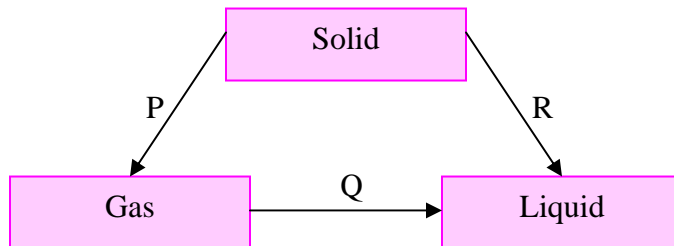




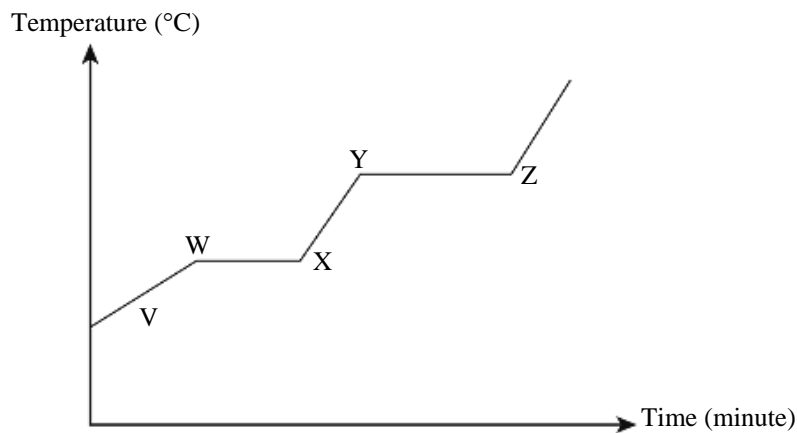
## CHAPTER 4: MATTER AND SUBSTANCE



### PAPER 1: Objective Questions



- 1 In which of the processes shown above do the particles move further away from one another?
- I Process P
  - II Process Q
  - III Process R
- A I and II only  
B I and III only  
C II and III only  
D I, II and III
- 2 The graph shown below is obtained from heating a solid and taking its temperature at regular intervals.



At which stage is the substance boiling?

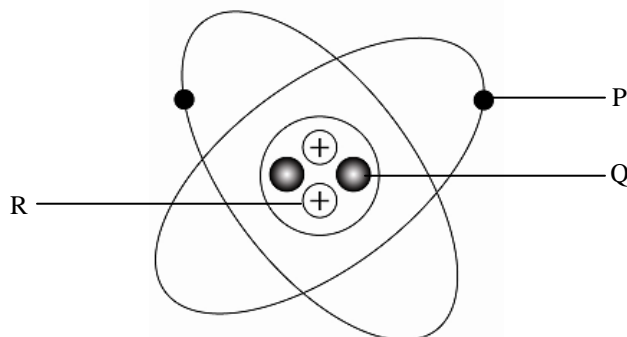
- A V to W
- B W to X
- C X to Y
- D Y to Z

- 3 Which of the following concepts from Dalton's theory of atoms is now **incorrect**?
- A An atom cannot be destroyed.
  - B An atom is a tiny spherical particle.
  - C Atoms of the same element are similar.
  - D Atoms of different elements are different from one another.
- 4 The table below shows the subatomic particles in the atoms of four substances.

| Substance | Number of electrons | Number of protons | Number of neutrons |
|-----------|---------------------|-------------------|--------------------|
| W         | 7                   | 7                 | 7                  |
| X         | 9                   | 9                 | 10                 |
| Y         | 6                   | 6                 | 6                  |
| Z         | 6                   | 6                 | 7                  |

Which of the substances are isotopes?

- A W and X
  - B X and Y
  - C Y and Z
  - D W and Z
- 5 The diagram below shows the structure of an atom.

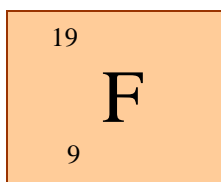


- Which statement about the particles is true?
- A Particle P has the biggest mass.
  - B Particle Q is negatively charged.
  - C Particle R is the lightest particle.
  - D Particle P of some atoms can move away from their atoms.
- 6 Which of the following is **not** a property of copper chloride?
- A Copper chloride is an ionic compound.
  - B Copper chloride conducts electricity in the solid state.
  - C Copper chloride conducts electricity in aqueous solution.
  - D Copper chloride has a very high melting point.

- 7 Lithium has 3 electrons, 3 protons and 4 neutrons. Which description of it given below is true?

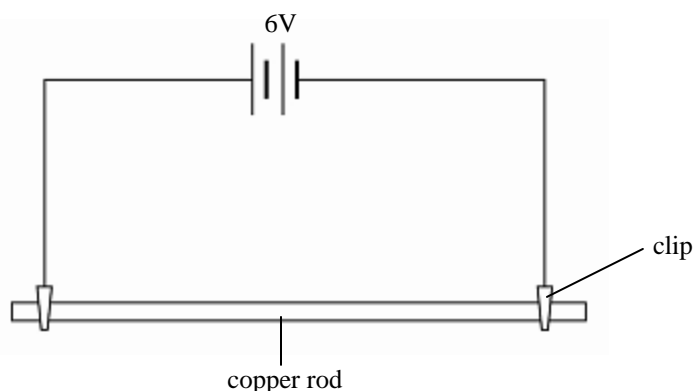
|   | Proton number | Nucleon number |
|---|---------------|----------------|
| A | 3             | 4              |
| B | 6             | 4              |
| C | 3             | 7              |
| D | 6             | 7              |

- 8 The diagram below shows an element F.



Which statement about element F is **not** true?

- A Its proton number is 9.  
B Its nucleon number is 19.  
C It has 10 neutrons and 9 electrons.  
D It has a total number of 19 electrons and protons.
- 9 In moving across a period of the periodic table from left to right,  
I the elements change from metals to non-metals.  
II the elements change from solids to gases.  
III the elements change from insulators to conductors of electricity.  
A I and II only  
B I and III only  
C II and III only  
D I, II and III
- 10 Why do ionic compounds such as sodium chloride have high melting points?  
A They have a high density.  
B They have a big nucleon number.  
C The ions are bound together by strong electrostatic forces.  
D The ions are highly resistant to heat.
- 11 Which substance and use are **wrongly** matched?  
A Sulphur – for making ointment for wounds  
B Chlorine – for killing bacteria in water  
C Carbon – used as electrodes during electrolysis  
D Nitrogen – used in preparing alcohol



- 12** When a copper rod is connected to a battery,...
- A** its atoms move closer to one another.
  - B** its electrons flow in one direction.
  - C** its proton increase in mass.
  - D** its neutrons become charged.
- 13** Petrol can be obtained from a mixture of petrol and diesel by the process of...
- A** fractional distillation.
  - B** precipitation.
  - C** crystallization.
  - D** sublimation.
- 14** Crystallization is a method used for obtaining pure substances because...
- A** each substance has its own shape.
  - B** each substance has its own boiling point.
  - C** only pure substances are used to form crystals.
  - D** impure substances are deposited during crystallization.
- 15** The Liebig condenser is used in distillation for...
- A** separating water in a solid substance.
  - B** cooling and condensing the vapour formed.
  - C** killing microorganisms present in a liquid mixture.
  - D** cooling a liquid to form crystals.