

1. Which of the following substances is the most suitable to manufacture car batteries  
Antara bahan berikut, yang manakah paling sesuai untuk pembuatan bateri kereta?



| Substance<br>Bahan | pH value<br>Nilai pH |
|--------------------|----------------------|
| W                  | 4                    |
| X                  | 3                    |
| Y                  | 2                    |
| Z                  | 1                    |

- ☐ A W  
☐ B X  
☐ C Y  
☐ D Z

2. The diagram below shows Azrie having gastric pain because of excess acid in his stomach.  
Rajah di bawah menunjukkan Azrie mengalami sakit gastrik kerana asid yang berlebihan di dalam perutnya.



Which of the following should be taken by Azrie to reduce his pain?  
Antara yang berikut, yang manakah perlu diambil oleh Azrie untuk mengurangkan kesakitannya?

- ☐ A Distilled water  
Air suling  
☐ B Vinegar  
Cuka  
☐ C Milk of magnesia  
Susu magnesia  
☐ D Salt water  
Air garam

3. The use of ascorbic acid is to make...  
Kegunaan asid askorbik adalah untuk membuat...

- ☐ A dyes.  
pewarna.  
☐ B fruit juices.  
jus buah.  
☐ C vitamin A.  
vitamin A.  
☐ D vitamin C.  
vitamin C.

4. Which of the following substances change(s) the colour of blue litmus paper to red?  
Antara bahan-bahan berikut, yang manakah menukarkan warna kertas litmus biru kepada merah?

- J Nitric acid solution  
Larutan asid nitrik
- K Sodium hydroxide solution  
Larutan natrium hidroksida
- L Calcium hydroxide solution  
Larutan kalsium hidroksida

- ☐ A J only  
J sahaja
- ☐ B J and K  
J dan K
- ☐ C K and L  
K dan L
- ☐ D J, K and L  
J, K dan L

5.

- pH value is less than 7  
nilai pH kurang daripada 7
- Sour taste  
Rasa masam
- Corrosive  
Menghakis

The information above refers to...  
Maklumat di atas merujuk kepada...

- ☐ A an alkaline.  
alkali.
- ☐ B water.  
air.
- ☐ C an acid.  
asid.
- ☐ D a soap solution.  
larutan sabun.

6. Which of the following represents P, Q and R correctly?  
Antara yang berikut, yang manakah mewakili P, Q dan R dengan betul?

- ☐ A
- | P (pH = 2)                                        | Q (pH = 7)            | R (pH = 12)                            |
|---------------------------------------------------|-----------------------|----------------------------------------|
| Dilute hydrochloric acid<br>Asid hidroklorik cair | Tap water<br>Air paip | Sodium hydroxide<br>Natrium hidroksida |
- ☐ B
- | P (pH = 2)      | Q (pH = 7)                    | R (pH = 12)            |
|-----------------|-------------------------------|------------------------|
| Vinegar<br>Cuka | Distilled water<br>Air suling | Limewater<br>Air kapur |
- ☐ C
- | P (pH = 2)             | Q (pH = 7)           | R (pH = 12)                 |
|------------------------|----------------------|-----------------------------|
| Vitamin C<br>Vitamin C | Seawater<br>Air laut | Soapy water<br>Air bersabun |
- ☐ D
- | P (pH = 2)                 | Q (pH = 7)                        | R (pH = 12)                   |
|----------------------------|-----------------------------------|-------------------------------|
| Stomach juice<br>Jus perut | Acid rain water<br>Air hujan asid | Fizzy drink<br>Minuman bergas |

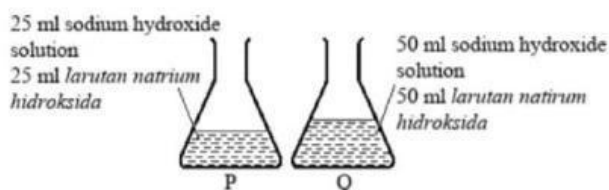
7. Which of the following uses of acids is/are correct?  
Antara kegunaan asid berikut, yang manakah betul?
- J Formic acid is used to coagulate latex  
Asid formik digunakan untuk menggumpalkan lateks
- K Tartaric acid is used to make soft drinks  
Asid tartarik digunakan untuk membuat minuman ringan
- L Citric acid is found in orange juices only  
Asid sitrik hanya terdapat dalam jus oren sahaja

- ☐ A J only  
J sahaja
- ☐ B J and K  
J dan K
- ☐ C K and L  
K dan L
- ☐ D J, K and L  
J, K dan L

8. Which of the following substances has a pH value of more than 7?  
Antara bahan-bahan berikut, yang manakah mempunyai nilai pH lebih daripada 7?
- J Distilled water  
Air suling
- K Toothpaste  
Ubat gigi
- L Potassium hydroxide solution  
Larutan kalium hidroksida

- ☐ A J only  
J sahaja
- ☐ B J and K  
J dan K
- ☐ C K and L  
K dan L
- ☐ D J, K and L  
J, K dan L

9. The diagram below shows two conical flasks containing an alkali solution of the same concentration.  
Rajah di bawah menunjukkan dua buah kelalang kon yang mengandungi larutan alkali dengan kepekatan yang sama.



If 10 ml of acid is required to neutralise 10 ml of the alkali, what volume of acid is required to neutralise the alkali in conical flasks P and Q?  
Sekiranya 10 ml asid diperlukan untuk meneutralkan 10 ml alkali tersebut, berapakah isi padu asid yang diperlukan untuk meneutralkan alkali dalam kelalang kon P dan Q?

- ☐ A
- | Flask P<br>Kelalang P | Flask Q<br>Kelalang Q |
|-----------------------|-----------------------|
| 25 ml                 | 30 ml                 |
- ☐ B
- | Flask P<br>Kelalang P | Flask Q<br>Kelalang Q |
|-----------------------|-----------------------|
| 25 ml                 | 50 ml                 |
- ☐ C
- | Flask P<br>Kelalang P | Flask Q<br>Kelalang Q |
|-----------------------|-----------------------|
| 35 ml                 | 30 ml                 |
- ☐ D
- | Flask P<br>Kelalang P | Flask Q<br>Kelalang Q |
|-----------------------|-----------------------|
| 35 ml                 | 50 ml                 |

10. The table below shows the pH value of three substances, X, Y and Z.  
Jadual di bawah menunjukkan nilai pH bagi tiga bahan, X, Y dan Z.

| Substance<br>Bahan | pH value<br>Nilai pH |
|--------------------|----------------------|
| X                  | 3.5                  |
| Y                  | 6.5                  |
| Z                  | 9.5                  |

Which of the following is true about X, Y and Z?

Antara yang berikut, yang manakah benar tentang X, Y dan Z?

- ☐ A
- |   |   |                                       |
|---|---|---------------------------------------|
| X | - | hydrochloric acid<br>asid hidroklorik |
| Y | - | distilled water<br>air suling         |
| Z | - | egg white<br>putih telur              |
- ☐ B
- |   |   |                          |
|---|---|--------------------------|
| X | - | orange juice<br>jus oren |
| Y | - | soda water<br>air soda   |
| Z | - | toothpaste<br>ubat gigi  |
- ☐ C
- |   |   |                          |
|---|---|--------------------------|
| X | - | vinegar<br>cuka          |
| Y | - | fresh milk<br>susu segar |
| Z | - | toothpaste<br>ubat gigi  |
- ☐ D
- |   |   |                         |
|---|---|-------------------------|
| X | - | vinegar<br>cuka         |
| Y | - | toothpaste<br>ubat gigi |
| Z | - | limewater<br>air kapur  |

11. The following are four types of substances, P, Q, R and S.  
Berikut merupakan empat jenis bahan, P, Q, R dan S.

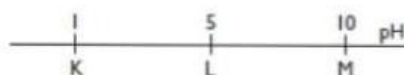
P – Mineral water  
Air mineral  
Q – Bitter gourd  
Peria  
R – Car battery  
Bateri kereta  
S – Fizzy drink  
Minuman bergas

Which of the substances have a pH value less than 7?

Antara bahan tersebut, yang manakah mempunyai nilai pH kurang daripada 7?

- ☐ A P and Q  
P dan Q
- ☐ B Q and R  
Q dan R
- ☐ C R and S  
R dan S
- ☐ D Q, R and S  
Q, R dan S

12. The diagram below shows the pH values of three substances, K, L and M.  
Rajah di bawah menunjukkan nilai pH bagi tiga bahan, K, L dan M.



Which of the following about K, L and M is true?

Antara yang berikut, yang manakah benar tentang K, L dan M?

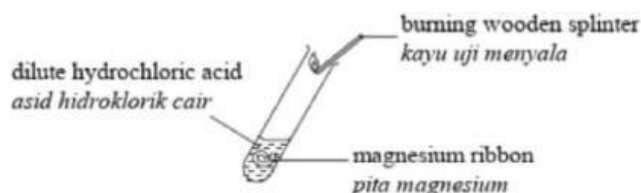
- ☐ A
- |   |                                   |                  |
|---|-----------------------------------|------------------|
| K | Vinegar<br>Cuka                   | Acid<br>Asid     |
| L | Apple juice<br>Jus epal           | Acid<br>Asid     |
| M | Milk of magnesia<br>Susu magnesia | Alkali<br>Alkali |
- ☐ B
- |   |                                                             |                  |
|---|-------------------------------------------------------------|------------------|
| K | Digestive juice in stomach<br>Jus pencernaan di dalam perut | Acid<br>Asid     |
| L | Blood<br>Darah                                              | Alkali<br>Alkali |
| M | Milk of magnesia<br>Susu magnesia                           | Alkali<br>Alkali |
- ☐ C
- |   |                                   |                  |
|---|-----------------------------------|------------------|
| K | Washing soap<br>Sabun pencuci     | Alkali<br>Alkali |
| L | Milk of magnesia<br>Susu magnesia | Alkali<br>Alkali |
| M | Tap water<br>Air paip             | Acid<br>Asid     |
- ☐ D
- |   |                                   |                  |
|---|-----------------------------------|------------------|
| K | Milk of magnesia<br>Susu magnesia | Alkali<br>Alkali |
| L | Washing soap<br>Sabun pencuci     | Alkali<br>Alkali |
| M | Lemon juice<br>Jus lemon          | Acid<br>Asid     |

13. Dry solid barium hydroxide cannot change the colour of red litmus paper but when added water to it, the litmus paper turns blue because...

Pepejal kering barium hidroksida tidak boleh mengubah warna kertas litmus merah tetapi apabila air ditambah, kertas litmus bertukar menjadi biru kerana...

- ☐ A the water molecules turn blue.  
molekul air menjadi biru.
- ☐ B barium hydroxide is a weak acid.  
barium hidroksida adalah asid lemah.
- ☐ C water changes the colour of red litmus paper to blue.  
air mengubah warna kertas litmus merah kepada biru.
- ☐ D barium hydroxide needs water to show its alkaline characteristics.  
barium hidroksida memerlukan air untuk menunjukkan ciri-ciri alkalinnya.

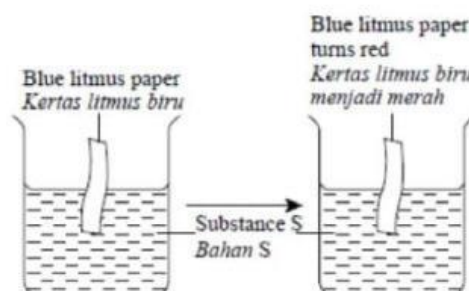
14. The diagram below shows an experiment between a magnesium ribbon and dilute hydrochloric acid. Rajah di bawah menunjukkan satu eksperimen antara pita magnesium dan asid hidroklorik cair.



What is the gas released from the reaction?  
Apakah gas yang dibebaskan dari tindak balas itu?

- ☐ A Oxygen  
Oksigen
- ☐ B Hydrogen  
Hidrogen
- ☐ C Ammonia  
Ammonia
- ☐ D Carbon dioxide  
Karbon dioksida

15. The diagram below shows an activity to investigate the property of substance S. Rajah di bawah menunjukkan satu aktiviti untuk menyiasat sifat bahan S.



Which of the following substances has the same property as S?  
Antara bahan berikut, yang manakah mempunyai sifat yang sama seperti S?

- ☐ A Shampoo  
Syampu
- ☐ B Lime juice  
Jus limau
- ☐ C Detergent  
Detergen
- ☐ D Sugar solution  
Larutan gula

16. Which of the following statements is **not** true about alkalis?  
Antara pernyataan berikut, yang manakah **tidak** benar tentang alkali?

- ☐ A Alkalis change the colour of red litmus paper to blue.  
Alkali menukarkan warna kertas litmus merah kepada biru.
- ☐ B Alkalis have pH values of more than 7.  
Alkali mempunyai nilai pH lebih daripada 7.
- ☐ C Alkalis have a sour taste.  
Alkali mempunyai rasa yang masam.
- ☐ D Alkalis are corrosive.  
Alkali menghakis.

17. When powder M is poured into a test tube containing dilute hydrochloric acid, a colorless gas that turns limewater chalky is produced. Which of the following substances could be M?  
*Apabila serbuk M dituang ke dalam tabung uji yang mengandungi asid hidroklorik cair, gas tidak berwarna yang menukarkan air kapur menjadi keruh dihasilkan. Antara bahan berikut, yang manakah kemungkinan adalah M?*
- J Copper sulphate  
*Kuprum sulfat*
- K Calcium carbonate  
*Kalsium karbonat*
- L Magnesium carbonate  
*Magnesium karbonat*

- ☐ A J only  
*J sahaja*
- ☐ B J and K  
*J dan K*
- ☐ C K and L  
*K dan L*
- ☐ D J, K and L  
*J, K dan L*

18. Which of the following are examples of reaction between acid and alkali?  
*Antara yang berikut, yang manakah adalah contoh bagi tindak balas antara asid dan alkali?*

- J Nitric acid + potassium hydroxide → potassium nitrate + water  
*Asid nitrik + kalium hidroksida → kalium nitrat + air*
- K Hydrochloric acid + sodium hydroxide → sodium chloride + water  
*Asid hidroklorik + natrium hidroksida → natrium klorida + air*
- L Hydrochloric acid + calcium → calcium chloride + hydrogen  
*Asid hidroklorik + kalsium → kalsium klorida + hidrogen*

- ☐ A J only  
*J sahaja*
- ☐ B J and K  
*J dan K*
- ☐ C K and L  
*K dan L*
- ☐ D J, K and L  
*J, K dan L*

19. An experiment is carried out to study the properties of acid. A few magnesium tapes are added to dilute hydrochloric acid in a test tube. Gas is released and tested with a glowing wooden splinter. Which of the following about the experiment is true?  
*Suatu eksperimen dijalankan untuk mengkaji sifat-sifat asid. Beberapa jalur magnesium ditambahkan ke dalam asid hidroklorik cair dalam sebuah tabung uji. Gas dibebaskan dan dluji dengan kayu uji bernyala. Antara yang berikut, yang manakah benar tentang eksperimen itu?*

- ☐ A The chalky dilute hydrochloric acid becomes clear  
*Asid hidroklorik cair yang keruh menjadi jernih*
- ☐ B A "pop" sound is heard  
*Bunyi "pop" kedengaran*
- ☐ C A pungent gas is given off  
*Gas dengan bau yang menusuk dibebaskan*
- ☐ D The gas tastes bitter  
*Gas itu mempunyai rasa pahit*

20. Which of the following does **not** have a pH value more than 7?  
*Antara yang berikut, yang manakah **tidak** mempunyai nilai pH lebih daripada 7?*

- ☐ A Sodium hydroxide  
*Natrium hidroksida*
- ☐ B Magnesium chloride  
*Magnesium klorida*
- ☐ C Potassium hydroxide  
*Kalium hidroksida*
- ☐ D Calcium hydroxide  
*Kalsium hidroksida*