

**O Level Pure Chemistry MCQs**

**The Mole Concept and Stoichiometry Test 6.0**

Q1

Element Z is in Group VI of the Periodic Table.

Which formula is incorrect?

- A  $Z^{2-}$                       B  $H_2Z$                       C  $ZO_3^-$                       D  $ZO_4^{2-}$

Q2

Gallium oxide has the formula  $Ga_2O_3$ .

Potassium phosphate has the formula  $K_3PO_4$ .

What is the formula of gallium phosphate?

- A  $GaPO_4$   
B  $Ga_2PO_4$   
C  $Ga_2(PO_4)_3$   
D  $Ga_3PO_4$

Q3

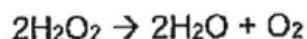
4.70 g of an ammonium salt is heated with excess aqueous sodium hydroxide. 1.41 dm<sup>3</sup> of ammonia gas was given off at room temperature and pressure.

What was the ammonium salt used?

- A ammonium bromide ( $M_r = 98$ )  
B ammonium carbonate ( $M_r = 96$ )  
C ammonium nitrate ( $M_r = 80$ )  
D ammonium sulfate ( $M_r = 132$ )

Q4

Hydrogen peroxide decomposes to form water and oxygen.



When 68 g of impure hydrogen peroxide decomposes, 1200 cm<sup>3</sup> of oxygen gas was collected.

What is the percentage purity of hydrogen peroxide?

- A 2.5 %
- B 5.0 %
- C 7.5 %
- D 10.0 %

Q5

Element X has the electronic structure 2.7 while element Y has the electronic structure 2.8.6. What is the likely formula of the compound containing X and Y?

- A XY
- B X<sub>2</sub>Y
- C XY<sub>2</sub>
- D X<sub>3</sub>Y<sub>2</sub>

Q6

Sodium oxalate has the formula Na<sub>2</sub>C<sub>2</sub>O<sub>4</sub> while niobium chloride has the formula NbCl<sub>3</sub>. What is the formula of niobium oxalate?

- A Nb<sub>2</sub>C<sub>2</sub>O<sub>4</sub>
- B Nb<sub>3</sub>C<sub>2</sub>O<sub>4</sub>
- C Nb<sub>2</sub>(C<sub>2</sub>O<sub>4</sub>)<sub>3</sub>
- D Nb<sub>3</sub>(C<sub>2</sub>O<sub>4</sub>)<sub>2</sub>

Q7

Which of the following has the same M<sub>r</sub> as calcium silicate, CaSiO<sub>3</sub>?

- A Al<sub>2</sub>O<sub>3</sub>
- B NaNO<sub>3</sub>
- C MgO
- D FeCO<sub>3</sub>

Q8

An element Z exists in three isotopic forms as shown below.

isotope	$^{150}\text{Z}$	$^{155}\text{Z}$	$^{157}\text{Z}$
isotopic abundance	50%	25%	25%

What is the relative atomic mass of element Z?

- A 150
- B 152
- C 153
- D 154

Q9

A mixture of calcium iodide and calcium nitrate is known to contain 3 moles of calcium ions and 4 moles of iodide ions.

How many moles of nitrate ions are present in the mixture?

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

Q10

Aerials in portable radios are made of a mixture of the oxides of calcium and iron known as 'ferrite'. It contains 18.5% calcium and 51.9% iron by mass.

Calculate the empirical formula of 'ferrite'.

- A  $\text{CaFe}_2\text{O}$
- B  $\text{CaFe}_2\text{O}_4$
- C  $\text{Ca}_2\text{FeO}_2$
- D  $\text{Ca}_2\text{Fe}_2\text{O}_3$

**Answers**

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Q1 C

Q2 A

Q3 C

Q4 B

Q5 B

Q6 C

Q7 D

Q8 C

Q9 B

Q10 B

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