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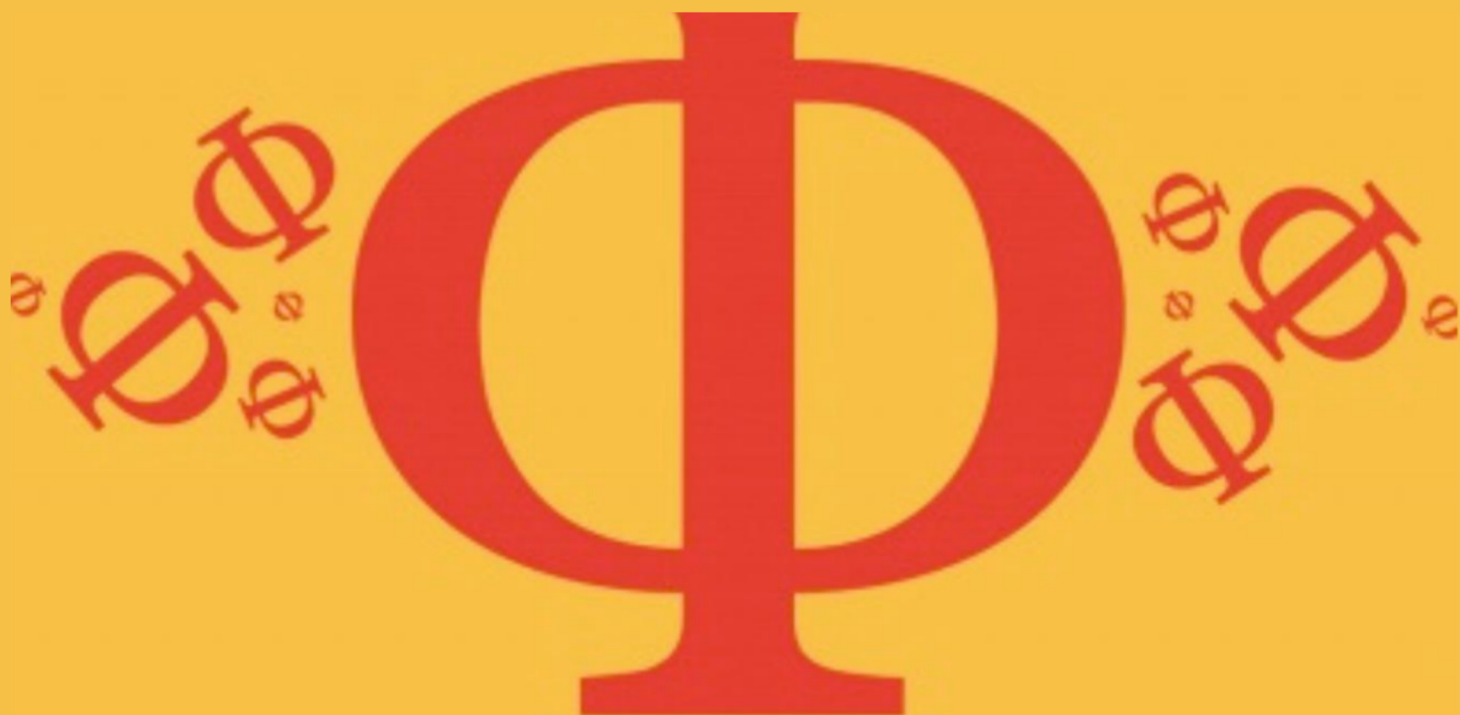
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## **IB Chemistry: SL**

### **1.1 Matter, Chemical Change & the Mole**

#### **Concept**



**CHEMISTRY**

**SL**

# 1.1 Matter, Chemical Change & the Mole Concept

## Question Paper

Course	DP IB Chemistry
Section	1. Stoichiometric Relationships
Topic	1.1 Matter, Chemical Change & the Mole Concept
Difficulty	Hard

EXAM PAPERS PRACTICE

Time allowed: 20

Score: /10

Percentage: /100

### Question 1

The order in which oxygen, methane, nitrogen and argon will diffuse from slowest to fastest, at the same conditions of temperature and pressure is:

- A.  $O_2 < N_2 < Ar < CH_4$
- B.  $CH_4 < Ar < N_2 < O_2$
- C.  $N_2 < O_2 < Ar < CH_4$
- D.  $Ar < O_2 < N_2 < CH_4$

[1 mark]

### Question 2

What is the total number of protons and electrons in two moles of hydrogen gas?

- A. 4
- B. 8
- C.  $2.4 \times 10^{24}$
- D.  $4.8 \times 10^{24}$

[1 mark]

### Question 3

Which sample contains the largest amount, in mol, of atoms?

- A. 0.30 mol of  $P_2O_5$
- B. 0.40 mol of  $CuSO_4 \cdot 5H_2O$
- C. 0.50 mol of  $CH_3COOH$
- D. 0.90 mol of  $H_2O$

[1 mark]

### Question 4

The correct combination relating to state change, particles and energy is:

A	Subliming	particles move further apart	particles gain energy
B	Vaporizing	particles come closer together	particles gain energy
C	Melting	particles move further apart	particles gain energy
D	Condensing	particles come closer together	particles gain energy

[1 mark]

### Question 5

Which of the following mixtures is NOT classified as homogeneous?

- A. Salt solution
- B. Brass
- C. Orange juice that has been filtered
- D. Concrete

[1 mark]

### Question 6

What is the whole number coefficient for oxygen when the equation for the combustion of pentanol is balanced?



- A. 7
- B. 8
- C. 15
- D. 16

[1 mark]

### Question 7

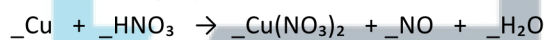
How many ions are present in 0.02 mol of  $(\text{NH}_4)_3\text{PO}_4$  ?

- A.  $8.0 \times 10^{-2}$
- B.  $1.2 \times 10^{22}$
- C.  $4.8 \times 10^{22}$
- D.  $2.4 \times 10^{23}$

[1 mark]

### Question 8

The coefficient for copper when the following equation is balanced is:



- A. 1
- B. 2
- C. 3
- D. 4

[1 mark]

### Question 9

Chlorofluorocarbons have been used extensively as liquid coolants in refrigerators and air conditioners. Which of the following descriptions explains how a refrigerant works?

- A. At high pressure the liquid evaporates and absorbs heat, cooling the surroundings
- B. At low pressure the liquid evaporates and absorbs heat, cooling the surroundings
- C. At high pressure the liquid condenses and absorbs heat, cooling the surroundings
- D. At low pressure the liquid condenses and absorbs heat, cooling the surrounding

[1 mark]

### Question 10

Excess dilute hydrochloric acid is added separately to equal masses of the four metals, calcium, zinc, magnesium and strontium. Which metal will give o the largest volume of hydrogen gas in the reaction?

- A. calcium
- B. zinc
- C. magnesium
- D. strontium

[1 mark]