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VCE Chemistry ½
Ionic Compounds [1.5]
Test

20 Marks. 1 Minute Reading. 16 Minutes Writing

Results:

Test Questions	_____ / 15
Extension	_____ / 5



Section A: Test Questions (15 Marks)

Question 1 (4 marks)

Tick whether the following statements are **true** or **false**.

Statements	True	False
a. The overall charge of an ionic compound is 0.		
b. Typically, in ionic bonding, a metal donates one or more electrons which are received by a non-metal.		
c. Electrostatic attraction occurs when a positively charged non-metal ion is near a negatively charged metal ion.		
d. When writing the formula for ionic compounds, we write the symbol of the anion first and the cation second.		
e. The bond holding together sodium chloride is ionic.		
f. The transfer of electrons is what defines an ionic bond.		
g. Ionic compounds are ductile due to the strong electrostatic attraction present within the lattice.		
h. The dichromate ion has a 2- charge whereas the chromate ion has a 1- charge.		

Space for Personal Notes

Question 2 (8 marks)

James is considering the ionic compound named lithium oxide. With a small sample to test, he runs it through several different experiments.

- a. Write the formula for lithium oxide. (1 mark)

- b. Draw an electron transfer diagram for the formation of lithium oxide from lithium and oxygen. (3 marks)

- c. Describe the structure of a block of lithium oxide at an atomic level. Ensure to mention the **arrangement** of atoms. You may use a diagram to support your answer. (2 marks)

- d. James notices that the compound is extremely brittle. With reference to the ionic bonding model, explain why this is the case. (2 marks)

Question 3 (3 marks)

Amrisha is investigating a complicated substance that has formula FeS_2O_3 .

- a. State the valency of iron in this compound. (1 mark)

- b. Hence or otherwise, write the full name of this compound. (1 mark)

- c. Amrisha suggests that one of the ions in his compound is polyatomic. Suggest whether he is correct or not, with appropriate justification. (1 mark)

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Section B: Extension (5 Marks)**Question 4 (5 marks)**

After a long day at work, Harry takes to the lab and works on melting NaCl. After it has reached a molten state, Harry runs an electrical current through the molten NaCl. As he watches the molten cool, he notices the conductivity decreases.

- a. Explain Harry's observations with reference to ionic bonding. (3 marks)

NaCl has a melting point of roughly 800°C, whereas pure sodium metal has a melting point of 98°C.

- b. Suggest why the melting point of NaCl is significantly higher than that of pure Na. (2 marks)

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VCE Chemistry ½

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