

Structure {Paper02}

[SPM10-01]

- a. Molecule
- b. 0 °C
- c. Gas/ gaseous. A: steam
- d. melting. R : melting point

e(i). increases // higher. [show the different]
Reject : high

(ii) Weaker// decreases . [show the different]
accept : become weak
reject : weak, strong to weak

(iii) Diffusion
reject : Diffuse

Explanation

1. Particles move randomly. (accept: move freely)
2. From the higher concentration region to lower concentration region

[SPM08-03a]

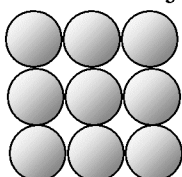
- (a) (i) diffusion
- (ii) molecule

(iii) **gas jars was fill with brown gas.** ← ini utk observation
When remove cover, the bromine molecule diffuse upwards.
This because **bromine gas consist of tiny discrete particles.**
These particles are constantly **moving randomly, causes the bromine gas diffuse upwards accordance the kinetic energy**

(iv) The **time taken** will be **shorter (less than 10 minutes)**

[SPM04-01]

- (a) (i) iodine / naphthalene
- (ii) copper
- (iii) solid
- (iv) copper
- (v) draw solid [comment = just draw 3 x 3 or 4 x 4. ENOUGH. Not less 3x3]



(vi) Cu^{2+} // Cu^+

(b) (i) T_1

(ii) Heat energy **absorb** used to **overcome** the **attractive force** between particle

(iii) faster

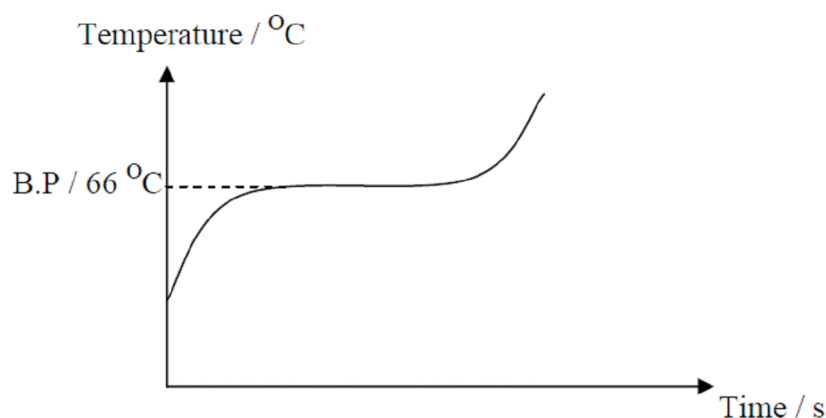
[SBPTrial10-01]

1(a)(i) Gas 1

(ii) The melting point and boiling point of substance X is lower than room temperature

(b)(i) 1. - X and Y axes are labelled and have unit
- correct curve

2. Boiling point / $66\text{ }^\circ\text{C}$ is marked on the graph.



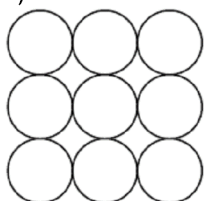
(ii) Liquid and gas

(c) 1. The **attraction force between particle in Z is stronger** than Y

2. **More heat energy is needed to overcome the attraction force** between the particle

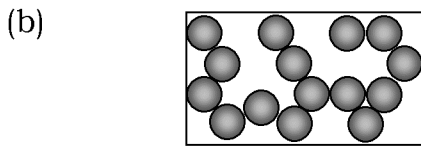
(d) Melting point is the temperature at which solid change into liquid

(e)



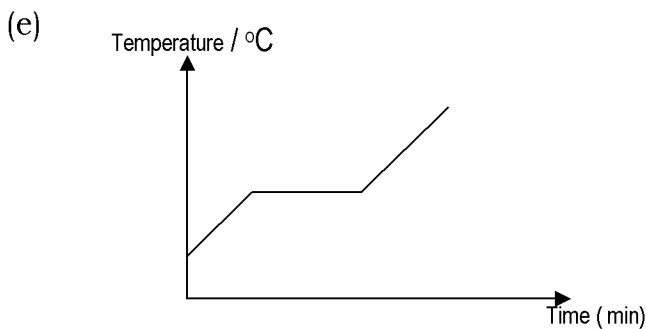
[SBPtrial07-01]

(a) P: liquid S: solid



(c) 1. Particles of Q held together by **weak intermolecular forces**
2. A **small/less amount of heat** energy is required to overcome

(d) Diagram
1. label
2. functional apparatus



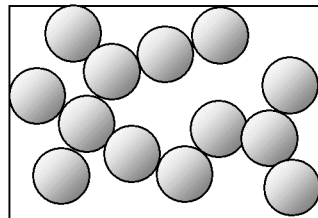
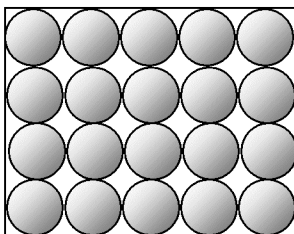
1. label of axis
2. shape of graph

[SBPmidyearF406-01]

(a) To ensure the heating is uniform / even.

(b) (i) 70°C
(ii) Solid and liquid
(iii) Increase
(b)(1) 60°C

(2) 90°C



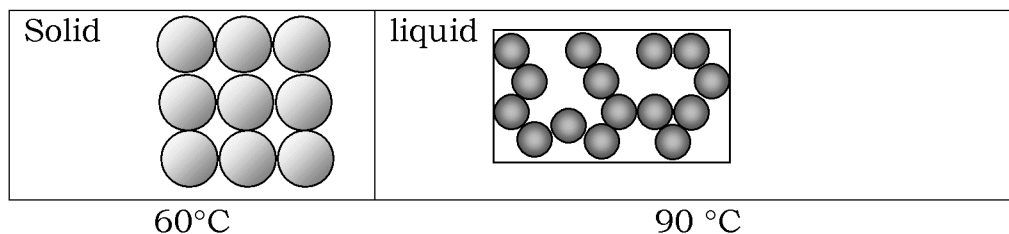
(v) 1. Because the heat energy absorbed by the particles is used to
2. overcome the forces of attraction between particles

(c) 1. No / Cannot.
2. Because the melting point of substance Y is higher than the boiling point of water. / The water bath couldn't melt the substance Y.

[MRSM08-01]

- (a) (i) Bottom test tube touch the beaker
(ii) Even/ uniform heating
- (b) (i) 80 C
(ii) solid and liquid
(iii) at E, Kinetic energy is low, at F kinetic energy increases

(iv)



- (c) (i) Chemical Formula that **show the actual number of atom of element in the molecule**
(ii) C₁₀H₈

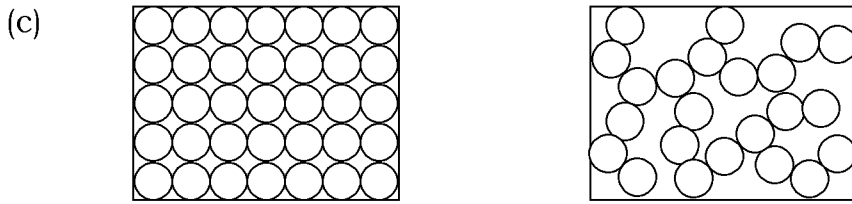
[SBPmidyearF508-02]

- (a) T₁
- (b) (i) PQ: solid
(ii) RS: liquid
- (c) 1. Heat energy absorbed
2. is used to overcome the forces of attraction between particles // Heat is absorbed to overcome the intermolecular forces
reject: ion/atom
- (d) The particles / molecules **move faster**
- (e) (i) Iodine/I₂//naphthalene/C₁₀H₈
(ii) Copper/ Cu
(iii) Ion
- (f) Diffusion

[SBPdiag08-01]

- (a) (i) 2.7
(ii) 14
(iii) 24
- (b) (i) Reddish brown gas formed
(ii) Diffusion
(iii) Molecules

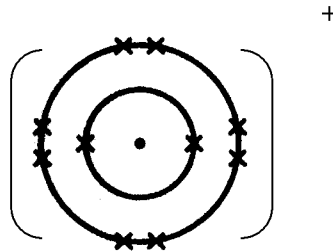
- (iv) Liquid → gas
 (v) Bromine has low boiling point

**[SPM11-01]**

(a) (i) nucleon number // mass number

(ii). Neutron and proton

(iii)



b.(i) 17 // seventeen

(ii) same number of valence electron

C(i) gas

(ii) arrangement of particles : Far apart // further apart

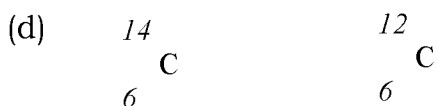
Movement of particles : more faster

[SBPmidyearF407-01]

(a) Isotopes are atoms of the same element with the same number of protons / proton number but different number of neutrons / nucleon number

(b) (i) Proton
 (ii) 1

(c) Neutron



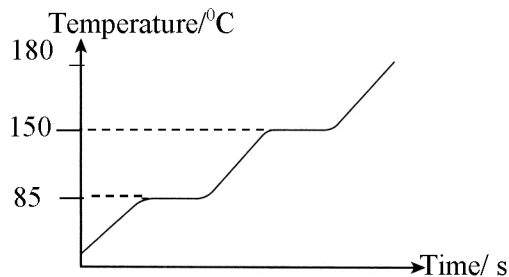
Correct nucleon number and proton number

Correct representation

- (e)
1. Group 14
 2. Has 4 valence electrons
 3. Period 2
 4. Has 2 shells occupied with electrons

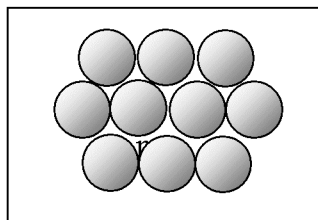
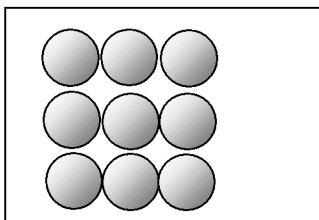
[SBPtrial08-01]

- (a) (i) **nucleon number** is the total number of protons and neutrons in its atom.
 Reject : neutrons numbers
 (ii) 17
- (b) ${}_{12}^{24}\text{Y}$
- (c) (i) 2.8.1
 (ii) 1
- (d) 1. W and X
 2. Atoms W and X have same **proton number** / *number of proton* but difference **nucleon number** / *number of neutron*
- (e) (i)



- Shape of curve
- Mark of the melting and boiling points

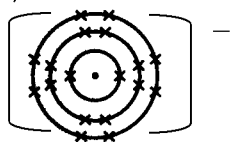
(ii)



- Minimum three layers.
- No overlapping
- All particles must touch each other

[SBPtrial09-02]

- (a) (i) Proton, electron and neutron
(ii)



[shows 2.8.8]

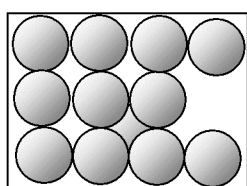
- (iii) V and X

Because both have the same proton number but different in nucleon number

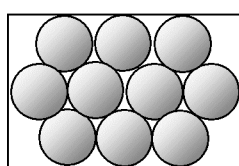
- (iv) Group 1, Period 4

- (v) 18

- (b) (i) Q



or

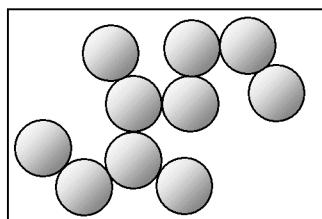


-Minimum three layers.

-No overlapping

-All particles must touch each other

R:



- (ii) 1. $K = 65^{\circ}\text{C}$

2. Because the heat loss to the surroundings is exactly balanced by the heat energy liberated / released as the particles **attract one another** to form a solid.

Or

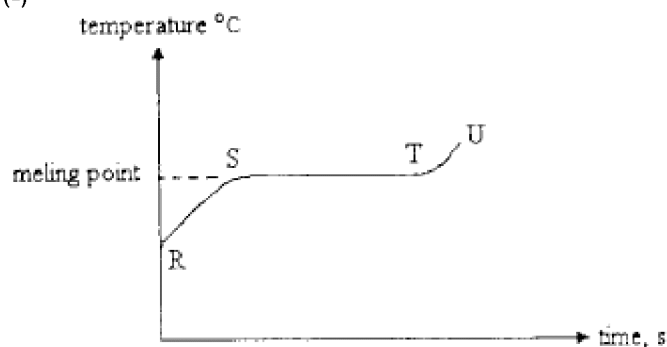
During freezing process, the particles of Q **arrange closer** to each other (to form stronger forces of attraction). This arrangement release heat energy which is equal to the heat loss to the surroundings.

[MRSM09-02]

- (a) (i) 4
(ii) 4
2He
(iii) equal number of proton and electrons

- (b) (i) Ammonia chloride reject : formula
(ii) $\text{NH}_3 + \text{HCl} \rightarrow \text{NH}_4\text{Cl}$ correct reactant [1], correct products [2]

(c) (i)



(ii) Solid and liquid

(iii) 1. Heat energy is absorb

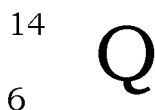
3. to overcome the force of attraction between the molecules/ particles

[MRSM11-01]

(a) The number of proton in the nucleus atom of element

(b) (i) P : $12 - 6 = 6$ (ii) R : $24 - 11 = 13$

(c)



(d) For the atom S,

(i) 2.8.2

(ii) 2

(e) (i) P and Q

(ii) Same proton number that is 6, different nucleon number (12 and 14)

(iii) To determine age of fossils/ artifact (carbon-14)

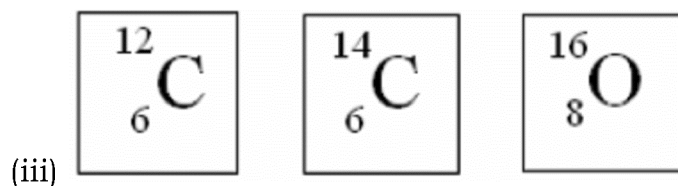
[MRSM06-01]

(a) (i) Nucleon number

(ii) Proton number

(b) (i) Are atoms of the same element with different number of neutrons

(ii) C



- (c) (i) $P = 8$, so the $e = 8$
 (ii) 2.6
- (d) 1. Period 2,
 2. because same number of shell fill with electron. C is 2.4 and O is 2.6

[MRSM04-01]

- (a) Is the number of protons in its atom
- (b) 23
 Na
 11
- (c) 18
- (d) (i) 12 // 13 // 14
 (ii) Carbon -14
- (e) 2.6
- (f) Electron arrangement Na is 2.8.1.
 valence electron is 1.
 so atom Na very easy to donate/ release the valence electron from is atom when the reaction happen.

[MRSM10-02a]

(a) Table 2 shows the proton number and nucleon number of atoms P, Q and R.

Atom of element	Proton number	Nucleon number
P	8	16
Q	9	19
R	8	17

- (i) P and R
 (ii) Atom P and Atom R have the same proton number, that is 8, but have the different nucleon number// number of neutrons
 (iii) Draw the electron arrangement for atom Q. [1M]

