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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**

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Time allowed: 20

Score: /10

Percentage: /100

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Question 1

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

A. O_2 < N_2 < Ar < CH_2
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. 2.4×10^{24}
D. 4.8×10^{24}

[1 mark]

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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 $CuSO_45H_2O$
C. 0.50 mol of CH_3 COOH
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]

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Question 6

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

$$C_5H_{11}OH(g) + O_2 \rightarrow CO_2(g) + H_2O(g)$$

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

[1 mark]

Question 7

How many ions are present in 0.02 mol of $(NH_4)_3PO_4$?

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

[1 mark]

Question 8

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

$$_Cu + _HNO_3 \rightarrow _Cu(NO_3)_2 + _NO + _H_2O$$

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

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[1 mark]

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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?

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

[1 mark]