

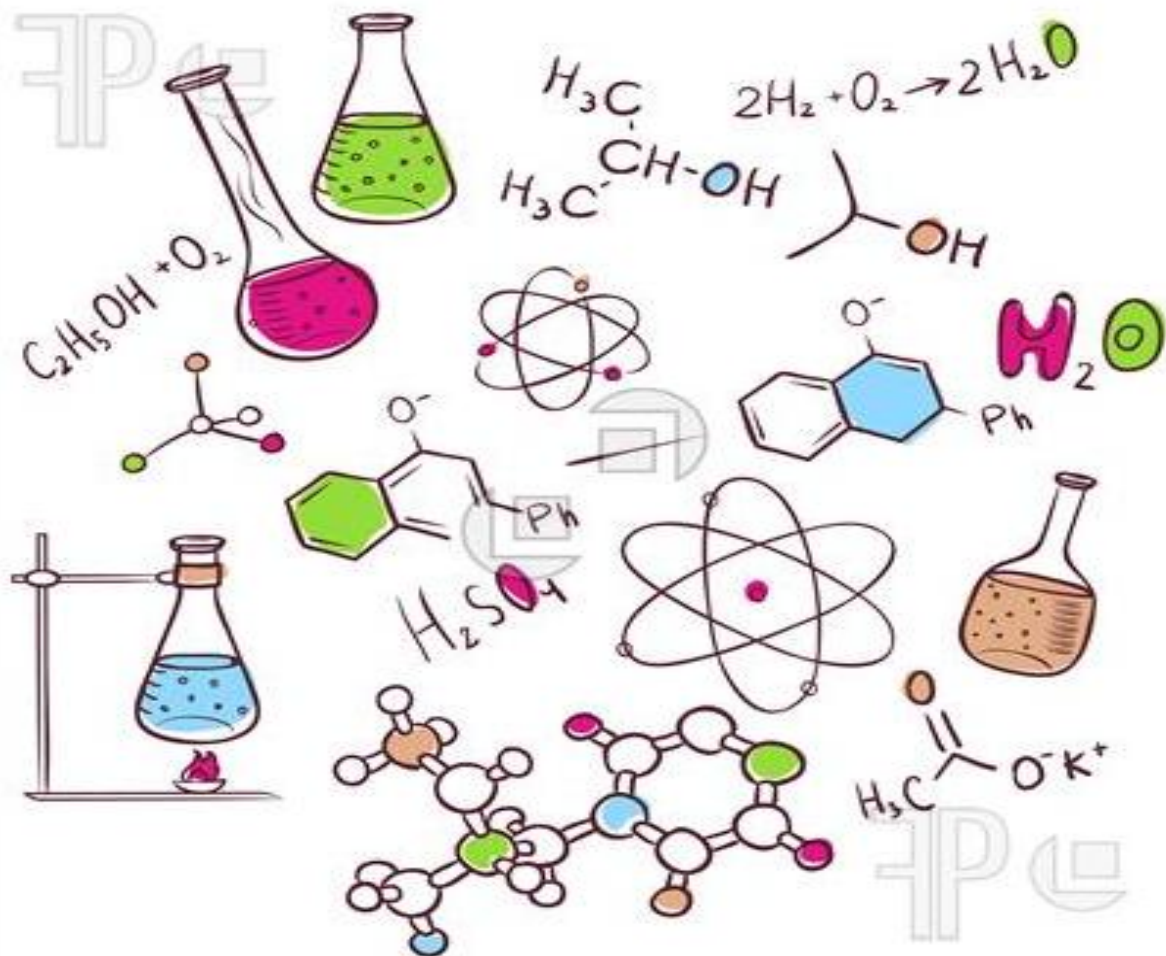
MODUL KECEMERLANGAN 2016

KIMIA

TINGKATAN 5

PPD PASIR GUDANG

<https://cikguadura.wordpress.com/>



MODUL DISEDIAKAN DAN DISUSUN OLEH:

1.	VALARMATHY SUPAIAH	SMK BANDAR SERI ALAM
2.	YAP HENG KUE	SMK ULU TIRAM
3.	ZORAH BT HJ MUSTAPA	SMK SUNGAI TIRAM
4.	YIP YIM POON	SMK TMN PELANGI INDAH
5.	WAN NORAIN BINTI WAN MAMAT	SMK PSR GUDANG 2
6.	ZUANA BT YUNUS	SMK TAMAN RINTING 2
7.	NOOR HAYATI BINTI HASSAN	SMK AGAMA JOHOR BAHRU
8.	ROHANA BINTI JANTAN	SMK KOTA MASAI 2
9.	MAZIAH BINTI SABRAN	SMK SERI KOTA PUTERI
10.		

BAB 1 KADAR TINDAK BALAS

<https://cikguadura.wordpress.com/>

1. Explain why potatoes fried in boiling oil cooks faster than potatoes boiled in boiling water.

Terangkan mengapa kentang yang dimasak dalam minyak mendidih lebih cepat masak berbanding dimasak dalam air mendidih.

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[2 marks]

2. Smaller pieces of charcoal are easily burnt compare to bigger pieces of charcoal. Explain why.

Arang bersaiz kecil lebih cepat terbakar berbanding arang yang besar. Terangkan mengapa.

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[4 marks]

3. Food can be cooked faster when smaller pieces of charcoal are used compared to bigger pieces of charcoal. Explain why.

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[4 marks]

4. Explain briefly why cooking using a pressure cooker takes a shorter time than a normal pot.

Jelaskan sebab memasak dengan menggunakan periuk tekanan mengambil masa yang lebih singkat berbanding dengan menggunakan periuk biasa.

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[4 marks]

5. Knowledge about the factors that affect the rate of reaction is very useful in human life.

State two activities at home and explain how the knowledge about the factors that affect the rate of reaction is applied in the activities mentioned.

Pengetahuan tentang factor yang mempengaruhi kadar tindakbalas sangat berguna dalam kehidupan manusia. Nyatakan dua aktiviti di rumah dan terangkan bagaimana pengetahuan mengenai faktor yang mempengaruhi kadar tindakbalas di aplikasikan dalam aktiviti tersebut

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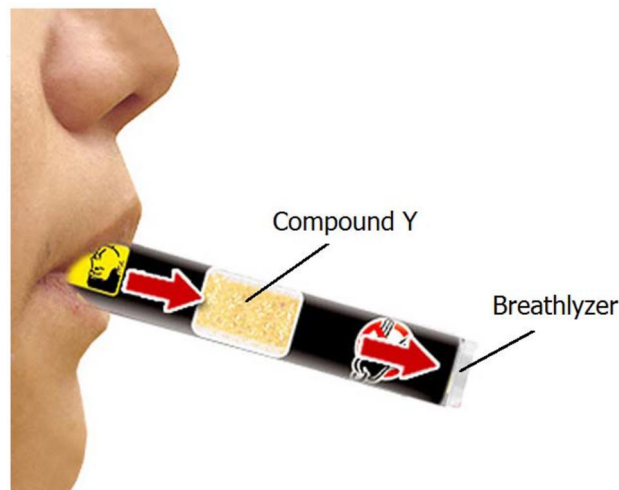
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[8 marks]

BAB 2 SEBATIAN KARBON

1. Diagram shows a “breathalyzer” which uses by the policemen to detect the presence of alcohol in drunk driver.

Rajah menunjukkan alat “breathalyzer” yang digunakan oleh anggota polis untuk mengesan kandungan alkohol bagi pemandu mabuk.



Suggest compound Y. Explain how the breathalyzer works? Include a chemical equation in your explanation.

Cadangkansebatian Y. Terangkanbagaimana “breathlyzer” bertindak?
Tuliskanpersamaankimia di dalam penerangananda.

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[5 marks]

2. Natural rubber is obtained from rubber tree as shown in Diagram 10.1. Aeroplanetyres as shown in Diagram 10.2 are produced by vulcanizing the natural rubber. Compare and explain the two differences of the properties between rubber in Diagram 10.1 and Diagram 10.2

Getahaslidiperolehidaripokokgetahsepertiditunjukkandalam Rajah 10.1.

Tayarkapalterbangsepertidalam Rajah 10.2 dihasilkanmelaluipenvukanangetahasli.

Bandingkandanterangkanduaperbezaansifatantaragetahdalam Rajah 10.1 dan Rajah 10.2.



Diagram 10.1



Diagram 10.2

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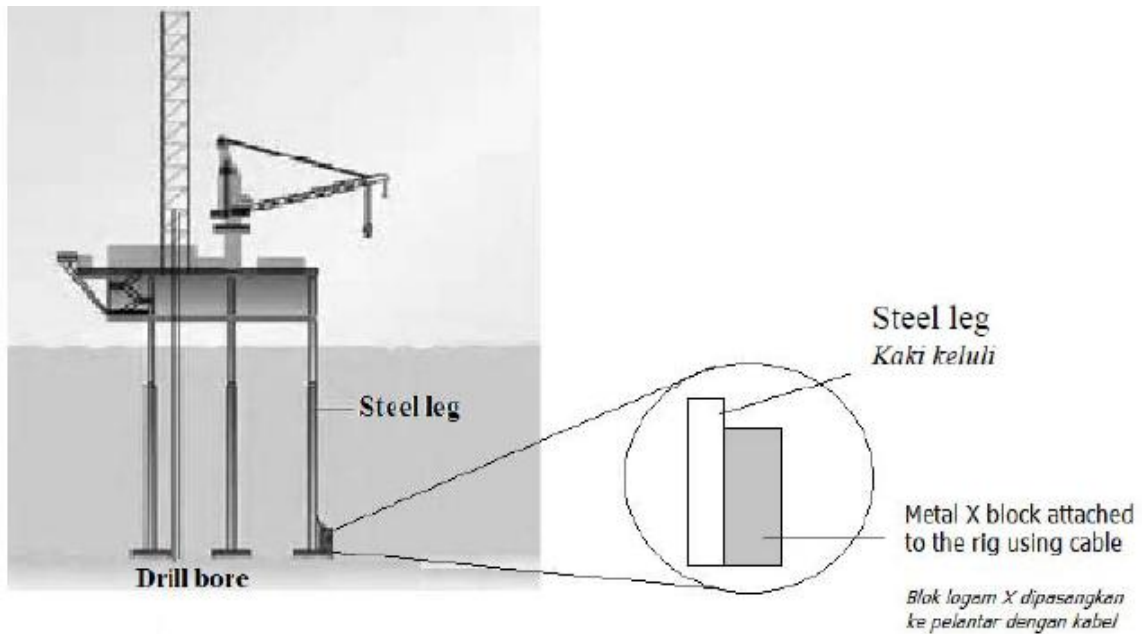
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[4marks] [4markah]

1. Diagram shows the cross section of an oil rig.
Rajah menunjukkan keratan rentas pelantar minyak.



Suggest metal X. Explain the function of metal X.
Cadangkan logam X. Terangkan fungsi logam X.

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[4 marks]

2.

Rusting of iron is a corrosive reaction which happen naturally.

Pengarat besi adalah suatu tindak balas kimia yang boleh berlakusecara semulajadi

- a) What is meant by redox reaction.
Apakah yang dimaksudkan tindak balas redoks.

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[1 mark]
[1 markah]

- b) State the conditions for iron rust naturally.
Nyatakan keadaan untuk besi berkarat secara semulajadi

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[1 mark]
[1 markah]

- c) Iron undergoes oxidation reaction during rusting. Write half equation for the oxidation of iron.
*Besimengalamipengoksidaan semasaberkarat.
Tuliskan setengah persamaan untuk pengoksidaan besi.*

.....
[1 mark]
[1 markah]

- d) Draw a labeled diagram for rusting of iron to show the condition of rusting of iron, the flow of electron, anode and cathode.
Lukiskan gambarajah berlabel bagi proses pengamatan besi yang menunjukkan syarat untuk pengamatan besi, pengaliran elektron, anod dan katod.

[3 mark]
[3 markah]

- e) Describe the transfer of electron and the reaction that take place at the cathode after iron is oxidized.
Huraikan pemindahan elektron dan tindak balas yang berlaku pada katod selepas besi dioksidakan.

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[3 marks]
[3 markah]

- (f) Identify **two** methods of controlling the rusting of iron.

Nyatakanduacarauntukmengawalpengaratanbesi.

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[2 marks]
[2 markah]

BAB 4 TERMOKIMIA

BAB 5 BAHAN KIMIA UNTUK PENGGUNA

1. Diagram 1 shows a list of ingredients for a type of food.
Rajah 1 menunjukkan senarai bahan kandungan bagi sejenis makanan.

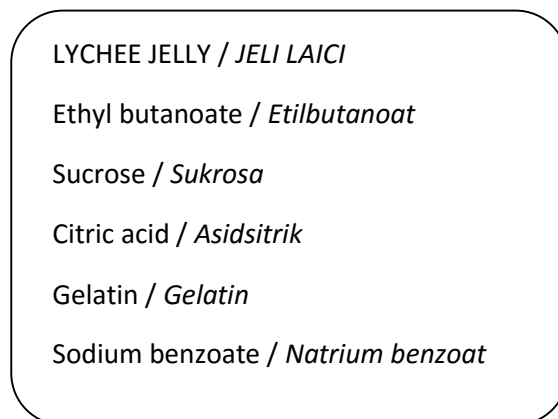


Diagram 1 / Rajah 1

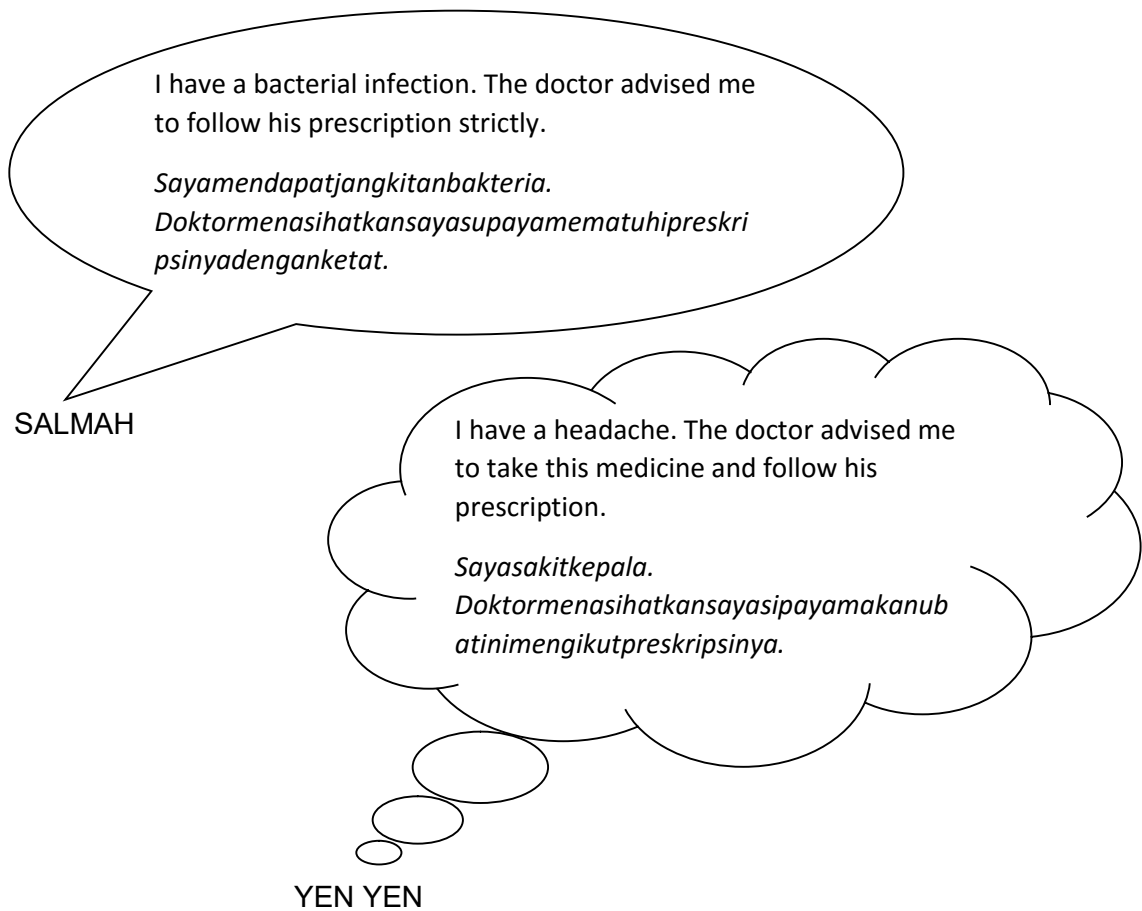
From the list of ingredients, select two substances used as food additives.
Daripada senarai bahan kandungan, pilih dua bahan yang digunakan sebagai bahan tambahan makanan.

State the function of each food additive that you have selected.
Nyatakan fungsi bagi setiap bahan tambahan makanan yang anda telah pilih.

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[5 marks]

2. Diagram 2 shows a conversation between Salmah and Yen Yen.
Rajah 2 menunjukkan perbualan Salmah dan Yen Yen.



These two students met a doctor and some medicines were prescribed to them. State the name, type and the correct usage of each medicine.

Kedua-dua orang

pelajar ini berjumpa dengan doktor dan beberapa ubat telah dipreskripsikan kepada mereka.

Nyatakannya, jenis dan cara penggunaan yang betul bagi setiap ubat.

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SKEMA JAWAPAN:<https://cikguadura.wordpress.com/>**BAB 1 KADAR TINDAK BALAS****JAWAPAN:**

1	-Cooking oil has the higher boiling point compare to water. -The higher temperature prepare the (greater quantity of collision between particles) / (higher kinetic energy of particles) to allow the faster cook.	1 1	2
2	Smaller pieces of charcoal have bigger total surface area More area is exposed to oxygen Big pieces of charcoal have smaller total surface area Less area is exposed to oxygen	1 1 1 1	4
3	1. smaller pieces of charcoal has larger/bigger total surface total area 2. smaller pieces of charcoal is easier to burn when exposed to oxygen 3.more heat is produced by smaller pieces of charcoal than big pieces 4. more heat is absorbed by the food	1 1 1 1	4
4	1.A pressure cooker cooks food under high pressure <i>Periuklekan memasak makanan di bawa tekanan yang tinggi</i> 2.The higher pressure causes the water in the cooker to boil at a higher temperature. <i>Tekanan yang lebih tinggi menyebabkan air dalam periuk tekanan mendidih pada suhu yang lebih tinggi.</i> 3.At a higher temperature, food particles have more kinetic energy The frequency of collisions between food particles increases <i>Padasuhu yang lebih tinggi. zarah-zarah makanan mempunyai tenaga kinetik yang tinggi. Frekuensi perlanggaran antara zarah-zarah makanan bertambah.</i> 4.The frequency of effective collisions increases and the rate of reaction increases. Food is cooked faster. <i>Frekuensi perlanggaran berkesan bertambah dan kadar tindak balas bertambah. Makanan dimasak dengan lebih cepat.</i>	1 1 1 1	
5	1.Cooking meat in small pieces. - small pieces of meat have large total surface area. - more surface area of meat expose to the heat. - meat cook faster 2.Store food in freezer. - in freezer, temperature is low, bacteria become inactive. - the decomposition of food by bacteria become slow. - food last longer	1 1 1 1 1 1 1 1	8

BAB 2 SEBATIAN KARBON

JAWAPAN:

Soalan	Jawapan	Markah
1	<ul style="list-style-type: none"> Compound Y is acidified potassium dichromate(VI). The breath of drunk driver contains ethanol. The drunk driver blow his breath into the breathlyzer. The ethanol react with acidified potassium dichromate(VI) and the colour change from orange to green. The reaction produce ethanoic acid and water. $C_2H_5OH + 2[O] \rightarrow CH_3COOH + H_2O$ 	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>

Soalan 2: (Any two properties)

	Natural rubber / Getahasli	Vulcanised rubber / Getahtervulkan	Mark s
Elasticity <i>Kekenyalan</i>	<p>Less elastic</p> <p>because the polymer chain of rubber can slide over one another easily.</p> <p><i>Kurangkenyal</i></p> <p><i>keranarantaipolimergetahbol ehmenggelongsor di antarasatusama lain denganmudah.</i></p>	<p>More elastic</p> <p>because the sulphur cross-links prevents the polymer chain of rubber molecules slide over one another.</p> <p><i>Lebihkenyal</i></p> <p><i>keranarangkaisilangsulfurmenghal angrantaipolimermolekulgetahmen ggelongsor di antarasatusamalain.</i></p>	<p>1+1</p> <p>1+1</p>
Strength and hardness <i>Kekuatandan kekerasan</i>	<p>Weaker and softer.</p> <p>When it is the elastic limit, the polymer chain will break.</p> <p><i>Lebihdiregangkandanlebihlembut.</i></p> <p><i>Apabiladiregangkanmelebihi had kekenyalan, rantaipolimerakanputus.</i></p>	<p>Stronger and harder</p> <p>because the presence of sulphur cross-links between the polymer.</p> <p><i>Lebihkuatdanlebihkeras</i></p> <p><i>keranakehadiranrangkaisilangsulfur di antarapolimer.</i></p>	<p>1+1</p> <p>1+1</p>
Resistance to heat <i>Ketahanan terhadap haba</i>	<p>Cannot withstand high temperature.</p> <p>Easily melt when heated.</p> <p><i>Tidaktahanhaba.</i></p> <p><i>Meleburdenganmudah apabiladipanaskan.</i></p>	<p>Can withstand high temperature</p> <p>because the presence of sulphur cross links makes it more difficult to melt.</p> <p><i>Tahanhaba, keranakehadiranrangkaisilangsulfur menjadikannyalebihsusahuntukmelebur.</i></p>	<p>1+1</p> <p>1+1</p>
Resistance to	Easily oxidised by oxygen	Not easily oxidised by oxygen	1+1

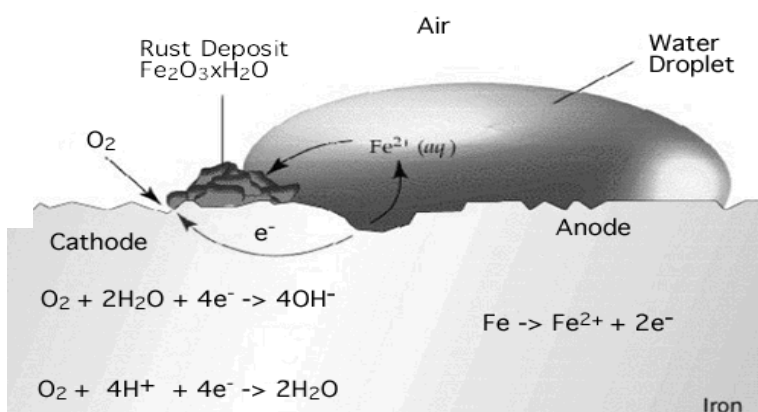
oxidation <i>Ketahanan terhadap pengoksidan</i>	because the presence of many double bonds in the rubber polymer. <i>Teroksidadenganmudaholeh oksigen</i> <i>Keranakehadiranbanyakikatan gandungadudalam polimergetah.</i>	because the number of double bonds is reduced. <i>Tidakteroksidaolehoksigen dengan mudah</i> <i>keranabilanganikatangandaduaber kurang.</i>	1+1
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BAB 3 PENGOKSIDAAN DAN PENURUNAN

JAWAPAN:

Soalan	Jawapan	Markah
1	Metal X is Magnesium (any metal above iron). Steel consists of iron. Magnesium is more electropositive than iron and easily release electron/oxidise to form magnesium ion. $Mg \rightarrow Mg^{2+} + 2e$ Magnesium prevent iron from rusting / corrosion.	1 1 1 1 1

2.		
a)	Redox reaction is a reaction in which oxidation and reduction occur at the same time	1
b)	Oxygen and water	1
c)	$Fe \rightarrow Fe^{2+} + 2e$	1
d)	Label of water droplet, oxygen and iron Label of anode and cathode Draw arrow from negative to positive pole iron	1 1 1



e)	Electron transfer from anode to cathode	1
	Oxygen in water gains electrons	
f)	Hydroxide ion is formed	1
	Using sacrificial metal // sacrificial protection / By alloying / By tin plating / By galvanizing	
(Any two)		1+1
		11

BAB 5 BAHAN KIMIA UNTUK PENGGUNA

ANSWER / JAWAPAN:

Soalan	Jawapan	Markah
1	Ethyl butanoate is used as a flavouring <i>Etilbutanoat digunakane sebagai perisa</i>	1
	Sucrose is used as a flavouring agent. <i>Sukrosa digunakane sebagai agen perisa.</i>	1
	Citric acid is used as an antioxidant. <i>Asid sitrik digunakane sebagai pengantioksidan</i>	1
	Gelatin is used to thicken food <i>Gelatin digunakan untuk memekatkan makanan</i>	1
	Sodium benzoate is used to slow down or prevent the growth of microorganism <i>Natrium benzoat digunakan untuk memperlambatkan atau mencegah pertumbuhan mikroorganisma</i>	1 Mana-mana dua jawapan

Soalan	Jawapan	Markah
2	The medicine prescribed to Salmah is an antibiotic <i>Ubat yang dipreskripsikan kepada Salmah ialah antibiotik</i>	1

<p>Antibiotics are used to kill the growth of bacteria <i>Antibiotik digunakan untuk membunuh pertumbuhan bakteri</i></p>	1
<p>Different antibiotics are used to fight different kinds of bacteria <i>Antibiotik yang berlainan digunakan untuk melawan bakteri yang berlainan</i></p>	1
<p>Salmah must take the full course of the antibiotic prescribed <i>Salmah mestimenghabiskan semua antibiotik yang dipreskripsikan itu</i></p>	1
<p>The medicine prescribed to Yen Yen is an analgesic <i>Ubat yang dipreskripsikan kepada Yen Yen ialah analgesic</i></p>	1
<p>An analgesic is a medicine used to relive pain <i>Analgesik ialah ubat yang digunakan untuk mengurangkan kesakitan</i></p>	1
<p>Paracetamol is prescribed to Yen Yen <i>Parasetamol dipreskripsikan kepada Yen Yen</i></p>	1
<p>It must be taken at recommended dose <i>Ubat ini mesti diambil mengikut dos yang dicadangkan</i></p>	1