N5 Chemistry
Unit 1: Chemical Changes & Structure
Homework 1.4

1. The pH of a solution can be measured using

   A Benedict's solution
   B Universal indicator
   C iodine solution
   D limewater.

   Answer _____

2. As water is added to an acid, the acid becomes

   A less acidic and its pH goes up
   B less acidic and its pH goes down
   C more acidic and its pH goes up
   D more acidic and its pH goes down.

   Answer _____

3. Sulfur was burned in oxygen. Water was added to the gas jar and the pH measured. The pH value was found to be

   A 3 B 7
   C 9 D 13.

   Answer _____

4. A potassium ion has one **more** electron than

   A an argon atom
   B a calcium atom
   C a chlorine atom
   D a sulfide ion.

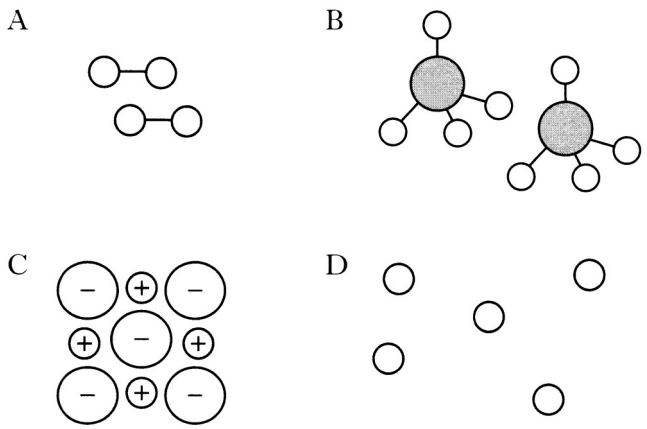
   Answer _____

5. A particle with a two positive charge and an electron arrangement 2, 8, is

   A calcium atom
   B magnesium atom
   C calcium ion
   D magnesium ion.

   Answer _____

6. The structures of substances can be represented by models. Which model shows an element made up of molecules?



   Answer _____

7. Solid ionic compounds do not conduct electricity because

   A the ions are not free to move
   B the electrons are not able to move
   C solid substances never conduct electricity
   D there are no charged particles in ionic compounds.

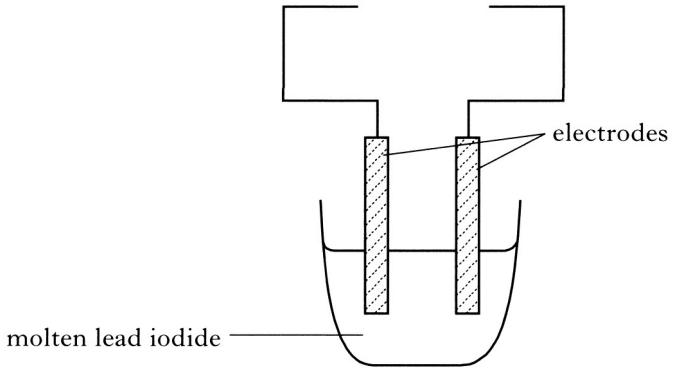
   Answer _____

8. What is the most likely pH value that would be obtained when zinc oxide is added to water? (You may wish to refer to the data booklet.)

   A 5
   B 7
   C 9
   D 11

   Answer _____ 8

9. a) A technician set up the following experiment to electrolyse molten lead iodide.



i) In the diagram, the technician has left out a piece of apparatus needed to electrolyse the molten lead iodide.
Name the piece of apparatus which has been left out of the circuit.

_____ 1

ii) During electrolysis, the lead iodide is broken down into its elements.
Write a **word** equation for this reaction.

_____ 1

b) Why do ionic compounds, like lead iodide, not conduct electricity as a solid?

_____ 1

c) Name the non-metal element which can be used as the electrodes.

_____ 1

10. The table below gives information about substances P, Q, R and S.

Substance	Melting Point /^{o}C	Boiling Point /^{o}C	Solubility in Water	Conduction when Solid
P	1410	2360	insoluble	no
Q	1540	3000	insoluble	yes
R	708	1412	soluble	no
S	72	360	insoluble	no

a) P and Q, are elements. State which of the elements is a metal and which is a non-metal.

P _____ Q _____ 1

b) Which of the substances, P, Q, R or S, will exist as molecules?

_____ 1

c) Which of the covalent substances will have a covalent network structure?

_____ 1

11. A student investigated how the concentration of sodium chloride in water affected the freezing point.

a) What type of bond is broken in sodium chloride when it dissolves in water?

_____ 1

b) The table shows information about the freezing point of different sodium chloride solutions.

Concentration of sodium chloride solution (mol/l)	0	0·09	0·18	0·27	0·37	0·46
Freezing point (°C)	0	−0·2	−0·5	−0·8	−1·1	−1·5

Describe the relationship between the concentration and freezing point.

_____

_____ 1

c) Predict the freezing point of a 0·55 mol/l sodium chloride solution.

_____ °C 1

12. A student made the following statements about the particles found in an atom.

A	Relative mass = 1
B	Charge = zero
C	Found outside the nucleus
D	Charge = 1+
E	Charge = 1–

a) Which two statements apply to electrons?

_____ & _____ 2

b) Which two statements apply to neutrons?

_____ & _____ 2

13. a) When sulfur dioxide dissolves in water in the atmosphere “acid rain” is produced.

Circle the correct phrase to compete the sentence. 1

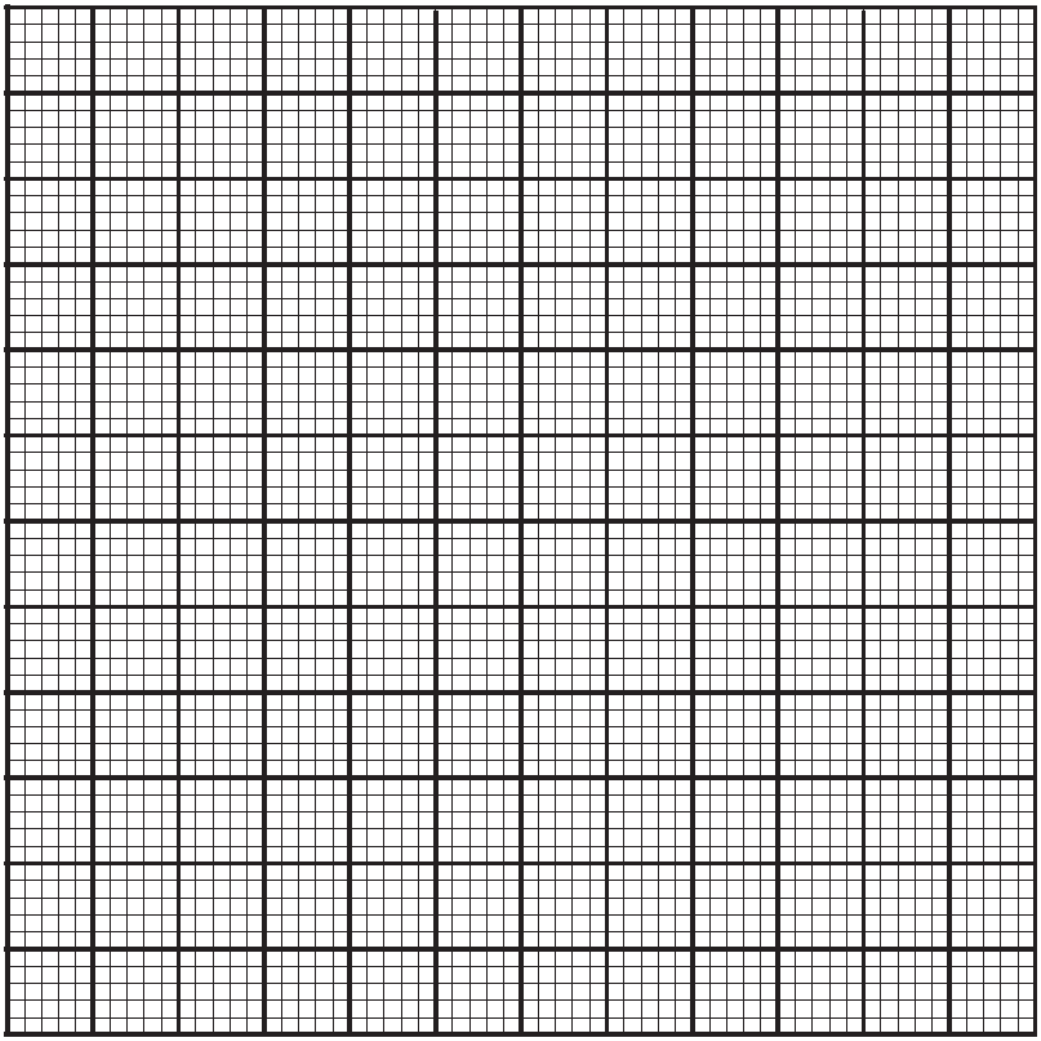
Compared with pure water, acid rain contains { a higher / a lower / the same } concentration of hydrogen ions.

b) The table shows information about the solubility of sulfur dioxide.

Temperature /°C	0	20	30	40	50	60
Solubility in g/100 cm^3	22·0	10·0	6·0	3·0	2·0	1·5

Draw a line graph of solubility against temperature.

Use appropriate scales which fill most of the paper.



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Total Marks 26