IB Diploma

CHEMISTRY

SL

Paper 1

2012 — 2020

Chapter 1	**Stoichiometric Relationship**	Page 1
Chapter 2	**Atomic Structure**	Page 32
Chapter 3	**Periodicity**	Page 49
Chapter 4	**Chemical Bonding & Structure**	Page 63
Chapter 5	**Energetics / Thermochemistry**	Page 94
Chapter 6	**Chemical Kinetics**	Page 122
Chapter 7	**Equilibrium**	Page 143
Chapter 8	**Acids & Bases**	Page 158
Chapter 9	**Redox Processes**	Page 173
Chapter 10	**Organic Chemistry**	Page 197
Chapter 11	**Measurement & Data Processing**	Page 231
Chapter 12	**Atomic Structure (HL)**	---
Chapter 13	**The Periodic Table (HL)**	---
Chapter 14	**Chemical Bonding & Structure (HL)**	---
Chapter 15	**Energetics / Thermochemistry (HL)**	---
Chapter 16	**Chemical Kinetics (HL)**	---
Chapter 17	**Equilibrium (HL)**	---
Chapter 18	**Acids & Bases (HL)**	---
Chapter 19	**Redox Processes (HL)**	---
Chapter 20	**Organic Chemistry (HL)**	---
Chapter 21	**Measurement & Analysis (HL)**	---
	Answers	Page 245

www.exammate.com

1 - (CHEMI-S 2012-Paper 1/1-Q1) - *STOICHIOMETRIC RELATIONSHIP*

How many atoms of hydrogen are in 0.500 mol of CH_3OH molecules?

A. 1.20×10^{23}

B. 3.01×10^{23}

C. 6.02×10^{23}

D. 1.20×10^{24}

2 - (CHEMI-S 2012-Paper 1/2-Q1) - *STOICHIOMETRIC RELATIONSHIP*

What is the total number of atoms in 0.100 mol of $[Pt(NH_3)_2Cl_2]$?

A. 11

B. 6.02×10^{22}

C. 3.01×10^{23}

D. 6.62×10^{23}

3 - (CHEMI-S 2012-Paper 1/1-Q2) - *STOICHIOMETRIC RELATIONSHIP*

1 mol of a hydrocarbon with general formula C_nH_{2n+2} reacts completely with oxygen to produce 4 mol of H_2O. What is the amount of oxygen molecules, in mol, that reacts?

A. 4

B. 5

C. 6

D. 7

www.exam-mate.com

4 - (CHEMI-S 2012-Paper 1/2-Q2) - *STOICHIOMETRIC RELATIONSHIP*

Nitroglycerine, $C_3H_5N_3O_9$, can be used in the manufacture of explosives. What is the coefficient of $C_3H_5N_3O_9(l)$ when the equation for its decomposition reaction is balanced using the lowest whole numbers?

$$___ C_3H_5N_3O_9(l) \rightarrow ___ CO_2(g) + ___ H_2O(l) + ___ N_2(g) + ___ O_2(g)$$

A. 2

B. 4

C. 20

D. 33

5 - (CHEMI-S 2012-Paper 1/1-Q3) - *STOICHIOMETRIC RELATIONSHIP*

Under which combination of conditions is 1 mol of an ideal gas present?

	Volume	Pressure	Temperature
A.	22.4 dm^3	101 Pa	273 K
B.	22.4 m^3	101 Pa	298 K
C.	22.4 dm^3	101 kPa	273 K
D.	22.4 m^3	101 kPa	298 K

6 - (CHEMI-S 2012-Paper 1/2-Q3) - *STOICHIOMETRIC RELATIONSHIP*

The volume occupied by one mole of an ideal gas at 273 K and 1.01×10^5 Pa is 22.4 dm^3. What volume, in dm^3, is occupied by 3.20 g $O_2(g)$ at 273 K and 1.01×10^5 Pa?

A. 2.24

B. 4.48

C. 22.4

D. 71.7

www.exam-mate.com

7 - (CHEMI-S 2012-Paper 1/1-Q4) - *STOICHIOMETRIC RELATIONSHIP*

A fixed mass of an ideal gas at 27.0 °C and 1.01×10^5 Pa has a volume of 100 cm^3. Which change doubles the volume of the gas?

A. Heating the gas at constant pressure to 54.0 °C.

B. Heating the gas at constant pressure to 327 °C.

C. Increasing the pressure on the gas to 2.02×10^5 Pa at constant temperature.

D. Heating the gas to 54.0 °C and increasing the pressure to 2.02×10^5 Pa.

8 - (CHEMI-S 2012-Paper 1/2-Q4) - *STOICHIOMETRIC RELATIONSHIP*

What volume, in m^3, is occupied by 2.00 mol of gas at 27 °C and 2.00 atm pressure?
Assume: 1.00 atm = 1.01×10^5 Pa and $R = 8.31\ J\ K^{-1}\ mol^{-1}$.

A. $\frac{8.31\times27}{1.01\times10^5}$

B. $\frac{2.00\times8.31\times27}{1.01\times10^5}$

C. $\frac{2.00\times8.31\times300}{2.00\times1.01\times10^5}$

D. $\frac{2.00\times8.31\times300}{1.01\times10^5}$

9 - (CHEMI-S 2012-Paper 1/1-Q5) - *STOICHIOMETRIC RELATIONSHIP*

10 cm^3 of a solution of 1.0 mol dm^{-3} NaOH(aq) is diluted with water until the final volume is 100 cm^3. What is the concentration, in mol dm^{-3}, of the new solution?

A. 0.10

B. 1.0

C. 10.0

D. 0.01

www.exam-mate.com

ANSWERS

www.exam-mate.com

1 - (CHEMI-S 2012-Paper 1/1-Q1) - *STOICHIOMETRIC RELATIONSHIP*

D

2 - (CHEMI-S 2012-Paper 1/2-Q1) - *STOICHIOMETRIC RELATIONSHIP*

D

3 - (CHEMI-S 2012-Paper 1/1-Q2) - *STOICHIOMETRIC RELATIONSHIP*

B

4 - (CHEMI-S 2012-Paper 1/2-Q2) - *STOICHIOMETRIC RELATIONSHIP*

B

5 - (CHEMI-S 2012-Paper 1/1-Q3) - *STOICHIOMETRIC RELATIONSHIP*

C

6 - (CHEMI-S 2012-Paper 1/2-Q3) - *STOICHIOMETRIC RELATIONSHIP*

A

7 - (CHEMI-S 2012-Paper 1/1-Q4) - *STOICHIOMETRIC RELATIONSHIP*

B

8 - (CHEMI-S 2012-Paper 1/2-Q4) - *STOICHIOMETRIC RELATIONSHIP*

C

9 - (CHEMI-S 2012-Paper 1/1-Q5) - *STOICHIOMETRIC RELATIONSHIP*

A

10 - (CHEMI-S 2012-Paper 1/2-Q30) - *STOICHIOMETRIC RELATIONSHIP*

D

11 - (CHEMI-W 2012-Paper 1/0-Q1) - *STOICHIOMETRIC RELATIONSHIP*

C

12 - (CHEMI-W 2012-Paper 1/0-Q2) - *STOICHIOMETRIC RELATIONSHIP*

D

www.exam-mate.com