JAWAPAN

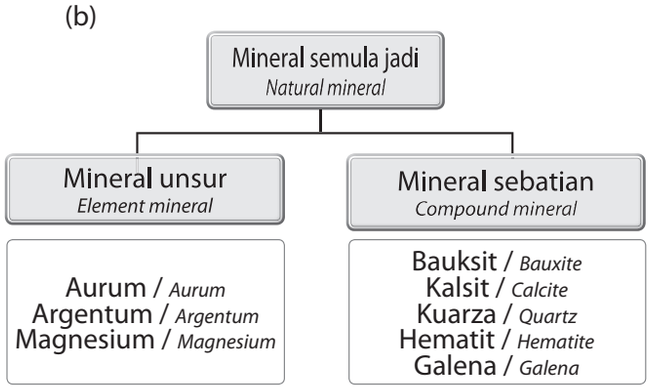
BAB 4 Kereaktifan Logam
Reactivity of Metals

PBD 4.1 Kepelbagaian Mineral
Variety of Minerals

1. (b) BENAR / *TRUE*
(d) BENAR / *TRUE*

2. (a) Mineral unsur mengandungi satu atom sahaja manakala mineral sebatian mengandungi dua atau lebih unsur.
Element mineral consists of one atom only while compound mineral consists of two or more types of elements.

(b)

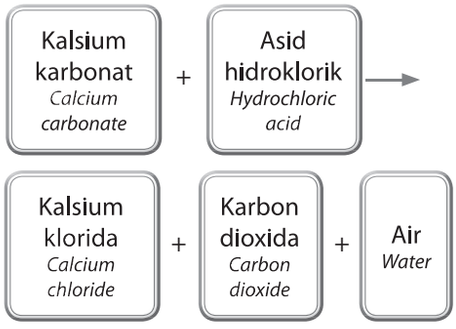


3.

Nama biasa *Common name*	Nama sistematik *Systemic name*	Gabungan unsur *Combination of elements*
Hematit *Hematite*	Ferum(III) oksida *Iron(III) oxide*	Ferum, oksigen *Iron, oxygen*
Kuarza *Quartz*	Silikon oksida *Silicon oxide*	Silikon, oksigen *Silicon, oxygen*
Kalsit *Calcite*	Kalsium karbonat *Calcium carbonate*	Karbon, oksigen, kalsium *Carbon, oxygen, calcium*
Bauksit *Bauxite*	Aluminium oksida *Aluminium oxide*	Aluminium, oksigen *Aluminium, oxygen*

4. (a) Karbon dioksida
carbon dioxide
(b) Air kapur bertukar menjadi keruh.
Limewater turns to cloudy

(c)



5. (a), (c), (d), (f), (h)

6. Berdasarkan aktiviti murid
Based on the student's activity

PBD 4.2 Siri Kereaktifan Logam
Reactivity Series of Metals

1.

Pemerhatian *Observation*
Terbakar dengan api putih yang sangat terang *Burns brightly with a very brilliant white flame*
Berbara dengan malap *Glows dimly*
Terbakar dengan nyalaan terang *Burns fairly bright*
Berbara dengan paling malap *Glows dimmestly*
Terbakar dengan nyalaan yang sangat terang *Burns with bright flame*

(a) (i) Magnesium
Magnesium
(ii) Plumbum
Lead

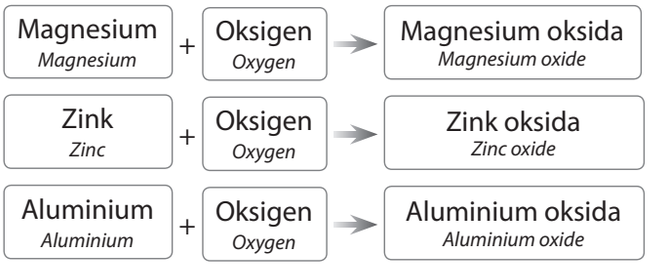
(b) Magnesium ialah logam yang paling reaktif manakala plumbum ialah logam yang paling tidak reaktif.
Magnesium is the most reactive metal while lead is the least reactive metal.

(c) Membekalkan oksigen
To supply oxygen

(d) Untuk mengaktifkan logam
To activate the metal

(e) Magnesium, Aluminium, Zink, Ferum, Plumbum
Magnesium, Aluminium, Zinc, Iron, Lead

(f)



2. Pemerhatian / *Observation*:

Pemerhatian ***Observation***
Berbara dengan sangat terang *Glows very brightly*
Berbara dengan terang *Glows brightly*
Berbara *Glows*
Berbara dengan malap *Glows dimly*
Tiada perubahan *No changes*

(a) (i) Kuprum, plumbum, ferum, zink
Copper, lead, iron, zinc

(ii) Aluminium
Aluminium

(b) (i) Karbon lebih reaktif dan mampu menurunkan oksigen daripada kuprum(II) oksida, plumbum(II) oksida, ferum(II) oksida dan zink oksida.
Carbon is more reactive and can reduce oxygen from copper(II) oxide, lead(II) oxide, iron(II) oxide and zinc oxide.

(ii) Karbon kurang reaktif dan tidak mampu menurunkan oksigen daripada aluminium oksida.
Carbon is less reactive and cannot reduce oxygen from aluminium oxide.

(c) Di bawah aluminium
Below aluminium

3. (a) (i) Ferum dan plumbum
Iron and lead

(ii) Hidrogen boleh menyingkirkan oksigen daripada ferum oksida dan plumbum oksida
Hydrogen can eliminate oxygen from the iron oxide and lead oxide

(b) (i) Aluminium dan zink
Aluminium and zinc

(ii) Hidrogen tidak boleh menyingkirkan oksigen daripada aluminium oksida dan zink oksida.
Hydrogen cannot eliminate oxygen from the aluminium oxide and zinc oxide.

(c) Di antara zink dan ferum
Between zinc and iron

PBD 4.3 Pengekstrakan Logam daripada Bijihnya
Extraction of Metals from its Ore

1. (a) Proses penukaran bijih logam kepada logam tulen.
The process of converting metal ore into pure metal.

(b) (i) Kalium, Natrium, Kalsium, Magnesium, Aluminium
Potassium, Sodium, Calcium, Magnesium and Aluminium

(ii) Zink, Ferum, Timah dan Plumbum
Zinc, Iron, Tin and Lead

(c) Aurum dan platinum. Logam ini sangat tidak reaktif dan tidak bergabung dengan unsur lain di dalam kerak Bumi. Ia wujud dalam bentuk unsur secara semula jadi.
Gold and platinum. These metals are not reactive and do not combine with other elements in the Earth's crust. Both exist naturally in the form of element.

2. (a) Timah
Tin

(b) Arang kok dan batu kapur
Coke and limestone

(c) Menguraikan batu kapur (kalsium karbonat) kepada kalsium oksida dan gas karbon dioksida
Decompose limestone (calcium carbonate) to calcium oxide and carbon dioxide gas.

(d) Leburan besi
Molten iron

3. Jawapan murid / *Student's answer*

4.

Pernyataan ***Statements***	**Sebelum** ***Before***	**Semasa** ***During***	**Selepas** ***After***
Pencemaran udara disebabkan oleh debu serta asap jentera. *Air pollution caused by dust and smoke from the machinery.*		✓	
Kawasan diteroka menyebabkan haiwan bermigrasi. *Areas explored causing animals to migrate*	✓	✓	✓
Tanah gersang yang tidak sesuai untuk organisma hidup *Arid land that is not suitable for living organisms*			✓
Pencemaran bunyi dan udara *Sound and air pollution*		✓	
Tasik terbiar berbahaya kepada penduduk *Left lake that is dangerous to residents*			✓
Bangunan retak akibat bahan letupan *The building cracked because of explosive substances*		✓	

Power PT3

Bahagian A

1. D **2.** B **3.** A **4.** D **5.** A
6. D

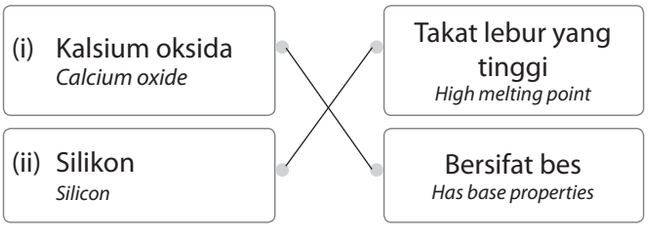
Bahagian B

1. (a)

Magnesium *Magnesium*	,	Aluminium *Aluminium*	,	Ferum *Iron*	,	Emas *Gold*

(b) (i) Ferum oksida
Iron oxide
(ii) Plumbum oksida
Lead oxide

2. (a) (i) ✓
(iii) ✓
(b)



Bahagian C

3. (a) (i) Elemen semula jadi – Berlian / Merkuri / Platinum / Emas
Natural element – Diamond / Mercury / Platinum / Gold
Sebatian semula jadi – Bauksit / Aluminium oksida; Hematid / Ferum oksida; Batu kapur / Kalsium karbonat;
Natural compound – Bauxite / Aluminium oxide; Haematide / Ferum oxide; Marble / Calcium carbonate

(ii) Elemen semula jadi terdiri daripada satu bahan manakala sebatian semula jadi terdiri daripada dua atau lebih bahan.
Natural element consists of one substance whereas natural compound consists of two or more substances.

(b) (i) Atap / *Roof*
(ii) Tahan lama / Legap / Tidak larut dalam air
Long lasting / Opaque / Not dissolve in water
(iii) Berkarat.
Bertindak balas dengan oksigen
Membentuk zink oksida
Rusted
React with oxygen
Form zinc oxide

Power KBAT

1. (a) Pencemaran udara – habuk dan butiran tanah
Pencemaran bunyi – jentera yang digunakan
Pencemaran air - sungai berhampiran akan menjadi keruh dan cetek
Air pollution - dust and soil granules
Sound pollution - mining machinery used
Water pollution - the nearby river will become cloudy and shallow

(b) Ya. Habuk terenap di atas pemukaan daun dan cahaya matahari tidak dapat menembusinya. Kadar fotosintesis menurun.
Dust are deposited on the leaves and the sunlight cannot penetrate it. The rate of photosynthesis decreases.

2. Wajar. Logam kuprum menghasilkan nyalaan berwarna biru.
Nyalaan yang cantik pada waktu malam.
Yes. Copper metal produces blue flame. It forms beautiful flame at night.