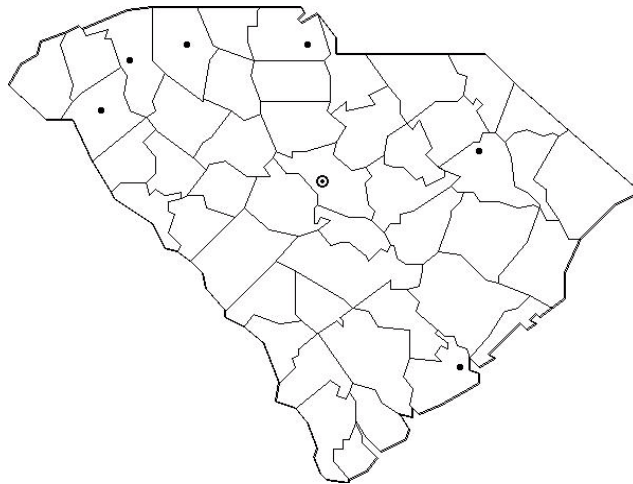


TESTS FOR HIGHER STANDARDS

Science

2005 High School Core Area Standards



End of Course Test
For the South Carolina Academic Standards

Physical Science

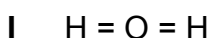
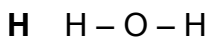
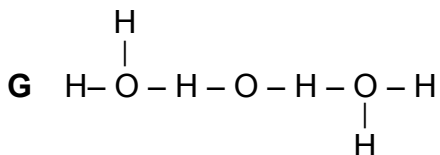
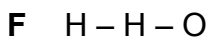
Grade Level Test

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Dr. S. Stuart Flanagan, Professor Emeritus
College of William and Mary

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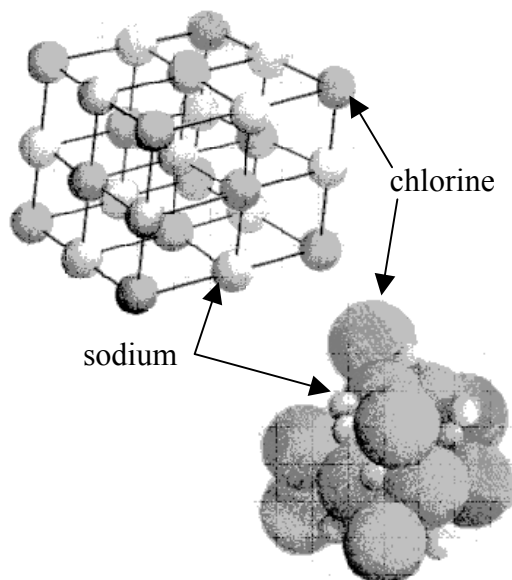
PS-4.2

26 The formula for water is H_2O . Which of the following shows the structure of water?



PS-4.4

27 What type of bonding is shown in the diagram at the right?



- A hydrogen
- B polar covalent
- C ionic
- D covalent

PS-4.4

28 How does an ionic bond differ from a covalent bond?

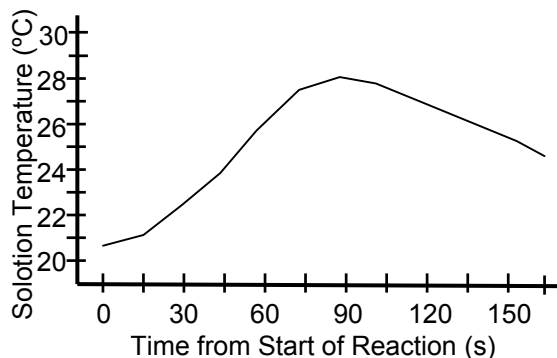
- F An ionic bond involves the sharing of electrons, but covalent bonds involve the donating of electrons.
- G An ionic bond involves donated electrons, but covalent bonds involve the sharing of electrons.
- H Molecules are created by ionic bonds only.
- I Covalent bonds only yield salts.

Students did an experiment in which a chemical reaction took place in an aqueous solution. The students measured the temperature of the solution throughout the reaction. The graph below shows the temperatures of the solution during the course of the experiment. Use the graph to answer the next two questions.

PS-4.7

29 Is the reaction exothermic or endothermic?

- A exothermic
- B endothermic
- C exothermic at first, then endothermic
- D There is not enough data to determine.



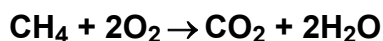
PS-4.7

30 About when did the reaction end?

- F after 30 seconds
- G after 60 seconds
- H after 90 seconds
- I after 160 seconds

PS-4.7

31 Jan performed an experiment to demonstrate the Conservation of Matter. In a closed container, she caused methane to combine with oxygen.



When she measured the products' total mass, it was slightly less than the mass of the reactants.

What almost certainly did not cause this mass difference?

- A The system was not completely closed.
- B There were errors in the measurements of the reactant and product masses.
- C The container was not completely clean.
- D Some of the reactant mass was converted directly into energy.