

Soalan Subjektif

6.1

Sifat Asid dan Alkali

The Properties of Acid and Alkali

Buku Teks: m.s. 126 – 132

1. Nyatakan sama ada pernyataan di bawah **BENAR** atau **PALSU** mengenai sifat asid dan alkali.
*State whether the statements below are **TRUE** or **FALSE** about the properties of acid and alkali.* **TP2**

(a) Air sabun ialah larutan beralkali.

Soap water is an alkaline solution.

(b) Cuka ialah contoh bahan berasid.

Vinegar is an examples of acidic substances.

(c) Jus oren adalah contoh bahan berasid.

Orange juice are examples of acidic substances.

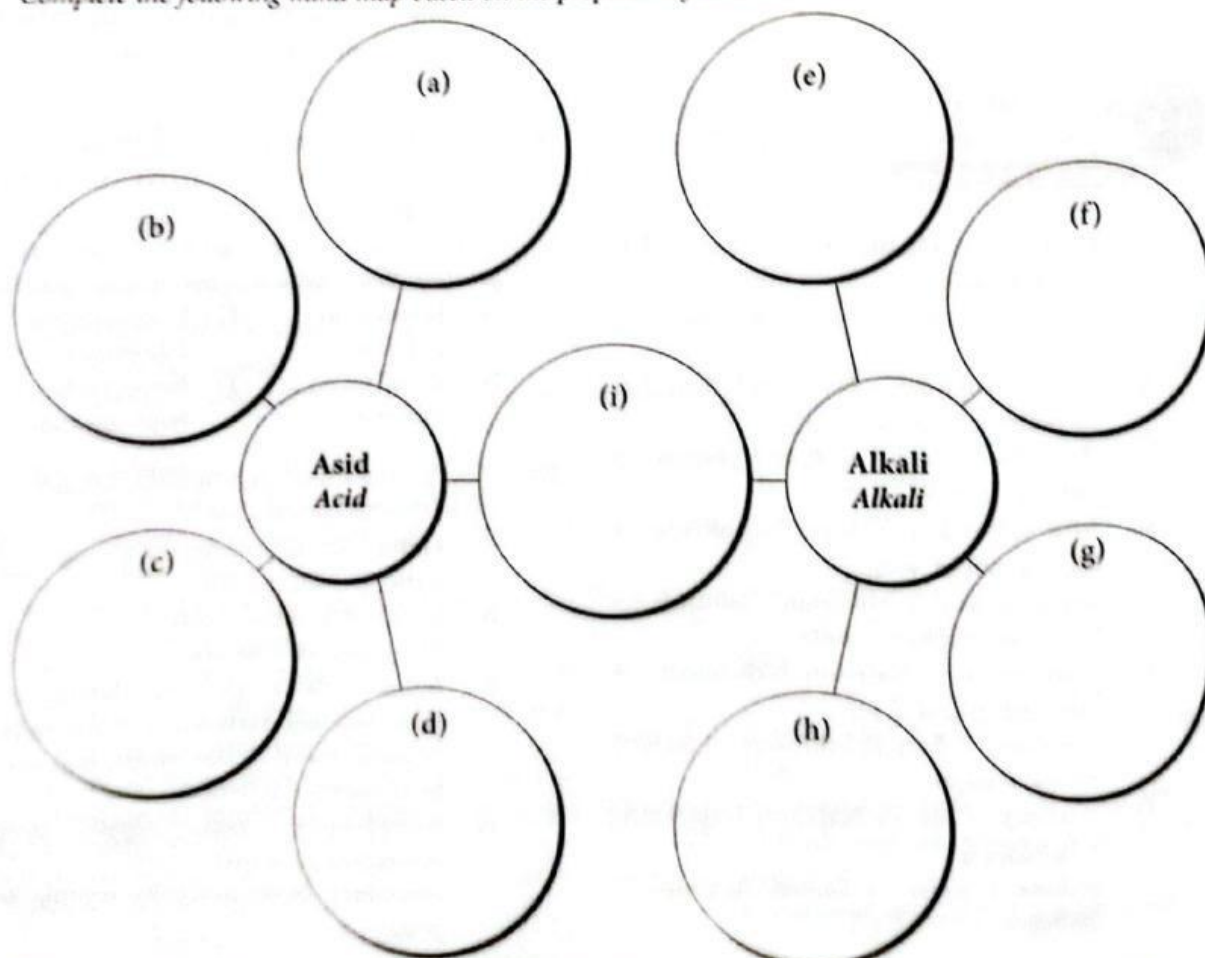
(d) Larutan berasid boleh menukarkan kertas litmus merah kepada biru.

Acidic solution can turn red litmus paper to blue.

(e) Larutan soda penaik mempunyai rasa pahit.

Baking soda solution has a bitter taste.

2. Lengkapkan peta minda berikut berdasarkan sifat-sifat asid dan alkali. **TP1**
Complete the following mind map based on the properties of acid and alkali.



TP1 Menguasai

Belum menguasai

TP2 Menguasai

Belum menguasai

Bahan Berasid dan Beralkali Acidic and Alkaline Substances

3. Aminah mahu mengenal pasti beberapa larutan yang diberikan kepadanya. Jadual 1 menunjukkan perubahan warna yang berlaku apabila dia menggunakan dua jenis penunjuk terhadap larutan-larutan tersebut.

Aminah wants to identify some of the solutions given to her. Table 1 shows the colour changes that occur when she uses two types of indicators against the solutions.

Jadual 1 / Table 1

Larutan Solution	Warna metil jingga Colour of methyl orange	Warna penunjuk semesta Colour of universal indicator
P	Merah / Red	Merah / Red
Q	Kuning / Yellow	Hijau / Green
R	Kuning / Yellow	Biru / Blue

- (a) Jika larutan berikut ialah air suling, cuka dan peluntur, ramalkan P, Q dan R. **TP 2**
If the following solutions are distilled water, vinegar and bleach, predict P, Q and R.

P: _____ Q: _____ R: _____

- (b) Jelaskan jawapan anda di 3(a). **TP 2**
Explain your answer in 3(a).

Based on the changes to the indicator the below solutions are:

P : _____ Q : _____

R : _____

- (c) Apakah warna yang akan ditunjukkan oleh kertas litmus biru dan merah jika diuji menggunakan larutan P, Q dan R? **TP 2**
What are the colours shown by the blue litmus paper and red litmus paper when used with the solutions P, Q and R?

Larutan Solution	Kertas litmus biru Blue litmus paper	Kertas litmus merah Red litmus paper
P	(i)	(ii)
Q	(iii)	(iv)
R	(v)	(vi)

Kekuatan Asid dan Alkali Strength of Acids and Alkalies

4. Jadual 2 menunjukkan beberapa bahan dan bacaan nilai pH bahan tersebut.
Table 2 shows a few substances and their pH values.

Jadual 2 / Table 2

Bahan Substances	Serbuk penaik Baking powder	Peluntur Bleach	Susu Milk	Cuka Vinegar	Jus oren Orange juice	Sabun mandi Soap
Nilai pH pH value	9	13	6.5	2.5	3	11

(a) Berdasarkan senarai di atas, bahan yang manakah ialah **TP2**?

Based on the list above, which substance is the

(i) asid yang paling lemah? / weakest acid?

(ii) asid yang paling kuat? / strongest acid?

(iii) alkali yang paling lemah? / weakest alkali?

(iv) alkali yang paling kuat? / strongest alkali?

(b) Rajah 1 menunjukkan dua contoh bahan berasid, iaitu jus tomato dan cuka. Jus tomato mengandungi asid sitrik, iaitu asid yang sedikit kurang berasid daripada cuka.

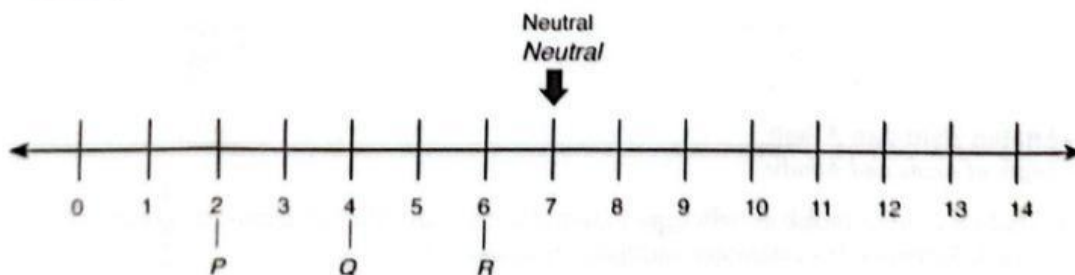
Diagram 1 show two examples of acidic substances which are tomato juice and vinegar. Tomato juice contains citric acid that is an acid slightly less acidic than vinegar.



Rajah 1 / Diagram 1

(i) Berdasarkan informasi ini, yang manakah daripada sampel di bawah menunjukkan nilai pH asid sitrik? Bulatkan jawapan anda. **TP2**

Based on this information, which sample below shows the pH value of the citric acid? Circle your answer.



(ii) Berikan dua sifat asid sitrik. **TP2**

Give two properties of citric acid.

- (iii) Rosman wanted to determine the strength of the acids in the tomato juice and chose to test using litmus paper. Do you agree with Rosman? Explain.

Rosman wanted to determine the strength of the acids in the tomato juice and chose to test using litmus paper. Do you agree with Rosman? Explain.

Litmus paper can only indicate the **universal** of the substance, either alkaline or acidic. It cannot show the **nature** of the substance. Rosman should use a **strength** indicator in his experiment.

universal **nature** **strength**

Kegunaan Asid dan Alkali dalam Kehidupan Harian

Uses of Acids and Alkalis in Daily Life

5. Padankan bahan-bahan di bawah dengan kegunaan sehariannya. (40)

Match the substances below with their daily usage.

(a) Asid karbonik
Carbonic acid

(i) Membuat pil antasid
Making antacid pill

(b) Asid sulfurik
Sulphuric acid

(ii) Membuat vitamin C
Making vitamin C

(c) Cuka
Vinegar

(iii) Membuat jeruk
Making pickles

(d) Asid askorbik
Ascorbic acid

(iv) Membuat sabun pencuci
Making detergent

(e) Asid benzoik
Benzoic acid

(v) Menggumpalkan lateks sebelum digelek menjadi kepingan nipis
Coagulate latex before rolling it into thin sheets

(f) Asid formik
Formic acid

(vi) Mengawet makanan dalam botol seperti sos cili
Preserving bottled food such as chili ketchup

(g) Magnesium hidroksida
Magnesium hydroxide

(vii) Membuat minuman bergas
Making fizzy drinks

(h) Ammonia
Ammonia

(viii) Membuat simen dan kaca
Making cement and glass

(i) Natrium hidroksida
Sodium hydroxide

(ix) Membuat bateri kereta
Making car batteries

(j) Kalsium hidroksida
Calcium hydroxide

(x) Elektrolit dalam bateri cas semula
Electrolyte in rechargeable battery

(k) Kalium hidroksida
Potassium hydroxide

(xi) Membuat baja
Making fertiliser

TP2 Menguasai Belum menguasai

TP3 Menguasai Belum menguasai

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