1st Year Chemistry Test

Oisín Argaud, Armstrong, 1st Year

studyclix

52/56 = 93%

Question 1

In the diagrams below, circles of different colours are used to represent atoms of different elements.

Complete the table below for the substances shown in diagrams A to E.

In each case, state whether the diagram represents a solid, a liquid or a gas.

Also state whether the diagram represents an element, a compound or a mixture.

(Some parts of the table are already completed for you.)

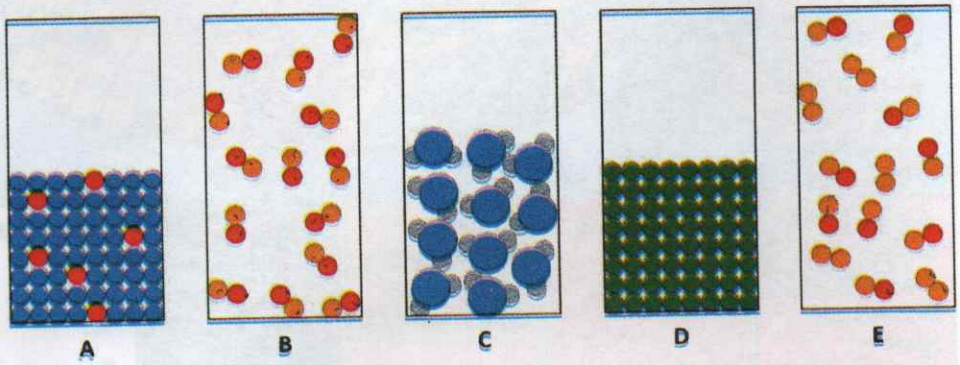
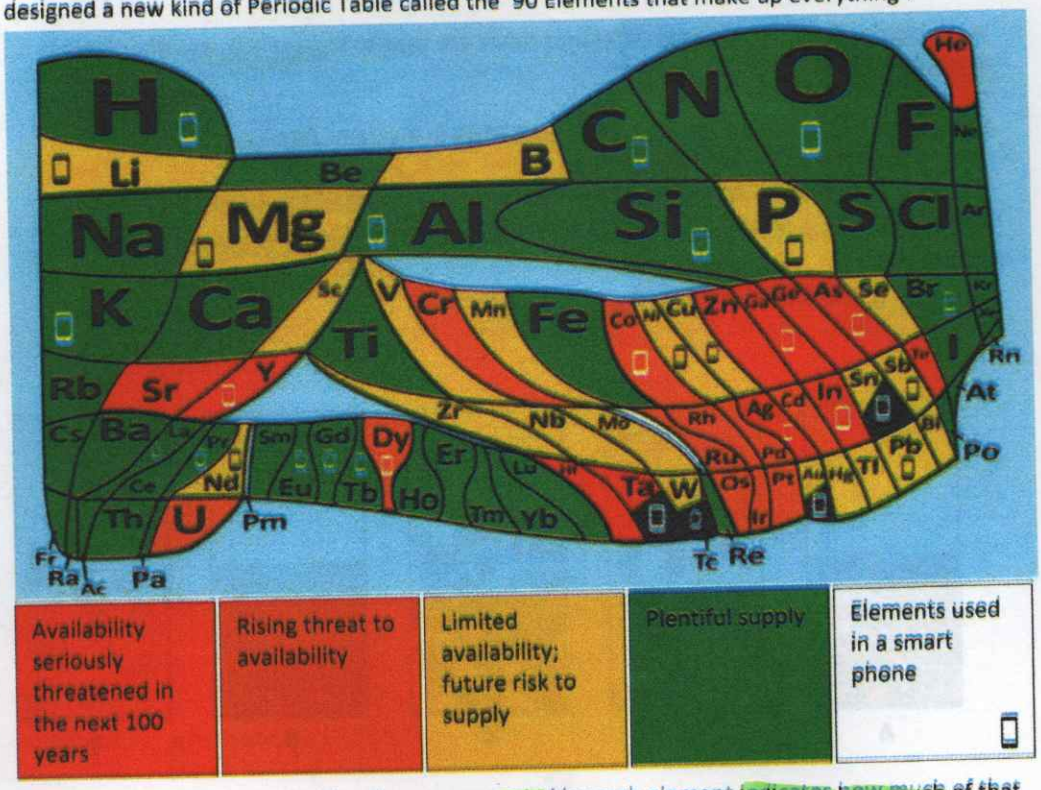


Diagram	Solid, liquid or gas	Element, compound or mixture
A	Solid ✓	Mixture
B	Gas ✓	Compound ✓
C	Liquid ✓	Compound ✓
D	Solid	Element ✓
E	Gas ✓	Mixture ✓

A is a mixture because it isn't balanced. B is a compound because the colours are stuck together. C is a compound for the same reason as B. D is an element because it's just one colour. E is a mixture because some pieces are red and orange and others are just orange.

Question 2

The Periodic Table was developed by Dmitri Mendeleev. It was published 150 years ago in 1869. To celebrate the International Year of the Periodic Table, The European Chemical Society has designed a new kind of Periodic Table called the '90 Elements that make up everything'.



The table has been drawn so that the area occupied by each element indicates how much of that element is in the Earth's crust and atmosphere.

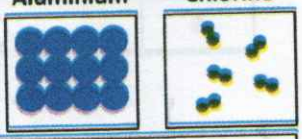
(a) From the table, identify a gas which is a component of the Earth's atmosphere and which is in plentiful supply.

Oxygen ✓

(b) Why should the use of the gas helium (He) in birthday balloons be avoided?

There's not enough of it to waste ✓

The diagrams on the right show the arrangement of particles in the elements aluminium and chlorine at room temperature.



(d) What evidence is there in the diagrams to support the classification of these substances as elements?

There's only one colour ✓

(I'm pretty sure Chlorine is a misprint)

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Question 3

Question 4 (52)

use only (1) (2)

(a) **Water** ✓ **Chlorine** **Sodium** **Iron sulfide** ✓

Two of the chemicals listed above are elements and two of them are compounds.

Circle the two compounds.

Question 4

(b) The photograph is of Maire Curie (1867-1934). She showed the existence of the element radium and she produced 0.1 g of the compound radium chloride in 1902 by processing tons of pitchblende ore obtained from mines in Bohemia.

Explain the underlined terms. (12)

(1) (2)

Element A pure substance on the Periodic Table eg. Oxygen ✗

Compound When two elements chemically combine eg. H^2O ✓

Question 5

(e) When solid ice changes state to become liquid water, this is called melting. What name is given to the change of state when liquid water becomes solid ice?

Freezing ✓

Melting → Evaporating →

Ice ⇄ Water ⇄ Water Vapour

← Freezing ← Condensing

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Solid
Fixed shape
Can't be compressed
Fixed volume

Liquid
No fixed shape
Can't be compressed
Fixed volume

Gas
No fixed shape
Can be compressed
No fixed volume

Question 6

(b) (i) Identify the state of matter (solid, liquid or gas) that has no shape of its own and cannot be compressed.

Liquid ✓

(ii) What is meant by evaporation?

Evaporation is the transition from liquid to gas ✓

Question 7

(c) Matter occurs in different states.

(i) Name a state of matter that has no fixed shape.

Name Liquid ✓

(ii) Name a state of matter that has no fixed volume.

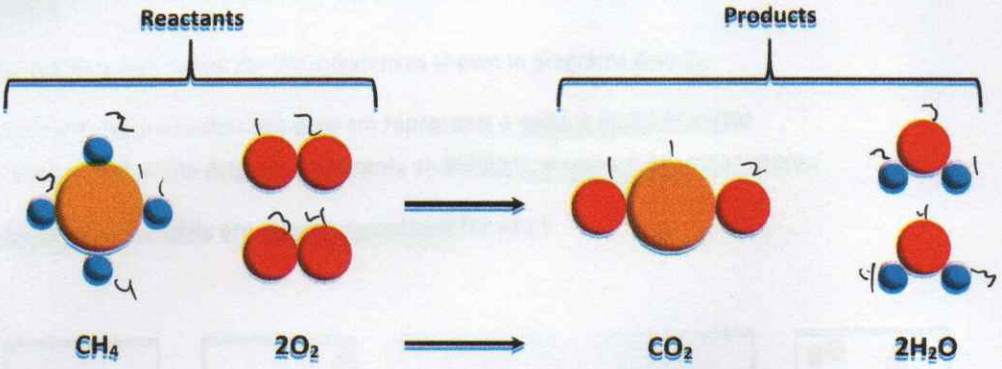
Name Gas ✓

Question 8

Natural gas contains methane (CH_4). Methane is a fuel.

Methane burns in oxygen to produce carbon dioxide and water.

The diagram below represents the reaction.



(a) Count the number of each type of atom in the products to complete the table below.

Element	Type of atom	Number of atoms in reactants	Number of atoms in products
Carbon	●	1	1
Hydrogen	●	4	4
Oxygen	●	4	4

(b) Mass is conserved during this reaction. What evidence is there for this?

on left + right

All The atoms are all the same, just in different places

(c) The burning of methane is an example of a chemical change.
Describe one difference between a physical change and a chemical change.

In chemical change, a new substance is formed, unlike physical change where no new substance is formed

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