Structure {Paper02}

[SPM10-04]

A(i) Y : 2.8.2X: 2.8.8

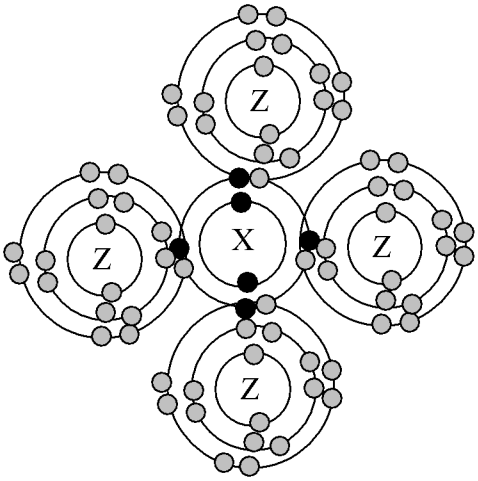
(ii) YZ_2 // $MgCl_2$

(iii) 1. Low melting/boiling point // volatile //colourless liquid
2. Does not dissolve in water
3. dissolve in organic solution
4. does not conduct electricity

(iv) draw a diagram

[1] diagram shows correct sharing of electrons between four Z atoms and One X atom with label/nucleus

[2] correct number of electron in each shell

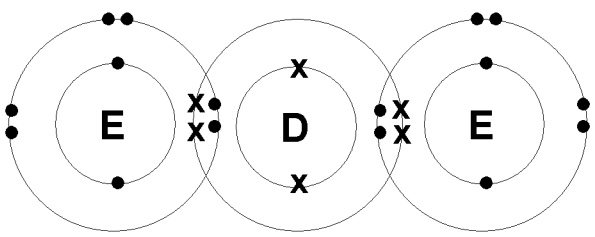


B(i) U : solidV : Liquid

(ii) ionic

[SBPmidyearF508-01]

a	G	1
	Has stable /octet electron arrangement//8 valence electron	1
b (i)	$2A + 2H_2O \rightarrow 2AOH + H_2$	1
(ii)	Use a small pieces//use a forceps// use a goggle	1
c	G,E,D, A,J,L	1
d	Has same valence electron// valence electron is 1	1
e (i)	DE_2 **r**: E_2D	1
(ii)	[can draw the diagram of electron arrangement correctly] - Correct structure of atoms - Correct ratio of atoms=1:2	2



(iii) 1

Has (neutral) molecule

[SBPmidyearF407-06]

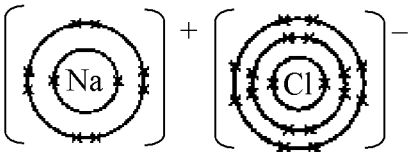
(a)(i) Covalent bond 1

(a)(ii) A **pair of electrons** shares by nitrogen and hydrogen atoms. 1

(a)(iii) Able to name suitable covalent compound. 1
(b)(i) Sodium atom lose / donate /release the valence electron. 1

(b)(ii) NaCl 1

(b)(iii) Able to draw the correct number of shell and electrons. 1
Able to write the correct charge of each ion. 1



(c)(i) Compound in (b). 1

(c)(ii) Strong electrostatic forces between sodium ions and chloride ions. 1
More energy is required to overcome the strong forces. 1

[SBPmidyearF406-06]

(a) Molecule 1
(b) 8 1
(c) XY_2 1
(d)(i) Ion 1
(d)(ii) Number of electrons in all the shells and 2 atom of sodium and one atom Y 1
Charge of Na^+ and Y^{2-} 1
(e)(i) The boiling point of compound XY_2 is lower 1

(e(ii)
- Forces between the particles/molecules are weak 1
- Forces between the particles/ions in compound Na_2Y are strong 1
- More energy/heat is needed to overcome the forces between the particles in compound Na_2Y/vice versa 1

[SBPdiag05-02]

(a) 2.8.4 1
(b) F^{2-} 1
(c)(i) A 1
(c)(ii) $2A + 2H_2O \rightarrow 2AOH + H_2$ 1
(d) G 1
Positive charge at nucleus atom G is the higher // the higher proton number 1
Atom G has the smallest size // space between nucleus with valens electron nearest 1
The force of nucleus to valens electron is very strong 1
(e)(i) CG_3 1
(e)(ii) ionic bond 1

[SBPtrial05-01] {Translate}

(a) (i) Baris mengufuk/mendatar dalam Jadual Berkala 1

(ii) Kala 3. 1

Kerana mempunyai 3 petala berisi elektron 1

(b) Y 1

(c) $2R + 2H_2O \longrightarrow 2ROH + H_2$ 1

(d) T^{3+} 1

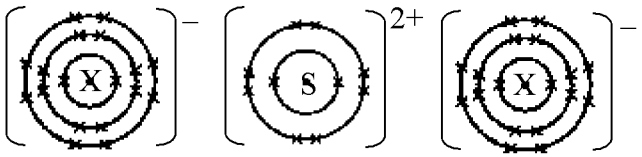
(e) Oksida bes ke oksida amfoterik ke oksida asid 1

(f) (i) Ikatan ion 1

(ii) Lukis susunan elektron menunjukkan:

8 elektron di petala terluar pada ion S^{2+} dan ion X^- 1

Cas S^{2+} dan X^- ditunjukkan 1



[SBPtrial06-01] {Translate}

(a) Nombor proton ialah bilangan proton dalam satu atom unsur 1

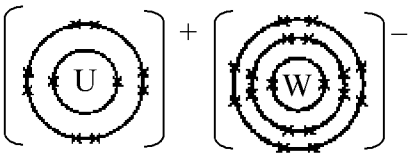
(i) U^+ 1

(ii) Saiz atom T lebih kecil dari saiz atom U atau sebaliknya 1

(iii) Bilangan petala berisi elektron atom T sedikit berbanding atom U /Bilangan petala berisi elektron atom T ada 2, atom U ada 3 1

(b) (i) Ion 1

(ii)



[Bilangan elektron setiap petala betul dan label atom unsur] 1

[Cas ditunjukkan betul] 1

(d) Atom X mempunyai 8 elektron di petala terluar// Atom X telah mencapai susunan elektron oktet/stabil 1

(e) Daya tarikan antara molekul/zarah dalam sebatian adalah lemah 1

Sedikit haba diperlukan untuk mengatasi daya tarikan antara molekul/zarah 1

[SBPtrial07-02]

(a)(i) 2.8.3 // 2,8,3 reject 2: 8: 3 1

(ii) F^{+3} // F^{3+} 1

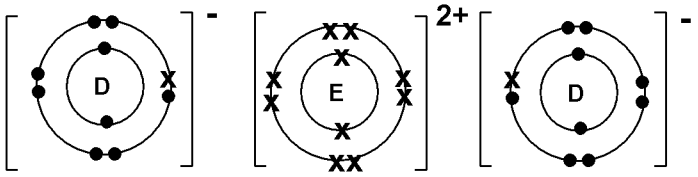
(b) A,D,C,B,G,F,E 1

(c) Atom A has a stable/duplet electron arrangement/2 valance electron 1
octet - reject

(d) 1. Size of atom D is smaller than G // G is bigger 1
2. Strength of the nucleus of atom D to attract electron increase 1

(e)(i) Ionic/ ionic compound 1
reject – ionic bond

(e)(ii)



1. Number of shells and electrons
2. Charge 1
1

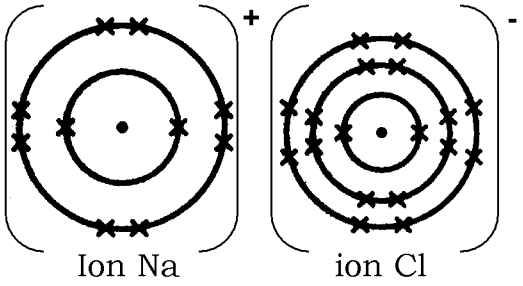
(e) (iii)
- has high melting point and boiling point
- conduct electricity in molten state or aqueous solution
reject – can conduct electricity [only]
- soluble in water
- insoluble in organic solvent 1

(Any **one**)

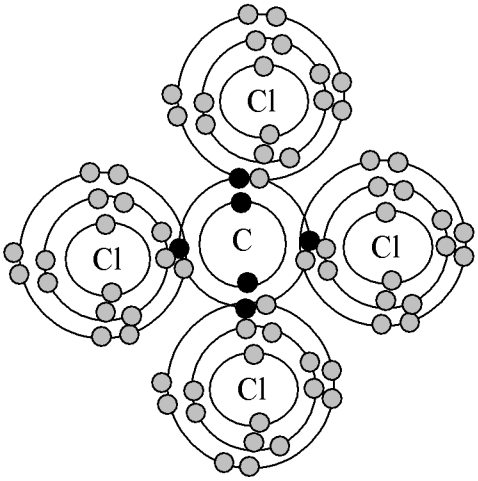
[MRSM05-02]

(a) Group 14 and period 2

(b)



(c) (i)



(ii) No deflect of ammeter
Because the liquid X don't have the free moving ions

(d) 1. Size of F atom is smaller than size of Cl atom.
2. The outermost shell is F atom is nearest to the nucleus atom
3. The force between nucleus F atom to attract electron is stronger than Cl atom.

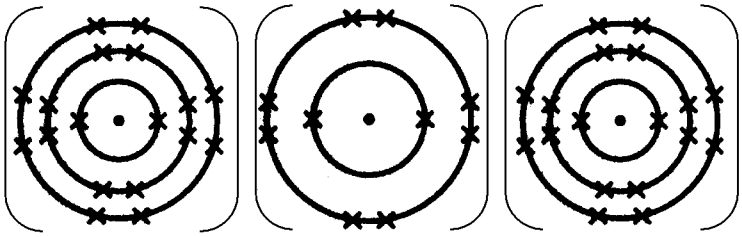
[MRSM04-02]
(a) Na//Mg//Al

(b) The number of proton in P atom is more than in Al atom
The strong force between nucleus P atom is strong than Al atom
The shells in P atom was pull inside, make it smaller.

(c)(i) MgO and SO_2

(ii) MgO has bases properties and SO_2 has acid properties

(d)(i)



Ion Cl^- ion Mg^{2+} ion Cl^-

(ii) Solid at room temperature // high melting point/ boiling point// can conduct electricity in molten and aqueous //soluble is water

[SPM08-02]
Pembetulan pada Table 2.1

19	F		35	Cl		80	Br		127	I
9			17			35			53	
Fluorine			Chlorine			Bromine			Iodine	

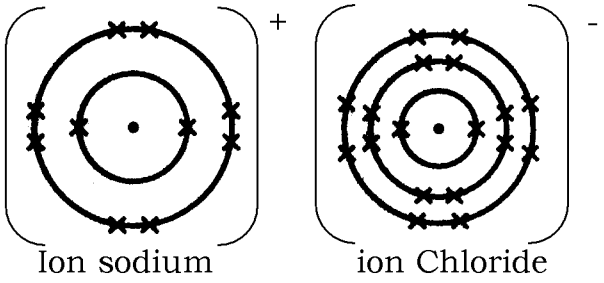
(a) Group 17

(b) 2.7

(c) 1. The outermost occupied shell of electrons in the fluorine atom is nearer to the positive nucleus compared to chlorine.
2. Thus, the positive nucleus of flourine has a greater force of attraction on a negative electron to form a negative ion compared to chlorine

(d) Covalent bond

(e)
(i) Ionic bond
(ii)



(f)

Chemicals	
$KI_{(aq)}$ + $Cl_{2(aq)}$	√

[SPM07-04]
(a)(i) structure : molecule / simple molecule bonding : covalent

(ii) only a little small amount of heat / energy is needed to separate / break the molecules / particle // because of weak / intermolecular / van Der Waals is attractive forces between molecules/ particles // weak bonds between molecules / particles.

(b) Q : electron sharing
R: donation / release and reception of electron

(c) solid : ions are not freely moving // ions are in fixed position
molten and aqueous states : ions can move freely.

(d) R [P, Q is soluble **because soalan kata dia boleh larut**]
P, Q - insoluble

[SPM06-03]
(a)(i) Argon already obtained octet electron arrangement.

(ii) Helium // Neon // Krypton // xenon // radon

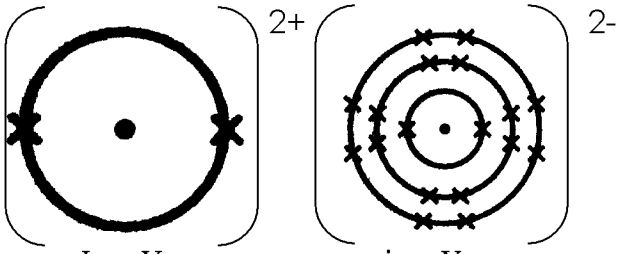
(b) (i) Sodium ion : ...release / donate 1 electron.
Chloride ion : ...receive/ gain 1 electron.

(ii) Electrostatic force

(iii) Ion free to move // ionic bonds is broken // sodium ion and chloride ions repels each other
r- ikatan ion terurai / laju// pantas

(iv) The temperature of 900 C able to supply enough heat / energy to break the ionic bond in sodium chloride compound // the electrostatic force is decreases

(c)



- Draw with correct electron
- Ratio of ion
- Charge of ion

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