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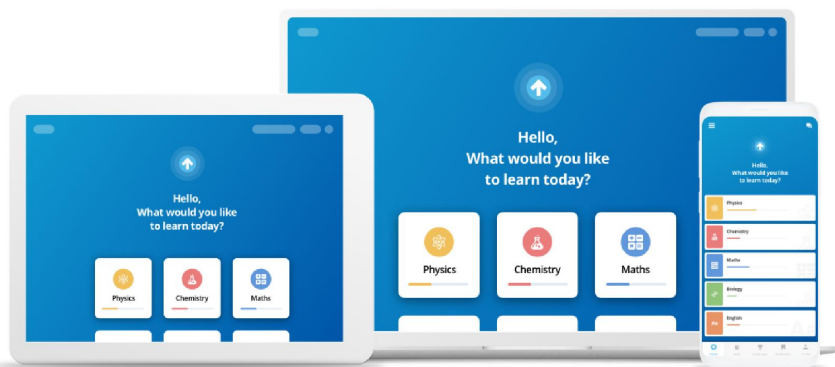
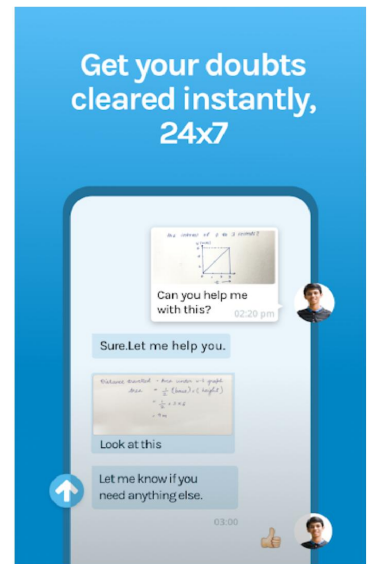
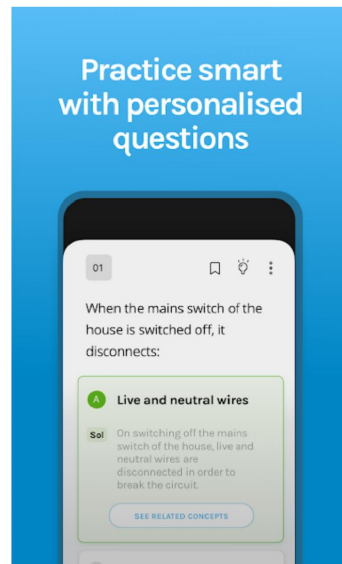
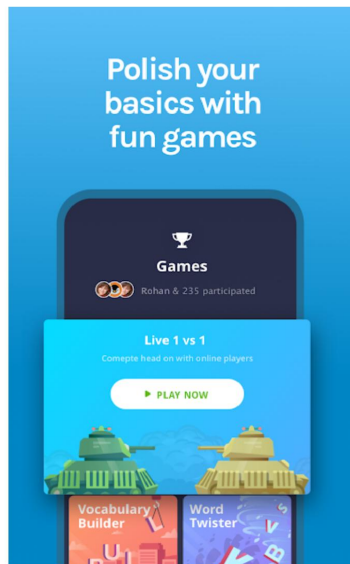
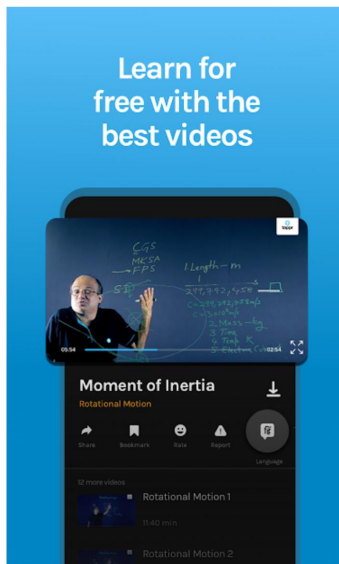
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#464695

A solution turns red litmus blue, its pH is likely to be :

- A 1
- B 4
- C 5
- ☒ D 10

**Solution**

Base turns red litmus blue and acid turns blue litmus red. Therefore the pH of solution is in base range which is from 7 to 14. Only option D has pH in this range thus the solution having pH 10 turns red litmus blue.

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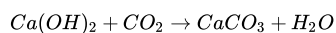
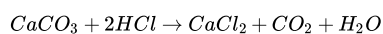
#464696

A solution reacts with crushed egg-shells to give a gas that turns lime-water milky. The solution contains:

- A  $NaCl$
- ☒ B  $HCl$
- C  $LiCl$
- D  $KCl$

**Solution**

Crushed egg shell has composition  $CaCO_3$  reacts with acid and gives gas  $CO_2$  which turns lime water ( $Ca(OH)_2$ ) milky by producing  $CaCO_3$  again. The acid in given options is  $HCl$ .



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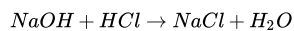
#464697

10 mL of a solution of  $NaOH$  is found to be completely neutralised by 8 mL of a given solution of  $HCl$ . If we take 20 mL of the same solution of  $NaOH$ , the amount  $HCl$  solution (the same solution as before) required to neutralise it will be:

- A 4 mL
- B 8 mL
- C 12 mL
- ☒ D 16 mL

**Solution**

Reaction of  $HCl$  and  $NaOH$  is:



1 mol of  $NaOH$  is neutralized by 1 mol of  $HCl$ . If 10ml of  $NaOH$  is neutralize by  $HCl = 8ml$

1ml of  $NaOH$  will neutralize by  $HCl = \frac{8}{10}ml$

20ml of  $NaOH$  for neutralization will require  $HCl = 0.8 \times 20ml = 16ml$

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#464698

Which one of the following types of medicines is used for treating indigestion?

- A Antibiotic
- B Analgesic

C Antacid

D Antiseptic

#### Solution

Antacids are a class of drugs used to treat conditions caused by the acid that is produced by the stomach. Antacids reduce acidity by neutralizing (counteracting) acid.

Analgesic drugs act in various ways on the peripheral and central nervous systems to act to relieve pain.

Antiseptic are antimicrobial substances that are applied to living tissue/skin to reduce the possibility of infection, sepsis, or putrefaction.

Antibiotics are a group of medicines that are used to treat infections caused by germs (bacteria and certain parasites).

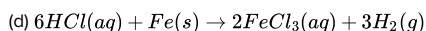
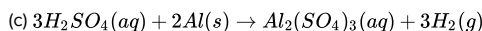
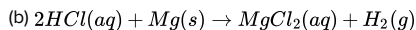
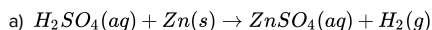
The acidity of the stomach causes a lower pH value of acid in stomach which can be neutralized by consuming an alkaline medium or antacid with higher pH value like sodium bicarbonate used in food to control indigestion of acidity.

#### #464700

Write word equations and then balanced equations for the reaction taking place when:

- (a) dilute sulphuric acid reacts with zinc granules.
- (b) dilute hydrochloric acid reacts with magnesium ribbon.
- (c) dilute sulphuric acid reacts with aluminium powder.
- (d) dilute hydrochloric acid reacts with iron filings.

#### Solution



#### #464702

Compounds such as alcohols and glucose also contain hydrogen but are not categorised as acids. Describe an Activity to prove it.

#### Solution

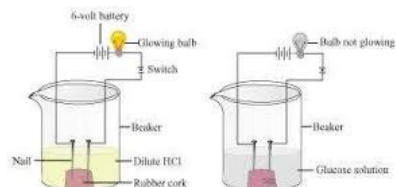
The nails are fitted in a cork and are kept in a 100 ml beaker. Then these are connected to the two terminals of a 6 volt battery along with a bulb and a switch. Now some dilute  $HCl$  is poured in the beaker and current is allowed to pass through the circuit. The same experiment is carried out using glucose and alcohol solutions separately in place of  $HCl$ .

#### Observations

The bulb glows in  $HCl$  solution only. The reason is that  $HCl$  solution dissociates into  $H^+$  and  $Cl^-$  ions which help to conduct electricity while glucose and alcohol solutions do not dissociate into ions and so, do not conduct electricity. That is why we find the bulb glowing in  $HCl$  solution only.

#### Conclusions

The above activity proves that all acids contain hydrogen but not all compounds containing hydrogen are acids. Due to this reason compounds such as alcohols and glucose although contain hydrogen, but they are not categorized as acids.



#### #464704

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Why does distilled water not conduct electricity, whereas rain water does?

**Solution**

Distilled water is pure form of water which do not contain any solute in it. Therefore it cannot conduct electricity because it does not contain ions while rain water contains dissolved salts which dissociates in ions and conducts electricity.

Distilled water is a non-ionic solution which does not produce any ions that can dissociate hydronium ion while rain water contains acids and many other substances as impurities, which produce hydronium ion. These ions are responsible for conducting electricity in the solution. That's why rain water conduct electricity and distilled water does not.

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**#464705**

Why do acids not show acidic behaviour in the absence of water?

**Solution**

The acidic behaviour of acid is due to the presence of hydrogen ions. The acids will not show its acidic behaviour in the absence of water, this is because acids do not dissociate to produce  $H^+$  (aq) ions in the absence of water.

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**#464706**

Five solutions *A*, *B*, *C*, *D* and *E* when tested with universal indicator showed pH as 4, 1, 11, 7 and 9, respectively. Which solution is

- (a) neutral?
- (b) strongly alkaline?
- (c) strongly acidic?
- (d) weakly acidic?
- (e) weakly alkaline?

Arrange the pH in increasing order of hydrogen-ion concentration.

**Solution**

- a) *D* is neutral, as its *pH* value is equal to 7
- b) *C* is strongly alkaline, as its *pH* value is 11.
- c) *B* is strongly acidic, as its *pH* value is equal to 1
- d) *A* is weakly acidic, as its *pH* value is equal to 4 and more than solution *B*.
- e) *E* is weakly alkaline, as its *pH* value is equal to 9 and less than *C*. *pH* value of the given solution in increasing order of hydrogen-ion concentration:  $11 < 9 < 7 < 4 < 1$

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**#464708**

Equal lengths of magnesium ribbons are taken in test tubes *A* and *B*. Hydrochloric acid (*HCl*) is added to test tube *A*, while acetic acid (*CH<sub>3</sub>COOH*) is added to test tube *B*. Amount and concentration taken for both the acids are same. In which test tube will the fizzing occur more vigorously and why?

**Solution**

Magnesium metal when reacts with an acid gives off hydrogen gas in the reaction. In test tube *A* fizzing occurs more vigorously because *HCl* is stronger acid than acetic acid. Hence, *HCl* liberates hydrogen gas more vigorously, which causes fizzing more vigorously.

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**#464709**

Fresh milk has a pH of 6. How do you think the pH will change as it turns into curd? Explain your answer.

**Solution**

Curd has lactic acid which is acidic in nature which cause *pH* of milk to decrease as it turns into curd.

Fresh milk has higher pH which makes it less acidic and the value of pH of milk decreases, when it turns into curd as the bacteria present in air causes the milk to form curd.

Curd is acidic in nature because an acidic substance has less value of pH so it is more acidic.

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**#464711**

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A milkman adds a very small amount of baking soda to fresh milk.

(a) Why does he shift the  $pH$  of the fresh milk from 6 to slightly alkaline?

(b) Why does this milk take a long time to set as curd?

#### Solution

a) When the milk is made more alkaline by adding a base to it, it is basically done to prevent it for more time to turning to curd. That's why milkman shifts the  $pH$  of fresh milk to slightly alkaline by adding a very small amount of baking soda to it as baking soda is alkaline in nature and it neutralizes the acidic nature of milk.

b) As this milk is slightly more alkaline than other, therefore, acid produced to set into curd will be neutralized by baking soda added by milkman. Hence, this milk takes a longer time to set as curd.

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#### #464712

Plaster of Paris should be stored in a moisture-proof container. Explain why?

#### Solution

Plaster of Paris, quick-setting gypsum plaster consisting of a fine white powder (calcium sulphate hemihydrate), which hardens when moistened and allowed to dry because plaster of Paris turns into Gypsum after reacting with moisture present in air. That's why plaster of Paris should be stored in a moisture-proof container.

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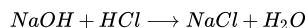
#### #464713

What is a neutralisation reaction? Give two examples.

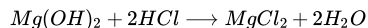
#### Solution

A neutralization reaction is when an acid and a base react to form water and a salt and involves the combination of hydrogen ions and hydroxyl ions to generate water. The neutralization of a strong acid and strong base has a pH equal to 7.

Example – 1: When Sodium hydroxide is added to hydrochloric acid. Sodium chloride and water is formed.



Example - 2: Milk of magnesia, which is a base, is given as antacid in the case of indigestion, to neutralize the more acid produced in stomach.



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#### #464715

Give two important uses of washing soda and baking soda.

#### Solution

(a) Two important uses of washing soda:

(i) It is used in the manufacture of soap and glass.

(ii) It is used to remove the permanent hardness of water.

(b) Two important uses of baking soda:

(i) It is used for making baking powder.

(ii) It is used in soda-fire extinguishers.