



Gas Laws, Moles & Gas Properties
Chemistry Past Exam Questions
Higher Level

2013

Section B - Question 4 H

(h) State *Charles' law*.

2012

Section B - Question 4 F

(f) State *Avogadro's law*.

2011

Section B - Question 4 B

(b) State *Avogadro's law*.

Section B - Question 4 D

(d) Define *the mole*, the SI unit of chemical amount.

2010

Section B - Question 4 B

(h) What is an *ideal gas*?

2009

Section B - Question 10 A

- (a) State *Avogadro's law*. (7)
- Give two assumptions of the kinetic theory of gases. (6)
- Give two reasons why real gases deviate from ideal gas behaviour. (6)
- How many moles of gas are present in a sample containing 1.8×10^{24} atoms of chlorine at s.t.p.? (6)

2006

Section B - Question 11 A

- (a) (i) What is an *ideal gas*? (4)
- (ii) Give one reason why a real gas like carbon dioxide deviates from ideal behaviour. (3)
- (iii) Assuming ideal behaviour, how many moles of carbon dioxide are present in 720 cm^3 of the gas at 10°C and a pressure of $1 \times 10^5 \text{ Pa}$? Give your answer correct to one significant figure. (9)
- (iv) How many molecules of carbon dioxide are present in this quantity of carbon dioxide? (3)
- (v) The reaction between carbon dioxide and limewater is represented by the following balanced equation.



What mass of calcium hydroxide is required to react completely with the quantity of carbon dioxide gas given in (iii) above? (6)

2005

Section B - Question 10 B

- (b) (i) Define a *mole of a substance*. (7)
- (ii) State *Avogadro's law*. (6)
- (iii) A foil balloon has a capacity of 10 litres. How many atoms of helium occupy this balloon when it is filled with a 10% (v/v) mixture of helium in air at room temperature and pressure? (12)