

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. **(11) (2)**

(a) Air sabun ialah larutan beralkali.  
Soap water is an alkaline solution.

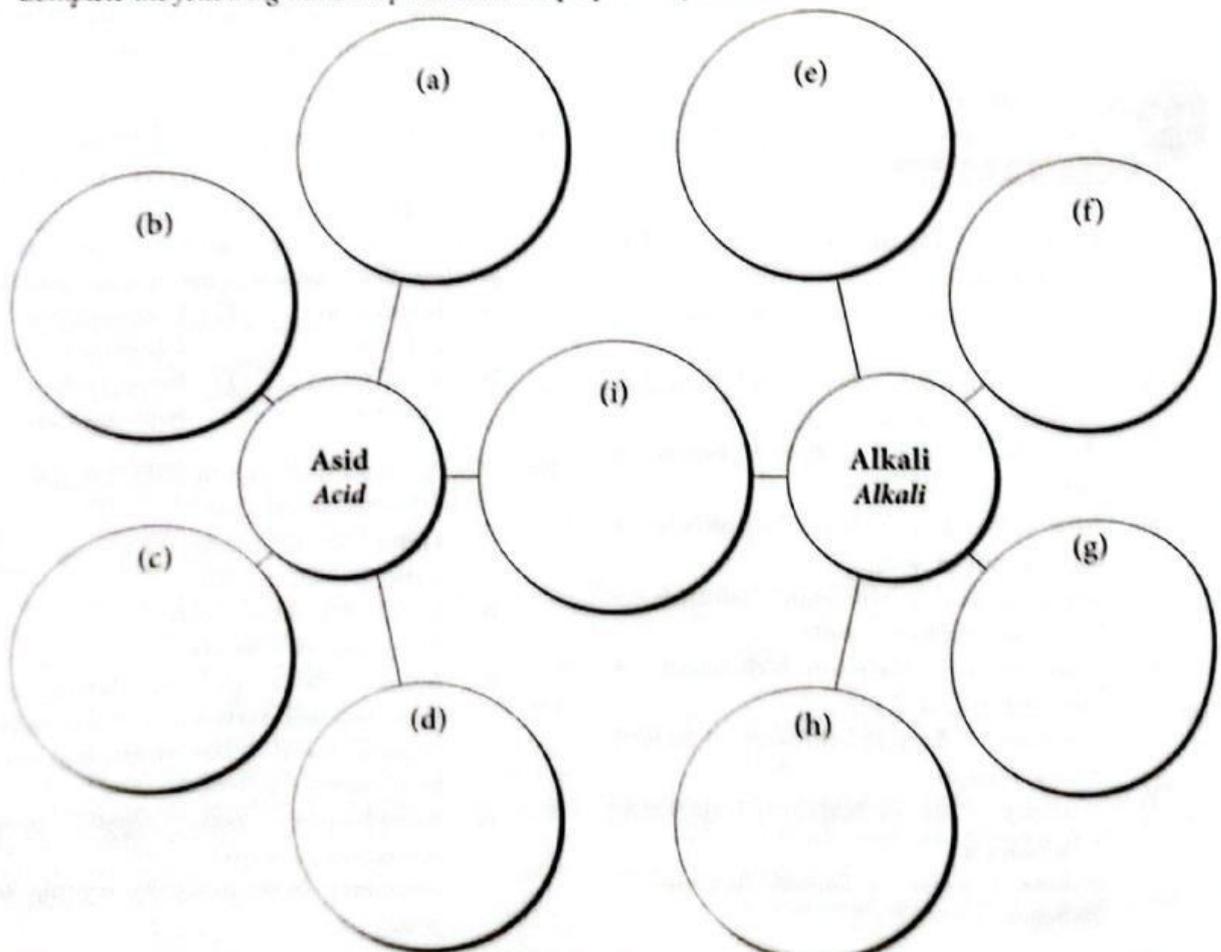
(b) Cuka ialah contoh bahan berasid.  
Vinegar is an examples of acidic substances.

(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. **(10) (1)**  
Complete the following mind map based on the properties of acid and alkali.



**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. (1P) (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). (1P) (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? (1P) (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 Alkalis*

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?*

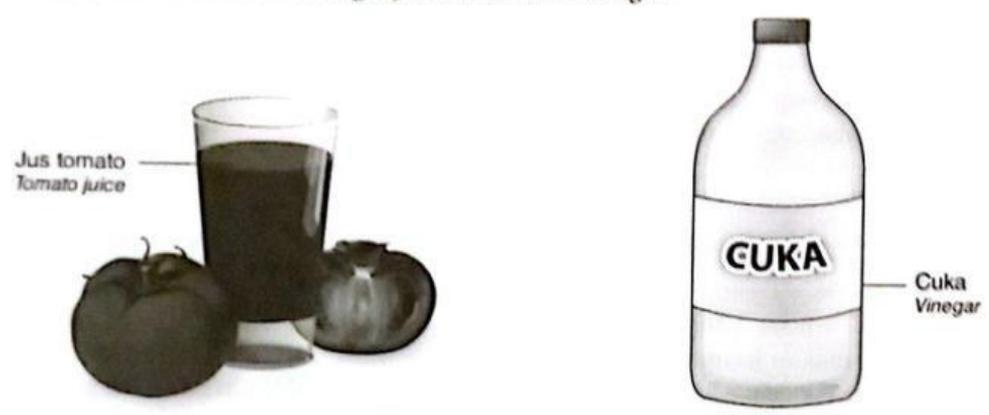
\_\_\_\_\_

(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.

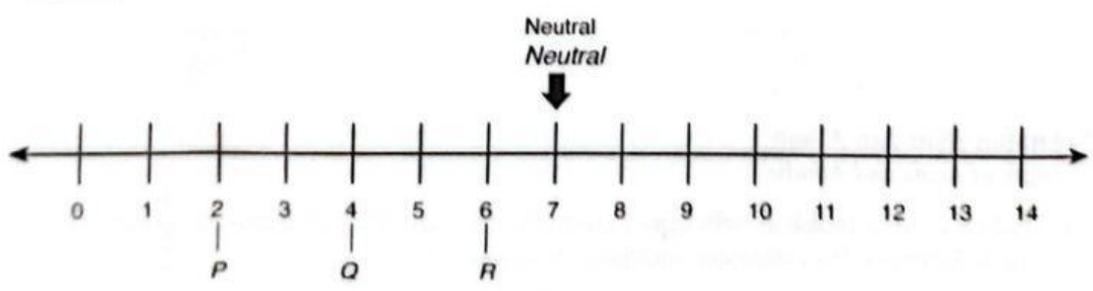
*Diagram 1 show two examples of acidic substances which are tomato juice and vinegar. Tomato juice contains citric acid that is an acid slightly less acidic than vinegar.*



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 **nature** of the substance, either alkaline or acidic. It cannot show the **strength** of the substance. Rosman should use a **universal** 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. (10)

Match the substances below with their daily usage.

(a) Asid karbonik  
Carbonic acid

(b) Asid sulfurik  
Sulphuric acid

(c) Cuka  
Vinegar

(d) Asid askorbik  
Ascorbic acid

(e) Asid benzoik  
Benzoic acid

(f) Asid formik  
Formic acid

(g) Magnesium hidroksida  
Magnesium hydroxide

(h) Ammonia  
Ammonia

(i) Natrium hidroksida  
Sodium hydroxide

(j) Kalsium hidroksida  
Calcium hydroxide

(k) Kalium hidroksida  
Potassium hydroxide

(i) Membuat pil antasid  
Making antacid pill

(ii) Membuat vitamin C  
Making vitamin C

(iii) Membuat jeruk  
Making pickles

(iv) Membuat sabun pencuci  
Making detergent

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

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

(vii) Membuat minuman bergas  
Making fizzy drinks

(viii) Membuat simen dan kaca  
Making cement and glass

(ix) Membuat bateri kereta  
Making car batteries

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

(xi) Membuat baja  
Making fertiliser

TP2 Menguasai Belum menguasai

TP3 Menguasai Belum menguasai

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