

IONS

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with Mital Thanki
Spark Academy Founder & Chemistry Geek



TASK 1: RECAP

Atoms of calcium, phosphorus and fluorine are represented below, each with its mass number and proton number.

40	31	19	←	mass numbers
Ca	P	F		
20	15	9	←	proton numbers

1.1 How many protons does Phosphorus have?

1.2 How many neutrons does Fluorine have?

1.3 How many electrons does calcium have?

Calcium and fluorine atoms can combine to form the compound calcium fluoride, CaF_2 . The fluoride ion is represented by F^- .

1.4. Explain how the fluorine atom forms a fluoride ion.

1.5 How is the calcium ion represented?



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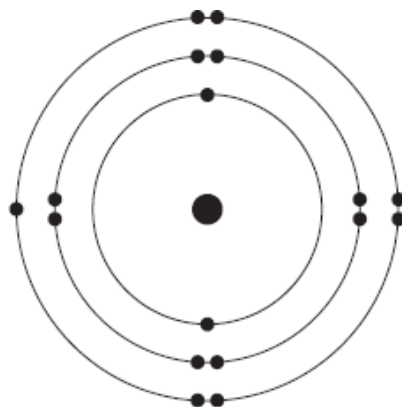
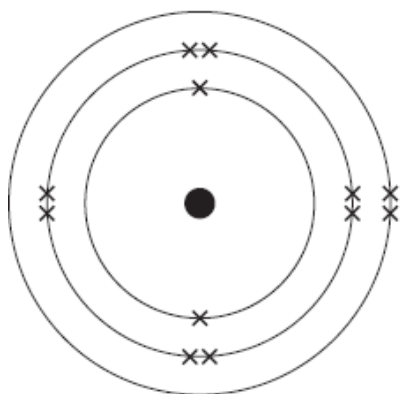
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TASK 2: EXPLAINING WHAT YOU KNOW

2.1 The diagram shows an atom of magnesium and an atom of chlorine. Describe in terms of electrons, how magnesium atoms and chlorine atoms change into ions to produce magnesium chloride ($MgCl_2$). [4]



HINT!
USE THE FOLLOWING KEY WORDS: METALS, NON-METALS, LOSE, GAIN ELECTRONS, POSITIVE CHARGE, NEGATIVE CHARGE, ELECTROSTATIC FORCES OF ATTRACTION, IONIC BOND. ALSO STATE HOW MANY ATOMS OF EACH YOU WILL NEED TO FORM IONS AND BOND TOGETHER.



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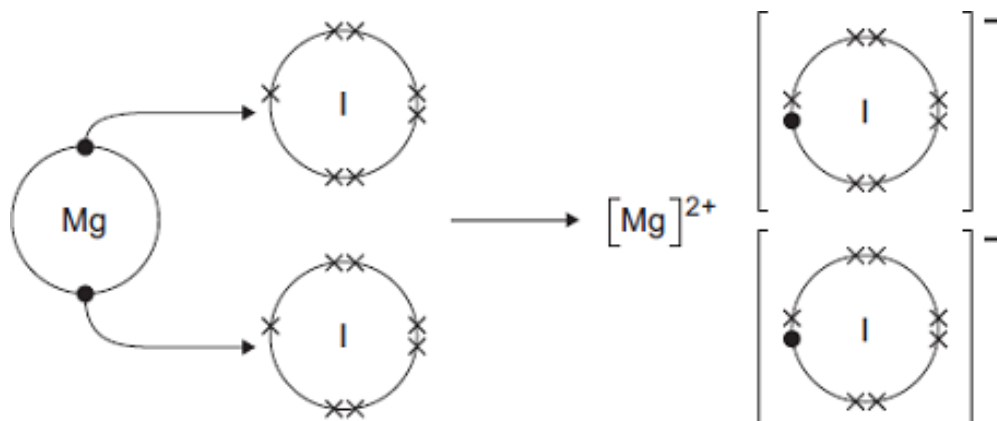
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TASK 3: EXAM STYLE QUESTION

USE THE HINTS FROM THE PREVIOUS QUESTION TO HELP YOU ANSWER THIS ONE!

2.1 The diagram shows how magnesium and iodine atoms form magnesium iodide. Only the outer electrons are shown. The dots (●) and crosses (×) are used to represent electrons.



Use the diagram to help you to answer this question. Describe, as fully as you can, what happens when magnesium reacts with iodine to make magnesium iodide. To gain full marks you should use the words atom, electron and ion in your answer. [4]

