 64.07}$

[1 mark]

### Question 6

Which are true about the effect of acid deposition on plants?

- I. Essential minerals are lost
- II. Toxic minerals can be absorbed from the soil
- III. Respiration and photosynthesis are reduced

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

[1 mark]

**Question 7**

Which are true about the effect of acid deposition on human health?

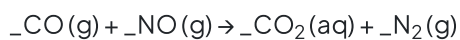
- I. Acid rain can burn the skin
- II. Acid particulates can trigger asthmatic attacks
- III. Toxic metal ions can be ingested

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

[1 mark]

**Question 8**

The conversion of toxic emissions into harmless products takes place in catalytic converters as follows:



The sum of the coefficients is

- A. 4
- B. 5
- C. 6
- D. 7

[1 mark]

### Question 9

Which can be used to reduce NO<sub>x</sub> emissions ?

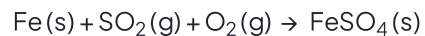
- I. Catalytic converters in cars
- II. Lower temperature of combustion
- III. Blended gasoline-alcohol fuel

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

[1 mark]

### Question 10

Iron structures can be damaged by dry deposition such as the equation below:



Which is true?

- I. Iron is a reducing agent
- II. Sulfur is a reducing agent
- III. The enthalpy change is  $\Delta H_f$

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

[1 mark]