

Essay {Paper02}

[SBPdiag06-07 a, b]

7 (a)	Melting point is the fix temperature at which a solid changes into a liquid at a particular pressure . Because the energy absorbed by the naphthalene is used to overcome the forces of attraction between the molecules of naphthalene.	1 1 1 1 4
7(b)	<p><u>Before condensation</u></p> <ul style="list-style-type: none"> The kinetic energy is high The particles are very far apart from each other The attraction forces between particles are very weak. <p><u>During condensation</u></p> <ul style="list-style-type: none"> The kinetic energy decreases The particles begin to move closer toward one another / the distance between the particles decrease The attraction forces between particles become stronger. <p><u>After condensation</u></p> <ul style="list-style-type: none"> The kinetic energy is low The particles are packed closely together in an orderly manner The attraction forces between particles are strong. 	1 1 1 1 1 1 1 1+1 1 10

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[SBPmidyearF407-08]

8(a)	<ul style="list-style-type: none"> Freezing The particles of the compound arrange closer to each other // Stronger forces of attraction formed among the particles. This will release energy. The energy released is equal to the heat energy lost to the surrounding. 	1 1 1 1															
(b)(i)	<ul style="list-style-type: none"> At 80°C : Solid At 280°C : Gas 	1 1															
	<table border="1"> <thead> <tr> <th>Temperature</th> <th>80°C (Solid)</th> <th>280°C (Gas)</th> </tr> </thead> <tbody> <tr> <td>Arrangement of particles</td> <td>Particles are orderly and closely packed together.</td> <td>Particles are far apart.</td> </tr> <tr> <td>Movement of particles</td> <td>Vibrating and rotating about in their fixed positions.</td> <td>Particles move randomly and rapidly in all directions.</td> </tr> <tr> <td>The forces of attraction</td> <td>Strong</td> <td>Weak</td> </tr> <tr> <td>Kinetic energy</td> <td>Low</td> <td>High</td> </tr> </tbody> </table>	Temperature	80°C (Solid)	280°C (Gas)	Arrangement of particles	Particles are orderly and closely packed together.	Particles are far apart .	Movement of particles	Vibrating and rotating about in their fixed positions.	Particles move randomly and rapidly in all directions.	The forces of attraction	Strong	Weak	Kinetic energy	Low	High	1 1 1 1
Temperature	80°C (Solid)	280°C (Gas)															
Arrangement of particles	Particles are orderly and closely packed together.	Particles are far apart .															
Movement of particles	Vibrating and rotating about in their fixed positions.	Particles move randomly and rapidly in all directions.															
The forces of attraction	Strong	Weak															
Kinetic energy	Low	High															
<i>Note: 1 mark for each correct comparison.</i>																	

(ii) Able to describe the procedure correctly.*Example:*

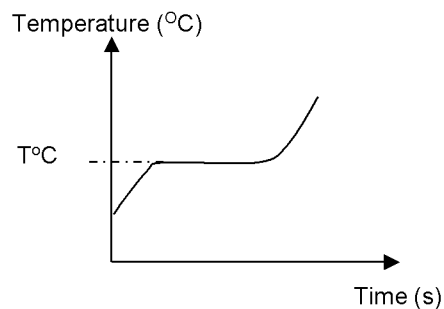
1. A boiling tube is filled with powder of compound M to a depth of 3 cm.
2. A thermometer is placed into powder of compound M in the boiling tube.
3. A 500 ml beaker is filled with coconut oil/palm oil until it is $\frac{3}{4}$ full.
4. The beaker is then placed on a tripod stand.
5. The boiling tube containing compound M is clamped onto a retort stand and immersed into the coconut oil/palm oil in the beaker.
6. The coconut oil/palm oil is heated slowly and the stopwatch is started.
7. The powder of compound M is stirred slowly with the thermometer.
8. The temperature of the compound M is recorded at 30-second intervals until the compound M has melted completely.

Result:

The temperature reading are recorded in a table as shown below.

Time(s)	0	30	60	90	120	150	180	210	240
Temperature($^{\circ}$ C)										

The graph of temperature against time for the heating of compound M is plotted..

**Conclusion:**Based on the graph, the temperature remains constant at T $^{\circ}$ C.
(Must indicate T in the graph)Therefore, the melting point of compound M is T $^{\circ}$ C.

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[SBPtrial04-07]{Translate}

- (a)(i) 1. Takat lebur ialah suhu dimana pepejal berubah menjadi cecair pada tekanan piawai/tetap 1
1
- (ii) 1. t_0 hingga t_1 – pepejal 1
2. t_1 hingga t_2 – pepejal dan cecair 1
3. t_2 hingga t_3 – cecair 1
4. peleburan 1
- (iii) 1. Tenaga/haba yang dibekalkan digunakan/ diserap 1
2. untuk mengatasi daya tarikan antara zarah dalam pepejal 1

- (b)
1. Radas: Tabung didih, termometer, bikar, kelalang kon 1
 2. Masukkan naftalena ke dalam tabung didih sehingga 1/3 penuh 1
 3. Masukkan tabung didih ke dalam kukus air 1
 4. Panaskan 1
 5. Kacau naftalena dengan termometer 1
 6. Catatkan suhu setiap minit/sela masa tertentu [$\frac{1}{2}$ minit - 1 minit] 1
 7. Keluarkan tabung didih dari kukus air apabila [semua pepejal naftalena telah menjadi cecair] 1
 8. Masukkan tabung didih ke dalam kelalang kon 1
 9. Kacau naftalena sepanjang penyejukan 1
 10. Catatkan suhu setiap minit /sela masa tertentu [$\frac{1}{2}$ minit - 1 minit] 1
 11. [Jadual] 1
 - Masa/min
 - Suhu/ $^{\circ}\text{C}$
 12. Plotkan graf suhu melawan masa bagi pemanasan dan penyejukan/ [Lakaran graf pemanasan dan penyejukan ditunjukkan] 1
 13. Kesimpulan: Bahagian mendatar graf pemanasan(takat lebur) dan graf penyejukan(takat beku) berlaku pada suhu yang sama. 1

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[SPM07-08]

- a
1. Nucleus is at the centre
 2. nucleus atom contains 1 proton and 1 neutron
 3. electrons move around the nucleus
 4. the electron is negatively charged
 5. One shell is filled with electron

b(i)

	Atom of Diagram 4	Another atom
Proton number	1	1
Number of electron	1	1
Chemical properties	Similar	Similar
Number of neutron	1	2
Nucleon number	2	3
Physical properties	Different	Different



- c) At time $t_0 - t_1$:
1. element X is in liquid state
 2. the particles are closed to each other
 3. the particles arrangement is not orderly
 4. the kinetic energy increases

At time $t_1 - t_2$:

5. element X is is in liquid ad gaseous state
6. some particles are closed to each other and some are far apart
7. the particle arrangement is not orderly
8. the kinetic energy is constant

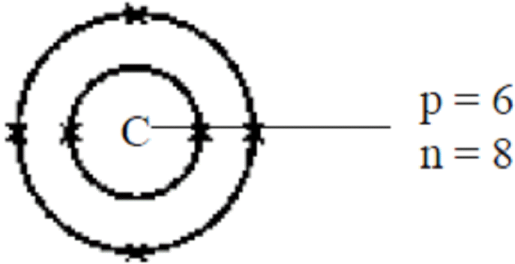
At time $t_2 - t_3$:

9. element X is in gaseous state
10. the particles are far away
11. the particle arrangement are not orderly
12. the kinetic energy is increases

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[SBPtrial1 1-07]

(a) (i)

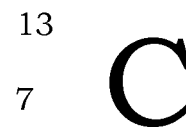
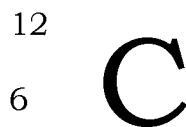


[Draw and label]

[Able to describe the atom Carbon-14]

1. Has nucleus at the centre of the atom
2. nucleus contains 6 proton and 8 neutron
3. has 2 shell occupied electron
4. 4 valence electrons

- (ii) 1. Carbon-12// carbon-13
 2. number of neutron = 6 // 7



- (b) (i) 1. P
 2. Boiling point P higher than melting point naphthalene

(ii) Naphthalene is flammable

(c)

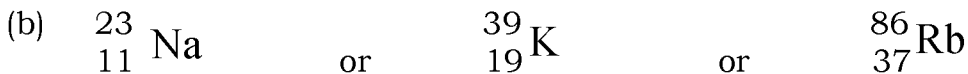
At time $t_1 - t_2$	At time $t_2 - t_3$	At time $t_3 - t_4$
Naphthalene is in liquid state	In liquid and solid state	In solid state
The molecules are closely pack	The molecules are closely pack	The molecules are closely pack
The molecules not in orderly arrangement	Some molecules are in orderly arrangement but some molecules are not in orderly arrangement	The molecules are in orderly arrangement
The kinetic energy decrease	The kinetic energy is constant	The kinetic energy decrease

[SPM06-09]

- (a) 1. the relative mass of one electron to one proton/ neutron is $1/1837 //$
2. the relative mass of one proton and neutron is 1.
3. the relative charge for one electron is -1
4. the relative charge for proton is +1
5. The relative charge of neutron is 0

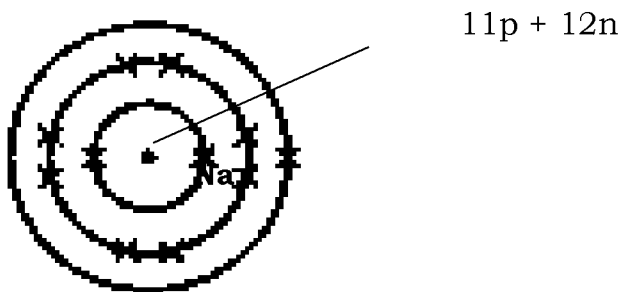
Or

Subatomic	Relative mass	Relative charge
Proton	1	+1
Electron	$1/1837$	-1
Neutron	1	0



- (c) The atom consists of two parts: the centre part called **nucleus** and the outer part called electron cloud.
 The nucleus consists of **11 protons** which are positively charged and **12 neutrons** are neutral. [if answer in (b) is Na]
 The electron cloud consists of **11 electrons** which are negatively charged and **move around nucleus in orbits**.
 There is an **electrostatic force** between nucleus and electrons.

- (d) Sample answer an atom of sodium.



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[MRSM03-07a]

- (a) Oxygen 16 – proton no = 8, nucleon no 16
 Oxygen 18 – proton no = 8, nucleon no 18

Oxygen – 2.6
 Group -16, valence electrons is 6
 Period 2 – 2 shells fill electrons

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[SPM05-10a]

(a)	i) Iodine-131 for cure cancer of thyroid glands ii) Carbon-14 is used to determine the age of a fossil or ancient artifacts
b)	The electronic arrangement of P is 2.4 whereas the electronic arrangement of Q is 2.6 Q is located in Group 16 because it has 6 valence electrons Q is located in Period 2 because it has 2 electrons shells filled with electrons

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[MRSM11-07]

- (a) (i) 1. has 11 proton
2. has 12 neutron
3. proton and neutron in the nucleus of atom
4. has 11 electron
5. Has 3 shells occupied with electron
6. electron is orbit outside the nucleus of atom

- (ii) 1. Atom X located at group 1
2. and period 3
3. Atom X has 1 valence electron,
4. and 3 shells occupied electron

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