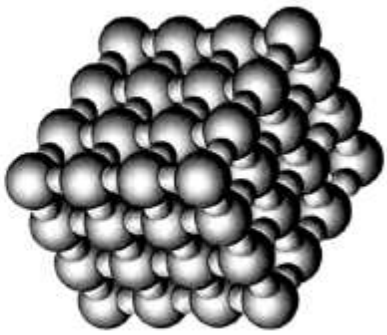
Science Revised Syllabus
Junior Certificate
Higher Level

Past Exam Questions on
C Chemical Bonding

Q4 Part (e) 2012

(*e*) The diagram shows part of a crystal of sodium chloride. Name the type of bonding in sodium chloride. Describe this type of bonding.



Name _____

Describe _____

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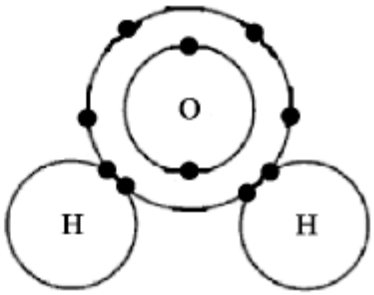
Q6 Part (a) 2011

(*a*) The diagram shows the way the atoms bond together in a molecule of water.



(*i*) What is a molecule? (3)

_____

_____

_____

(*ii*) Each hydrogen atom shares two electrons with the oxygen atom. What name is given to the type of bonding that involves the sharing of pairs of electrons? (3)

_____

(*iii*) In the space below, draw a diagram of a methane molecule, CH_4, showing the bonding between its atoms. (6)

(*iv*) Describe a second type of chemical bonding and name a compound which has this type of bonding. (9)

Describe _____

_____

_____

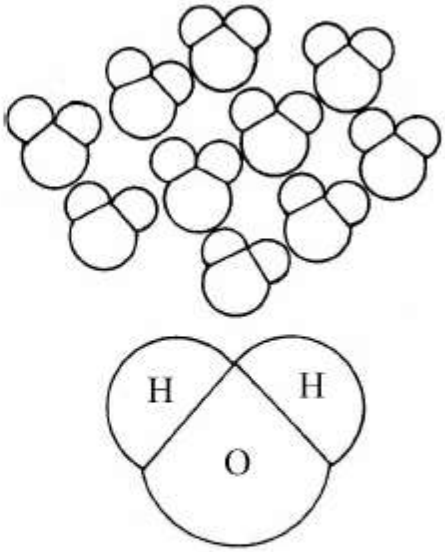
_____

Compound _____

Q6 Part (a) 2009

Atoms of elements can combine to form compounds using chemical bonds between their atoms. There are different types of chemical bonds.

(*a*) The diagram shows a group of water molecules with one enlarged below with its constituent atoms identified by their atomic symbols. Water molecules are very tiny, one teaspoon of water contains approximately 2×10^{23} molecules.



(*i*) Name the *type of bonding* in the water molecule. (3)

Name _____

(*ii*) ***Describe*** this *type of bond*. (6)

Describe _____

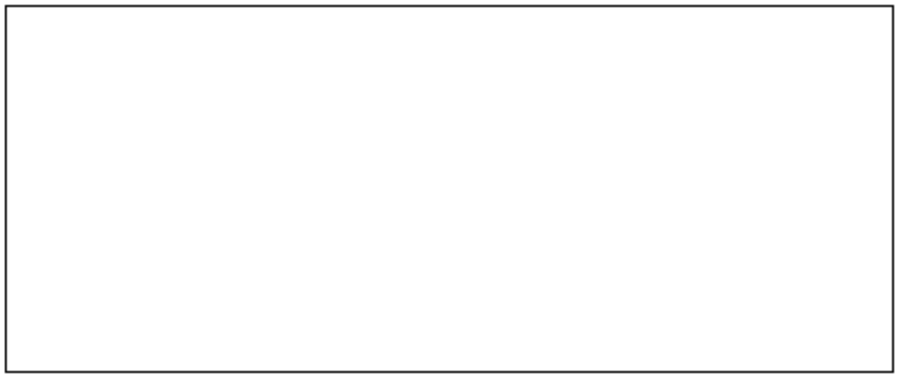
_____

(*iii*) Name *one other* compound with this *type of bonding*. (3)

Name _____

Q4 Part (d) 2008

(*d*) Some atoms join together by *sharing pairs of electrons*.
This is called *covalent bonding*. Draw a ***diagram*** in the box below showing the ***covalent bonding in a molecule of water***.

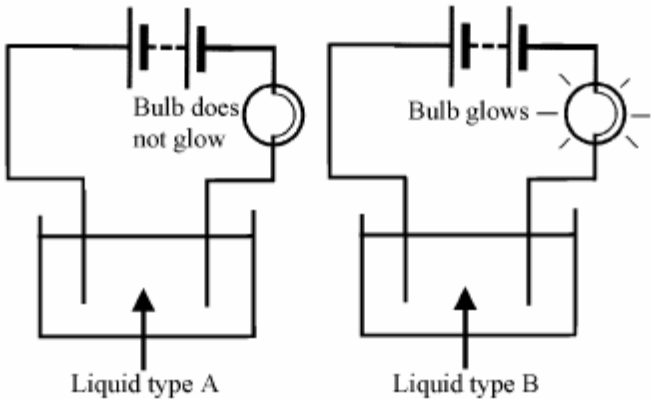


Q6 Part (a) 2008

(*a*) Atoms of *different elements* can form *compounds* by *bonding* together.

(*i*) What is an ***ionic bond***? (6)

A pupil investigated the *ability of covalent and ionic substances to conduct electricity*. Four substances were selected. One was a liquid. The other three substances were solids and these were dissolved in pure water before testing. The apparatus used in the investigation is drawn below. When the liquids were tested the bulb did not glow in some cases (Liquid type A) and the bulb glowed in other cases (Liquid type B).



The results of the investigation are given in the table.

Liquid	Cooking oil	Table salt	Table sugar	Copper sulphate
Liquid type	A	B	A	B

(*ii*) Name the ***ionic substances*** in the table.
Give a ***reason*** for your answer. (9)

Name _____

Reason _____

(*iii*) **Three** of the *substances tested* are *solid at room temperature*. Why were these ***substances dissolved in water*** before the investigation? (3)

Q4 Part (e) 2007

(*e*) The diagram shows a molecule of C_{60}. It has 60 carbon atoms covalently bonded together. This molecule is nick-named the 'Buckey Ball'. Explain the underlined term.

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