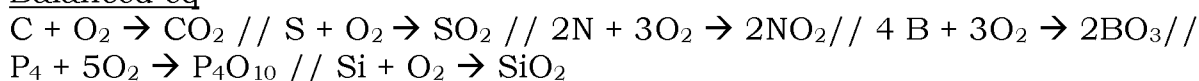


Essay {Paper02}

[SPM11-10]

(a) name X :Carbon //Suitable element (N, S, P, Si, B)
Bond :covalent

Balanced eq

(b) B. Two Element :_Q, R // Q, S

The formation

1. electron arrangement of atom R is 2.8.8.1 // atom R has 1 valence electron
2. electron arrangement of atom Q is 2.6 // atom Q has 6 valence electron
3. to achieve octet electron arrangement // R achieved 2.8.8 and Q achieved 2.8
4. atom R donate 1 electron to form R^+
5. atom Q receive 2 electrons to form Q^{2-}
6. R^+ ions and one Q^{2-} ion attracted to each other
7. to form R_2Q / $2\text{R}^+ + \text{Q}^{2-} \rightarrow \text{R}_2\text{Q}$ // $\text{S}^{2+} + \text{Q}^{2-} \rightarrow \text{SQ}$ (jika guna S, Q)

Draw electron arrangement

8. no of shells and number of electrons correct
9. label charge, R and Q correctly

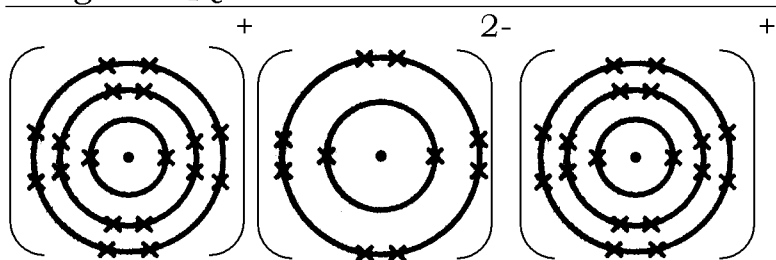
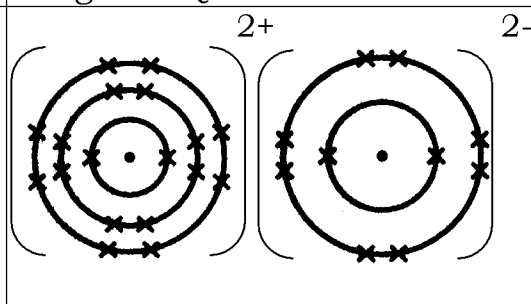
Diagram R_2Q 

Diagram SQ



(c) (i) Solution E : Hydrogen chloride, HCl // glacial ethanol acid, CH_3COOH // ammonia

solvent D : methyl benzene // any organic solvent)

(ii)

E	F
HCl // Ammonia ionises in water // not ionise in organic solvent	HCl // Ammonia cannot ionise in methyl benzene
It produce hydrogen ions	It cannot produce hydrogen ions
Free moving ions can conduct electricity	No free moving ions/ neutral molecule cannot conduct electricity
Present of hydrogen ion, responsible for acidic properties // change the colour of litmus paper	No hydrogen ion, cannot show acidic properties // do not change the colour of litmus paper

-----oooOO aĐaŽ OOooo-----

[MRS M11-07B]

(b) 1. Electron arrangement of atom P: 2.8.8.1, Q: 2.6, R: 2.4

Formation of compound between P and Q

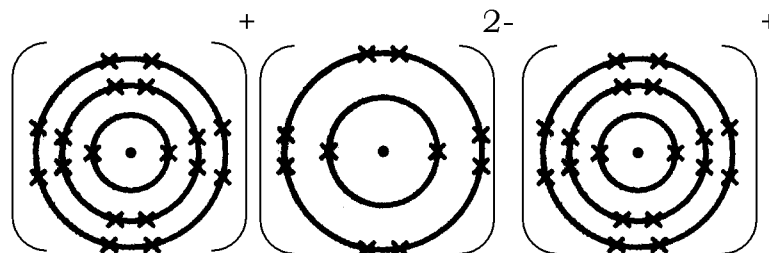
2. To achieve **stable electron arrangement**

3. P atom need to donate 1 valence electron to form P ion // $P \rightarrow P^+ + e^-$ while

4. Q atom need to receive 2 electrons to form Q ion // $Q_2 + 4e^- \rightarrow 2 Q^{2-}$

5. P^+ ion attracted to Q^{2-} ion by **electrostatic force** to form **ionic bond**

6. Diagram



- correct number of electrons and shells

- shows $2P^+$ ion and Q^{2-} ion

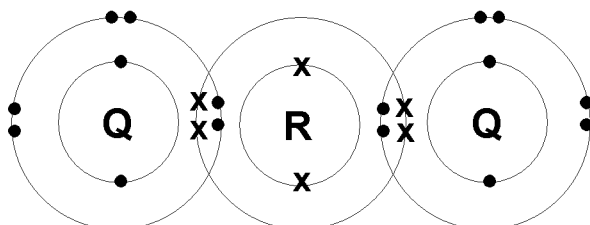
Formation of compound between Q and R

7. R atom share valence electron with Q atom

8. Each R atom contributes 4 electrons and each Q atom contributes 2 electrons // each R atom share electron with 2 Q atom

9. To form 2 double covalent bond

10. diagram - correct number of electrons

**[MRS M10-09c]**

1. Electron arrangement of atom Li: 2.1, Cl: 2.8.7, C: 2.4

Formation of compound between Li and Cl

2. To achieve **stable electron arrangement**

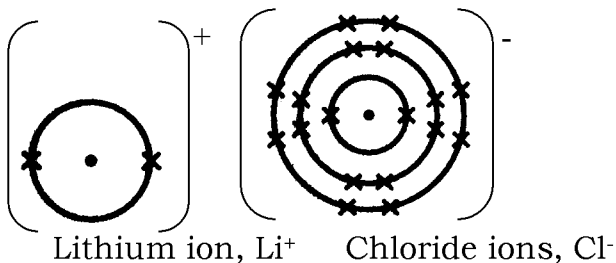
3. Lithium atom need to lose / donate 1 valence electron to form lithium ion // $Li \rightarrow Li^+ + e^-$ while

4. Chlorine atom need to gain 1 electron to form chloride ion

// $Cl_2 + 2e^- \rightarrow 2 Cl^-$

5. Li^+ ion attracted to Cl^- ion by **electrostatic force** to form **ionic bond**

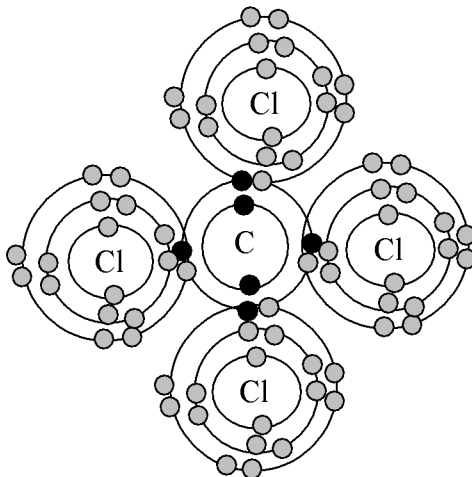
6. Diagram



- correct number of electrons and shells
- shows Li^+ ion and Cl^- ion

Formation of compound between C and Cl

7. Carbon atom share valence electron with chlorine atom
8. Each C atom contributes 4 electrons and each Cl atom contributes 1 electron // each C atom share electron with 4 Cl atom
9. To form 4 single covalent bond
10. diagram - correct number of electrons



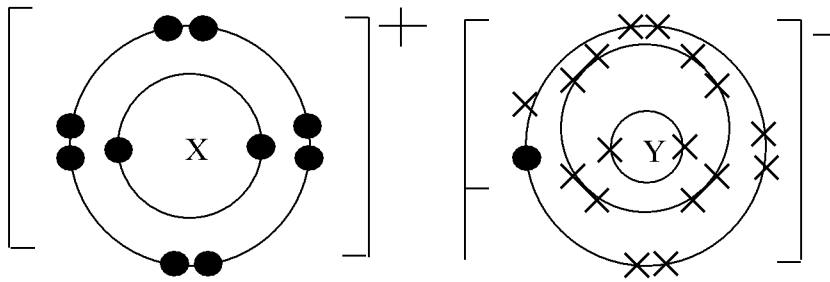
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[SBPmidyearF508-07]

- a (i)** Compound that form when non metal atom gain/receive/accept electron that release/lose/donate by metal atom to achieve stable /octet/duplet electron arrangement **1**
- (ii)** Compound that form between non metal atom by sharing their valence electron to achieve stable/octet /duplet electron arrangement **1**
- B(i)** Between P and Q
- Atom X has 1 valence electron **1**
 - Atom X loses/donates/transfers 1 electrons to form X^+ ion // $\text{X} \rightarrow \text{X}^+ + \text{e}^-$ and attain stable octet electron arrangement **1**
 - Atom Y has 7 valence electrons
 - Atom gains/receives/accept 1 electron to form Y^- ion// $\text{Y} + \text{e}^- \rightarrow \text{Y}^-$ **1**
 - attain the stable /octet electron arrangement **1**
 - The two oppositely-charged ions// the X^+ and Y^- ion are bonded together by a strong electrostatic force **1**

- To form an ionic compound with the formula XY // diagram

1



Max 7

Between Y and Z

(ii)

- Atom Z has 4 valence electrons and atom Y has 1 valence electron
- One atom Z contributes 4 electrons and (each) atom Y contributes one electron for sharing.
- Atom Z shared 4 pairs of electron with 4 atoms Y
- to attain an octet / stable electron arrangement respectively
- diagram

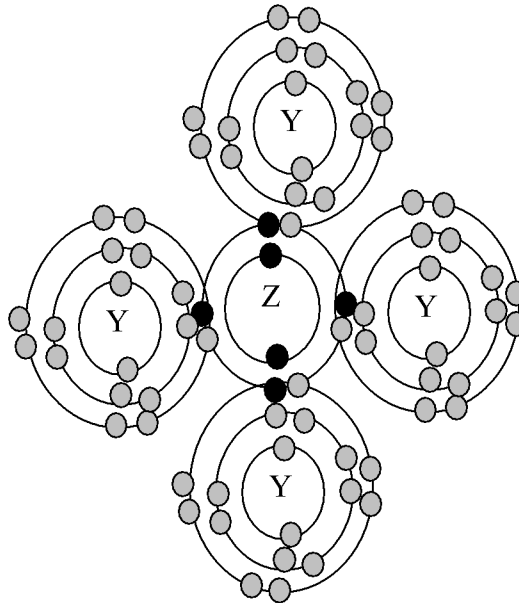
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1

1

1

1



(iii)

- Magnesium oxide is an **ionic compound**
- Strong electrostatic force of attraction** exists between Mg^{2+} and O^{2-} // the oppositely-charged magnesium ions and oxide ions in Magnesium oxide are held together by strong ionic bonds
- A lot of heat energy // high energy is required to break the strong forces
- Tetrachloromethane is a **covalent compound**
- Weak intermolecular forces // held together by weak (Van der Waals) force of attractions between molecules
- little heat energy // low energy is needed to overcome the weak forces

1

1

1

1

1

1

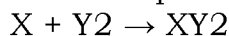
1

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[SBPTrial2010-07a]

- (a) (i) 1. Electron arrangement 2.8.2
2. Group 2
3. Period 3

- (ii) 1. Correct formula of reactants
2. Correct formula of product



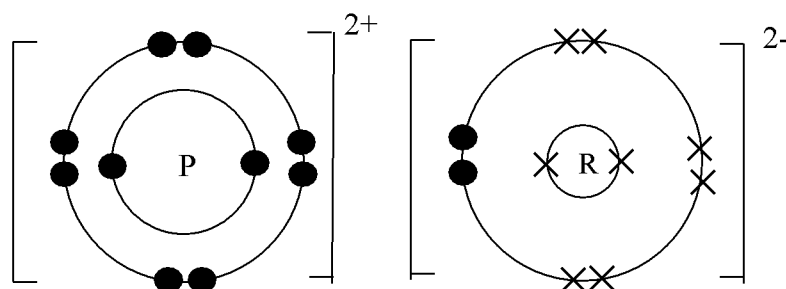
3. Electron arrangement of atom Y is 2.8.7
4. Atom X loses two electron to form X^{2+} ion
5. Atom Y gains one electron to form Y^- ion
6. to achieve octet electron arrangement
7. X^{2+} ion and Y^- ion attracted to each other by strong electrostatic force / ionic bond

**[SBPmidyearF507-08]**

- (a)(i) P – 2.8.2 1
Q – 2.4 1 2

- (b)(i) Between P and R

1. Atom P has 2 valence electrons 1
2. Atom P loses/donates/transfers 2 electrons to achieve a stable octet structure/
Stable electron arrangement / diagram 1
3. To form ion P^{2+} / $P \rightarrow P^{2+} + 2e^-$ 1
4. Atom R has 6 valence electrons 1
5. Atom R gains/receives 2 electrons from atom P to achieve a stable octet structure/
Stable electron arrangement / diagram 1
6. to form ion R^{2-} / $R + 2e^- \rightarrow R^{2-}$ 1
7. The two oppositely-charged ions are bonded together by a strong electrostatic force
to form an ionic bond 1



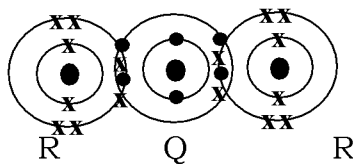
The P^{2+} ions and R^{2-} ions formed are bonded together by ionic bonds to form an ionic compound with a formula of PR_2 1 8

- (ii) Between Q and R

1. Atom Q has 4 valence electrons and atom R has 6 valence electrons. 1
2. Two atoms of element R will each contribute 2 electrons from the valence shell to an
atom Q 1
3. for sharing so as to achieve a stable octet structure/stable electron arrangement
respectively// diagram 1

4. Atoms P and Q share two pairs/ 4 electron of electrons to form a PQ₂ molecule through double covalent bonds

1 4

Molecules PQ₂

- (c) 1. Aluminium oxide has high melting and boiling point 1
 2. Tetrachloromethane has low melting and boiling point 1
 3. The oppositely-charged aluminium ions and oxide ions in aluminium oxide are held together by strong ionic bonds (or electrostatics forces of attraction) 1
 4. A lot of heat energy is required to break the strong ionic bonds during melting and boiling thus it has high melting and boiling points 1
 5. Tetrachloromethane consists of covalent molecules held together by weak forces of attractions (Van der Waals) 1
 6. Only a small amount of heat energy is needed to overcome the weak forces between the molecules thus it has low melting and boiling points 1 6

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[SBPdiag08-08]

- (a) • Z, Y and X 1
 1. Z, Y, and X have three shells / in the same period 1
 2. The proton number //positive charges in the nucleus increases 1
 3. The forces of attraction between the nucleus and the electrons in the shells increase 1
 4. The shells filled with electrons are pulled nearer to the nucleus. 1
 [Any two correct answers from 2,3,and 4]
Max Marks = 4
- (b) 1. The electron arrangement of atom X is 2.1 and atom Y is 2.4 1
 2. Atom X donates the one valence electron to achieve the stable duplet electron/ electron arrangement of 2 1
 3. An X⁺ ion is formed/ $X \rightarrow X^+ + e^-$ 1
 4. One atom of Y will receive 2 electrons to achieve the octet electron arrangement 1
 5. An Y⁴⁻ ion is formed / $Y + 4e^- \rightarrow Y^{4-}$ 1
 6. X⁺ ion and Y⁴⁻ ion will attract each other by strong electrostatic force to form ionic bond 1
 7. A ionic compound X₄Y is formed. 1
 [or correct illustration of electron arrangement in the compound]

Max Marks = 6

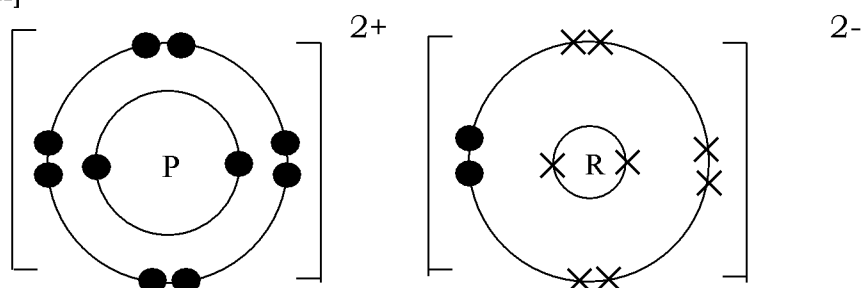
[SBPdiag07-07]

- (a)(i) Ionic 1
(ii) Covalent 1 2

(b)Between P and R

1. P **atom** has 2 valence electrons /electron arrangement of 2.8.2 1
2. Each P **atom** loses/donates/transfers 2 electrons to form P $2+$ ion/
 $P \rightarrow P^{2+} + 2e^{-}$ 1
3. R **atom** has 6 valence electrons 1
4. R **atom** gains/receives 2 electrons to form R $2-$ ion /
 $R + 2e^{-} \rightarrow R^{2-}$ 1
5. P and R achieve a stable electron arrangement 1
6. The two oppositely-charged ions are bonded together by a strong electrostatic force (to form an ionic bond) 1

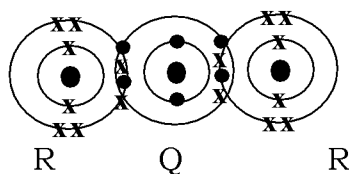
[Diagram]



7. [all electrons and number of shells with electrons correct] 1
8. [nucleus of atoms labelled and charges of ions shown correctly] 1 8

(ii) Between Q and R

1. Q **atom** has 4 valence electron and R **atom** has 6 valence electrons/electron arrangement 1
2. Two atoms of element R will **contribute 2** electrons each to one Q atom 1
3. for sharing so as to achieve a stable octet structure /stable electron arrangement respectively// [diagram] 1
4. Therefore, they share two pairs of electrons to form a molecule with formula QR_2 by (double) covalent bond 1 4

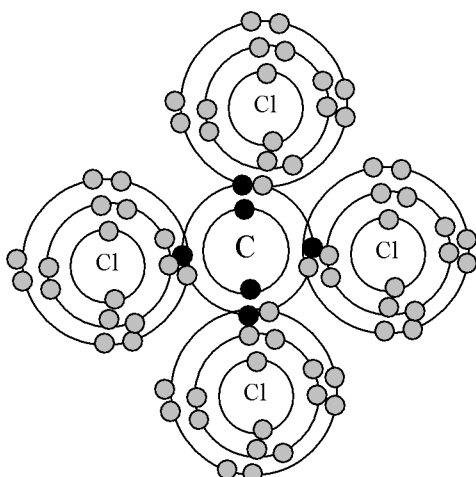


- (c)1.Sodium chloride is an **ionic compound** (with Na^+ and Cl^- ions held in fixed positions) 1
2. **Strong electrostatic force** of attraction exists between cations and anions// Na^+ and Cl^- //the oppositely-charged sodium ions and chloride ions (or electrostatics forces of attraction) 1
3. A **large amount of heat energy** is required to overcome the strong forces of attraction 1
4. Tetrachloromethane is a **covalent compound** (with simple molecules of CCl_4) 1
- 5.The **forces of attraction between molecules are weak**//held together by weak (Van der Waals) forces of attractions 1
6. A **small amount of heat (energy)** is needed to overcome the weak forces between the molecules. 1 6

[SBPdiag06-08b]

(i) Covalent compound

1



1
+

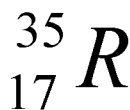
1
3

- (ii) 1. A magnesium atom with an **electron arrangement of 2.8.2** / **donates 2 valence electron** to achieve the stable / octet electron arrangement // 2. 8. 1
 2. A **positive magnesium ion, Mg²⁺** is formed. 1
 3. Two chlorine atoms, each with an **electron arrangement of 2.8.7** **accepts 1 electron** to achieve the stable octet electron arrangement// **2.8.8** 1
 4. A **negative chloride ion, Cl⁻** is formed. 1
 5. Mg²⁺ and Cl⁻ ions are attracted to each other by a **strong electrostatic force** // draw 1



[SBPdiag05-essay01]

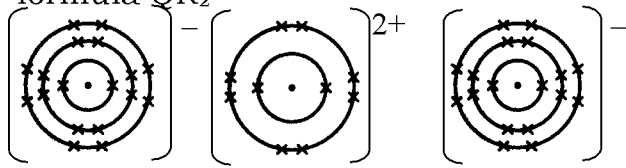
- (a)(i) Periods 3 1
 Group 2 1
 (ii) Nucleon Number = 35 1



- (b) 1. **Atom Q** had electron arrangement 2.8.2 1
 2. Atom Q donate 2 valens electron to achieve the **octet electron arrangement** 1
 3. positive ion , Q²⁺ formed 1
 $Q \rightarrow Q^{2+} + 2e$ 1
 4. atom R had electron arrangement 2.8.7 1
 5. 2 atom R, which one receive 1 electron to achieve the octet electron arrangement 1
 6. negative ion, R⁻ formed 1
 $R + e \rightarrow R^{-}$ 1

1

6. two different ion / One positive ion, Q^{2+} and two negative ions, R^- was attract by strong electrostatic force and formed ion compound with formula QR_2 1

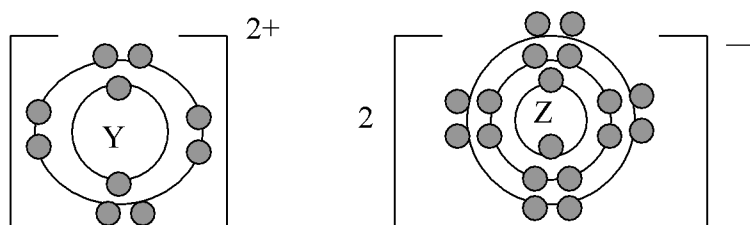


- 1(c)
1. Melting point for compound Q and R higher than compound P and R 1
 2. Compound P and R formed is a covalent compound 1
 3. consist as a molecules 1
 4. Molecules in covalent compound held together with weak intermolecular/ Van Der Waals force 1
 5. a little /less heat needed to overcome the that force 1
 6. Compound Q and R formed is a ion compound 1
 7. ion Q^{2+} and ion R^- was attract by strong electrostatic force. 1
 8. more heat need to overcome this force. 1

-----oooOO aĐaŽ OOooo-----

[SBPtrial05-07] {Translate}

- (a)
1. Unsur Y kumpulan 2 1
 2. kala 3 1
 3. Unsur Z kumpulan 17 1
 4. kala 3 1 4
- (b) i. Saiz atom
1. Saiz atom Z lebih kecil berbanding atom Y/atau sebaliknya 1
 2. Bilangan proton atom Z lebih banyak berbanding atom Y 1
 3. Tarikan nukleus terhadap elektron dalam atom Z lebih kuat berbanding atom Y 1 3
- ii. Keelektronegatifan
1. Atom Z lebih elektronegatif daripada atom Y 1
 2. Saiz atom Z lebih kecil daripada atom Y 1
 3. Bilangan proton atom Z lebih banyak berbanding atom Y 1
 4. Tarikan nukleus atom Z terhadap elektron luar adalah lebih kuat berbanding atom Y 1 4
- (c)
1. Formula kimia YZ_2 reject: Z_2Y 1
 2. ikatan ion 1 2
- (d)
1. Susunan elektron dalam atom Y ialah 2.8.2 1
 2. Atom Y menderma (dua) elektron untuk membentuk ion Y^{2+} 1
 3. Susunan elektron dalam atom Z ialah 2.8.7 1
 4. Atom Z menerima (satu) elektron untuk membentuk ion Z^- 1
 5. Untuk mencapai susunan oktet/elektron stabil 1
 6. Terdapat daya tarikan elektrostatik antara ion Y^{2+} dan Z^- 1
 7. Membentuk sebatian dengan formula YZ_2 / gambar rajah 1 7



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[SBPtrial06-07]{Translate}

- (a) 1. L lebih reaktif daripada K// K kurang reaktif daripada L 1
 2. Saiz atom L lebih besar dari saiz atom K atau sebaliknya 1
 3. Daya tarikan nukleus terhadap elektron valens dalam atom L lebih lemah berbanding dalam atom K 1
 4. Elektron valens mudah dilepaskan/didermakan dalam atom L berbanding dalam atom K 1 4
- (b)(i)
 1. Ikatan yang terbentuk ialah ikatan ion 1
 2. Untuk mencapai susunan elektron oktet 1
 3. Satu atom L menderma satu elektron membentuk ion L^+ 1
 4. $L \rightarrow L^+ + e^-$ 1
 5. Satu atom M menerima satu elektron membentuk ion M^- 1
 6. $M + e^- \rightarrow M^-$ 1
 7. ion L^+ dan ion M^- ditarik oleh daya tarikan elektrostatik yang kuat// gambar rajah 1 7
- (ii)
 1. Ikatan yang terbentuk ialah ikatan kovalen 1
 2. Untuk mencapai susunan elektron oktet 1
 3. Atom N berkongsi sepasang elektron dengan atom M 1
 4. Atom N menyumbang 4 elektron dan atom M menyumbang 1 elektron untuk dikongsi//gambar rajah 1
 5. Satu atom N berpadu dengan 4 atom M membentuk sebatian NM_4 // gambar rajah 1 5
- (c) 1. Takat lebur / takat didih tinggi
 2. Boleh mengkonduksikan arus elektrik dalam keadaan lebur/akueus
 3. Larut dalam air //Tidak larut dalam pelarut organik
 (mana-mana dua) 2
- (d) 1. Menunjukkan nombor pengoksidaan yang berbeza
 2. Sebagai mangkin
 3. Membentuk ion atau sebatian berwarna
 4. Membentuk ion kompleks
 (mana-mana dua) 2

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[SBPtrial08-08]

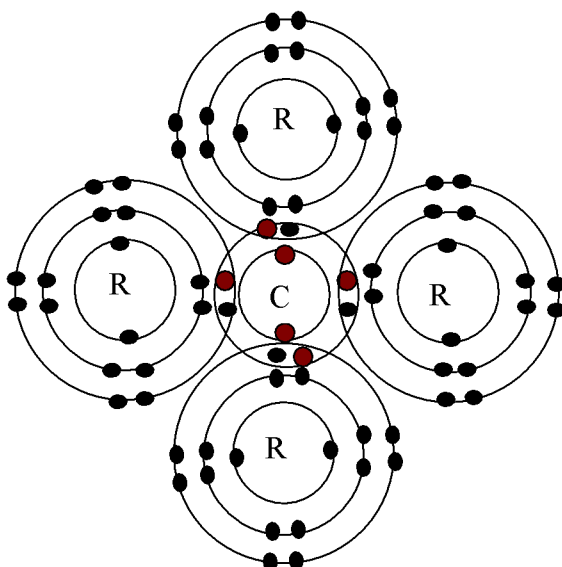
- (a)
- Z, Y and X 1
 - 1. Z, Y, and X have three shells / in the same period 1
 - 2. The proton number //positive charges in the nucleus increases
 - 3. The forces of attraction between the nucleus and the electrons in the shells increase
 - 4. The shells filled with electrons are pulled nearer to the nucleus. 2
 - [Any two correct answers from 2,3,and 4]
- (b)
1. The electron arrangement of atom X is 2.1 and atom Y is 2.4 1
 2. Atom X donates the one valence electron to achieve the stable duplet electron/ electron arrangement of 2 1
 3. An X^+ ion is formed/ $X \rightarrow X^+ + e^-$ 1
 4. One atom of Y will receive 2 electrons to achieve the octet electron arrangement 1
 5. An Y^{4-} ion is formed / $Y + 4e^- \rightarrow Y^{4-}$ 1
 6. X^+ ion and Y^{4-} ion will attract each other by strong electrostatic force to form ionic bond 1
 7. A ionic compound X_4Y is formed. 1
 - [or correct illustration of electron arrangement in the compound]
- (c)(i)
-
- Number of shells 1
 - Electron arrangement 1
- (c)(ii) Melting point
- Compound in (b) has higher melting point. 1
- Compound in (c) has low melting point. 1
- Explanation
- In compound (b), ions are held together by strong electrostatic forces. 1
- In compound (c), molecules are held together by weak intermolecular forces / van der Waals' forces 1
- Electric conductivity
- Compound in (b) can conduct electricity in molten or aqueous solution only. 1
- Compound in (c) does not conduct electricity. 1
- Explanation
- Compound (b) : In molten or aqueous solution, ions can move freely. 1
- Compound (b) : Only consist of neutral molecules/ no free moving ions. 1

-----oooOO aĐaŽ OOooo-----

[SBPtrial09-08]

- (a) Atom R has 7 valence electrons and 3 shells occupied with electrons. 1+1
Thus, R is located at Group 17 and Period 3. 1+1
- (b) 1. Atom Q has electron arrangement of 2.8.2 / 2 valence electrons. 1
2. Atom Q losses 1 electron/the single valence electron to achieve the stable octet electron arrangement/2.8.8 1
3. An positive ion, Q^{2+} is formed 1
4. Atom R has electron arrangement of 2.8.7 / 7 valence electrons. 1
5. Two atoms R, each receives 1 electron from atom Q to achieve the stable octet electron arrangement/2.8.8 1
6. Two negative ions, R^- are formed. 1
7. An ion Q^{2+} and two ion R^- are attracted together by strong electrostatic forces. 1
- (c) (i) CR_4 1

(ii)



2

3

(d) **Melting point**

Compound (b) has high melting point whereas compound (c) has low melting point. 1

Compound (b) consists of negative and positive ions which are held together by strong electrostatic forces. 1

[A lot of energy is required to overcome the strong forces.] 1

Compound (c) consists of molecule which are held together by weak intermolecular forces. 1

[Less energy is required to overcome the weak intermolecular forces.]

Electrical conductivity

Compound (b) can conduct electricity in liquid or aqueous solution state. 1

Compound (c) can not conduct electricity in any state.

In liquid or aqueous solution state, the ions in the compound (b) can move freely. 1

Compound (c) does not consists of free moving ions. 1

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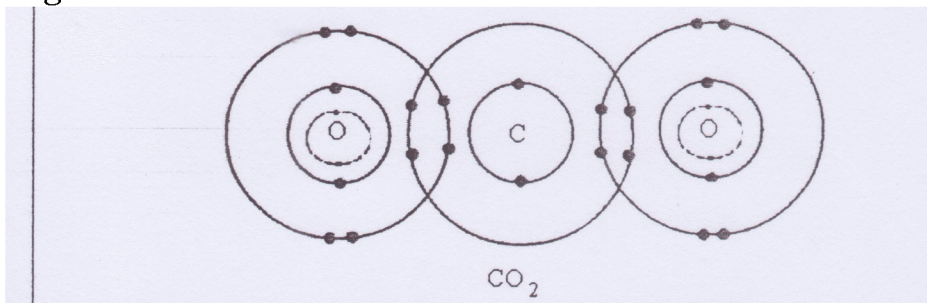
[MRSM09-07]

- (a) 1. Electron arrangement : 2.6
- 2. Period 2
- 3. Because consist of 2 shells occupied with electron
- 4. Group 16
- 5. Valence electron of atom X is 6

(b) 1. Electron arrangement of atom : O : 2.6 C ; 2.4 Mg : 2.8.2

Formation of compound between C and O

- 2. to achieve octet electron arrangement
- 3. Atom O share valence electrons with atom C// **Each** C atom provides/contributes 4 electrons while **each** O atom provide 2 electrons
- 4. to form #2 double# **covalent bonds**
- 5. Correct no. of electrons and shells
- 6. Shows sharing of electron



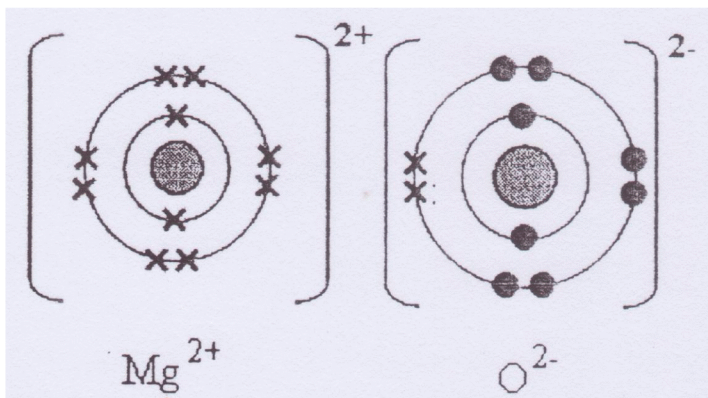
(c) Formation of compound between Mg and O

- 7. Atom Mg donates 2 electrons to form Mg²⁺ ion
- 8. Atom O accepts/ gains 2 electron to form O²⁻ ion
- [No of electron and formula of ions can be inferred from half equations]

- 9. Mg²⁺ ions attracted to O²⁻ by electrostatic force
- 10. to form ionic bonds

[Diagram]

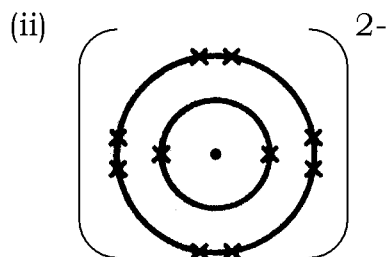
- 11. Correct no of electrons and shells
- 12. Correct label



-----oooOO aĐaŽ OOooo-----

[MRSM07-07]

(a) (i) Relative atomic mass is the total of the number of proton and neutron of its atom

**(iii) Formation of Aluminium oxide**

1. Atom Al has electron arrangement of 2.8.3 / 3 valence electrons.
2. Atom Al losses 3 electron/the 3 valence electron to achieve the stable octet electron arrangement/2.8 and form an positive ion, Al^{3+} .
3. Atom O has electron arrangement of 2.6 / 6 valence electrons.
4. Atom O receives 2 electron from atom Al to achieve the stable octet electron arrangement/2.8 and formed negative ion, O^{2-} .
5. Two an ion Al^{3+} and three ion O^{2-} are attracted together by strong electrostatic forces, to formed ionic compound, Al_2O_3 .

Formation of Carbon dioxide

1. to achieve octet electron arrangement
2. Atom O share valence electrons with atom C// **Each** C atom provides/contributes 4 electrons while **each** O atom provide 2 electrons
3. to form 2 double **covalent bonds**

(b)Melting point

Sodium chloride has high melting point whereas Naphthalene has low melting point. Sodium chloride consists of negative and positive ions which are held together by strong electrostatic forces.

[A lot of energy is required to overcome the strong forces.]

Naphthalene consists of molecule which are held together by weak intermolecular forces.

[Less energy is required to overcome the weak intermolecular forces.]

Electrical conductivity

Sodium chloride can conduct electricity in liquid or aqueous solution state.

Naphthalene can not conduct electricity in any state.

In liquid or aqueous solution state, the ions in the Sodium chloride can move freely.

Naphthalene does not consists of free moving ions.

(c) Same

1. Same element, that oxygen //Has same number of proton
2. That make same chemical property because same valence eletron

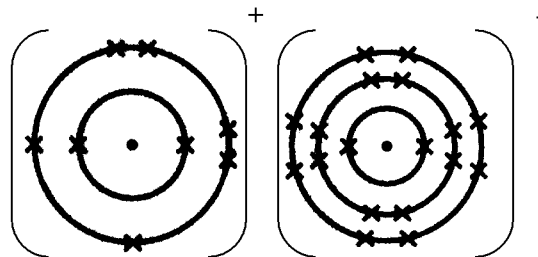
Different

3. Has different nucleon number because has different number of neutron
- 4.Has different physical property because has different mass/ nucleon number

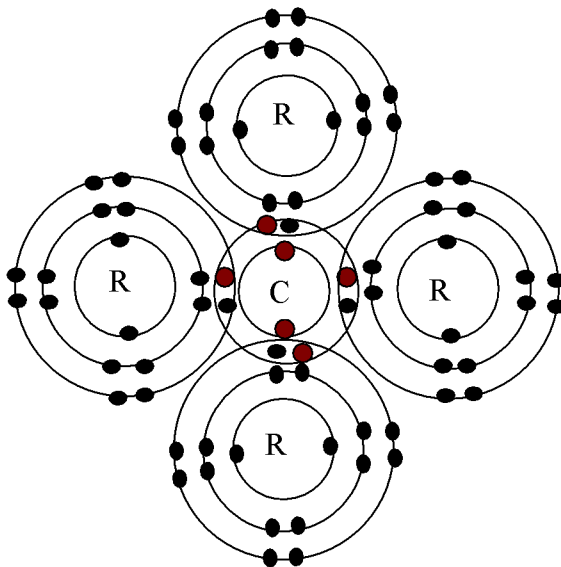
[MRS03-07c,d] c5

- (c) 1. Compound M is ionic Compound
 2. consists of negative and positive ions which are held together by strong electrostatic forces.
 3. A lot of energy is required to overcome this forces.
 4. Compound M has high melting point
5. whereas Compound N is covalent Compound
 6. consists of molecule which are held together by weak intermolecular forces.
 7. Less energy is required to overcome the weak intermolecular forces
 6. Compound N has low melting point.

(d) (i) sodium and chlorine, NaCl



(ii) carbon and chlorine : CCl₄



-----oooOO aĐaŽ OOooo-----

[SPM05-10b,c]

- (b) 1. susunan electron unsur p : 2.4
 2. susunan electron unsure q : 2.6
- q di kumpulan 16
 - kerana mempunyai 6 elektron valens
 - q berada di kala ke 2
 - kerana mempunyai 2 **petala terisi elektron**

(c) sebatian ion

1. untuk mencapai susunan **oktet** electron stabil
2. atom Y menderma 2 elektron membentuk ion positif/ Y^{2+} // $Y \rightarrow Y^{2+} + 2e$
3. atom X menerima 1 elektron membentuk ion negative/ X^- // $X + e \rightarrow X^-$
4. tarikan antara ion Y dan ion X membentuk ikatan/ sebatian ion, YX_2
5. gambar rajah susunan elektron YX_2

sebatian kovalen

6. unsur W dan unsur X berkongsi elektron valens // 1 atom w dan 4 atom x berkongsi electron
7. untuk mencapai susunan oktet/
8. setiap atom W membekalkan / menyumbang 4 elektrons dan setiap atom X membekalkan 1 elektron valens
9. ikatan/ sebatian kovalen terbentuk
10. rajah susunan electron WX_4

-----oooOO aĐaŽ OOooo-----

[SPM04-07]

A(i) X : 2.8.1 – 1m

Y : 2..8.7 – 1m

(ii) bilangan neutron Z : 6

Isotop Z $\frac{13}{6} / \frac{14}{6}$

b) 1. electron berpindah

2. atom X menderma satu electron untuk membentuk X^+ / ion positif

Atom Y menerima satu electron untuk membentuk Y^-

3. untuk mencapai susunan electron octet yang stabil

4. daya tarikan ion X^+ dan Y^- / electrostatic

5. perkongsian elektron

6. satu atom z menyumbangkan 4 elektron

7. satu atom Z memerlukan 4 atom Y

8 untuk mencapai susunan octet yang stabil

(c)1. susunan radas berfungsi

2. label – larutan /leburan XY, rod karbon

Untuk leburan

3. sebatian ion dipanaskan sehingga ianya lebur

4. celup elektrod dalam leburan / sebatian ion

5. lengkapkan litar

6. jarum ammeter terpesong

Untuk larutan

7. air ditambah kepada pepejal sebatian ion/ sebatian ion dilarutkan ke dalam air

8. mentol menyala // jarum ammeter terpesong

-----oooOO aĐaŽ OOooo-----