



CHEMISTRY ONLINE
— **TUITION** —

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CHEMISTRY

PHYSICAL CHEMISTRY

LEVEL & BOARD:	OCR (AS - LEVEL)
TOPIC:	Compounds, Formulae & Equations
PAPER TYPE:	QUESTION PAPER 4
TOTAL QUESTIONS	07
TOTAL MARKS	17

Compounds, Formulae and Equations

1. Iodine, with an atomic number of 53, is in Period 5 of the Periodic Table. Iodine is a Group 17 element.
Predict the formula of an iodide ion.

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[1]

2. This question is about compounds of Group 2 elements. Radium will combine directly with oxygen.
Write the equation for the reaction between Radium and oxygen.

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[1]

3. A molecule of an alkene has 22 carbon atoms. State the empirical formula of this alkene.

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CHEMISTRY ONLINE [1]

4. Chlorine and mercury react with many elements and compounds. Predict the formula of the compound formed when chlorine reacts with aluminum.

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[1]

5. This question is about inorganic compound

(a) Silver chloride, AgCl, is exposed to sunlight. A student places a sample of AgCl in direct sunlight for an experiment.

i. Describe what the student would observe during this reaction.

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[1]

ii. Write the equation for the reaction that occurs when AgCl is exposed to sunlight.

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[1]

(b) Compounds of magnesium have various applications.

i. Identify a compound of magnesium that could be used to neutralize an acidic stomach with a pH of 4.0 to a pH of 6.5 and constipation.

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[1]

ii. Magnesium sulfide, MgO, is an ionic compound used in specific applications.

Magnesium oxide can be synthesized by reacting magnesium metal with sulfur dioxide and SO₂.

Write the balanced chemical equation for the reaction of magnesium with sulfur dioxide to produce magnesium oxide and S₈.

- iii.** Draw a 'dot-and-cross' diagram to depict the bonding in magnesium Oxide, MgO. [1]

Show only the outer electrons.

- 6.** A salt used as a fertilizer has the empirical formula $\text{Mg}_3(\text{PO}_4)_2$. Suggest the formulae of the ions present in this salt. [2]

- 7.** A chemist carries out reactions of strontium and strontium nitride, Sr_3N_2 . [2]

Reaction 1: Strontium is reacted with water.

Reaction 2: Strontium nitride is reacted with water, forming an alkaline solution and an alkaline gas.

Reaction 3: Strontium reacts with an excess chlorine gas at 500°C , forming strontium chloride, SrCl_2 .

- i.** Write equations for Reaction 1 and Reaction 2.

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[3]

ii. Predict the structure and bonding of Sr_3N_2 .

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[1]

iii. SrCl_2 formed in Reaction 3 contains strontium and chloride ions.
Suggest a 'dot-and-cross' diagram for SrCl_2 .

Show outer shell electrons only.

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[1]

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- Founder & CEO of Chemistry Online Tuition Ltd.
- Completed Medicine (M.B.B.S) in 2007
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