End of module 2 questions

1 **a** Imagine you and your classmates are the particles in a solid. How would you be arranged in the classroom? Describe any movement you would make.

b How would your movement in the solid change if you imagine that the temperature rises?

c What happens to you and your classmates when the solid melts?

d How would you all pretend to be a gas?

2 This question will help you to remember the chemical symbols of some common elements.

Give the names of the missing elements in the correct order.

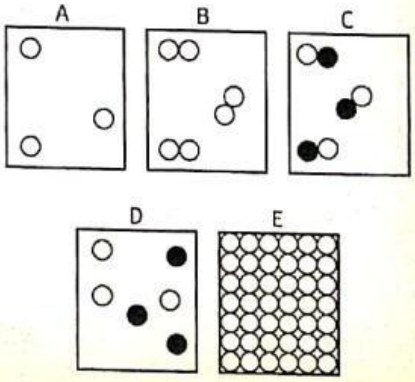
Once upon a time, as I floated away light as (He) _____. I saw something as valuable as (Au) _____, but it was even rarer like (Pt) _____. I picked it up and found it was as heavy as (Pb) _____. It reacted easily with water like (K) _____ and (Na) _____ and brightened the place like (Ne) _____ in bulbs. I looked around and saw a piece of (Zn) _____ from a roof, half-buried in the (Si) _____ of the sand.

As I used the (Fe) _____ spade to unearth the piece, I started gasping due to lack of (O) _____ , and realised that a gas cloud of (Cl) _____had been accidentally released from the nearby water treatment plant. I moved as quickly as (Hg) _____ in a thermometer, to put as much distance between myself and the cloud as I could, then stopped to have some (Mg) _____ salts to settle my upset stomach. An old woman standing close by shouted that I was lucky to be alive and should guard my health as if it was valuable like (Ag) _____ is regarded. I thanked her and climbed out of the valley on cables of (Cu) _____ to see labourers applying 'whitewash' containing (Ca) _____ to the fences and around the trunks of the trees, as Christmas would soon be here.

Unfortunately, I fell and bruised my knee and so had to put (I) _____ on the wound to prevent infection. Nearby, a huge industrial complex was releasing toxic clouds containing (S) _____ dioxide and my eyes began to blur and my throat constrict. I began falling as the vehicles whizzing by released the (C) _____ dioxide in their exhaust. I woke up out of the dream I was having.

I then brushed my teeth with the toothpaste containing (F) _____ and went to my bed as it was late at night.

3 Look at the boxes opposite:



Which box shows:

a a mixture of gases

b a solid

c a gas that is a compound

d a pure gas that is made up of only single atoms

e a gas that could be nitrogen gas, N_2?

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4 The table below shows the conditions some plants prefer:

Plant	pH range
Apple	5.0–6.5
Potato	4.5–6.0
Blackcurrant	6.0–8.0
Onion	6.0–7.0
Strawberry	5.0–7.0

a Which plants grow well over the largest *range* of pH values?

b Which plant can grow in the most acidic soil?

c Which plant can grow in the most alkaline soil?

d Describe how you can test the pH of a soil.

e How can you raise the pH of an acidic soil?

5 The table below shows the pH values of five solutions whose labels have been lost.

Solution	pH value
A	6.0
B	7.5
C	7.0
D	4.5
E	8.0

a Which solutions are acidic?

b Soap solution is weakly alkaline. Which of the solutions could be soap solution?

c i Give two solutions that would react together.

ii What do we call this type of reaction?

iii Two new substances are made in the reaction. One is a salt – what is the other substance formed?

6 Grace was investigating which of four indigestion tablets was most effective. She crushed each tablet and added it to 25 cm^3 of water and an indicator.

Then she added dilute hydrochloric acid 1 cm^3 at a time, until the indicator changed colour.

Here are her results:

Fizzo – 18 cm^3, Neutratabs – 17 cm^3, Soothers – 9 cm^3, Alkomix – 12 cm^3.

a Put her results in a suitable table.

b What type of graph would you use to show Grace's results?

c Which tablet was the most effective?

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