

O Level Pure Chemistry MCQs

Acids and Bases Test 1.0

Q1

The table below gives information about three indicators.

indicator	colour in strongly acidic solution	pH at which colour changes	colour in strongly alkaline solution
methyl orange	red	4.5	Yellow
bromothymol blue	yellow	6.5	Blue
phenolphthalein	colourless	9.0	Pink

If equal amounts of indicators were added to separate samples of pure water, what would be the colours of the resulting solutions?

	methyl orange	bromothymol blue	phenolphthalein
A	yellow	blue	pink
B	red	yellow	colourless
C	yellow	yellow	colourless
D	yellow	blue	colourless

Q2

Which of the following mixtures produces ammonia when heated?

- A $\text{CH}_3\text{COONH}_4 + \text{Ba}(\text{OH})_2$
- B $\text{NH}_4\text{NO}_3 + \text{NaCl}$
- C $\text{NH}_4\text{NO}_3 + \text{HCl}$
- D $\text{NH}_4\text{NO}_3 + \text{Al}$

Q3

Substance X is mixed with ammonium chloride and heated. The equation below represents part of the reaction.



Substance X could be:

- A sodium metal.
- B zinc carbonate.
- C calcium hydroxide.
- D sulfuric acid.

Q4

The best substance that can be used to differentiate hydrochloric acid and nitric acid solutions is

- A zinc metal.
- B barium nitrate solution.
- C silver nitrate solution.
- D sodium carbonate solution.

Q5

Methylamine is a gas with the formula CH_3NH_2 . It undergoes the following reaction in water:



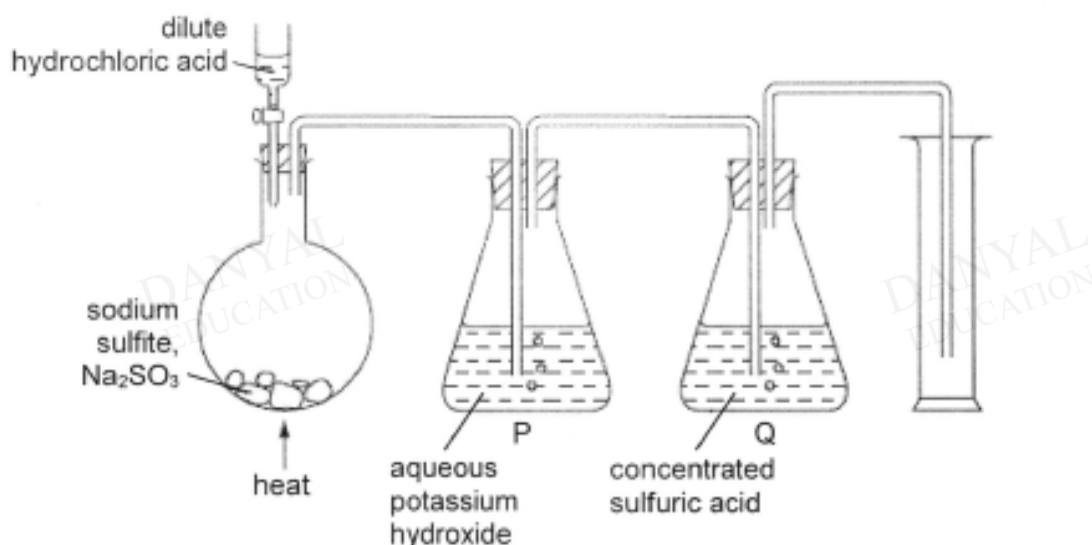
Which of the following is/are true about aqueous methylamine?

- 1 It turns litmus paper blue.
- 2 It consists of CH_3NH_3^+ and OH^- ions only.
- 3 It forms a blue precipitate with copper(II) sulfate.

- A 1 only
- B 1 and 2 only
- C 1 and 3 only
- D 2 and 3 only

Q6

The apparatus shows an unsuccessful attempt to prepare and collect dry sulfur dioxide.



Which change would make the experiment successful?

- A removing flask P containing aqueous potassium hydroxide
- B removing flask Q containing concentrated sulfuric acid
- C using upward delivery instead of downward delivery of gas
- D using calcium oxide instead of concentrated sulfuric acid

Q7

A piece of magnesium does not react when put into a solution of hydrogen chloride in chloroform. Which of the following changes will cause a reaction to occur?

- A adding a catalyst
- B adding water and stirring
- C increasing the temperature
- D increasing the concentration of hydrogen chloride in chloroform

Q8

To produce ammonia gas, which of the following methods below cannot be used?

- A heating concentrated aqueous ammonia
- B heating ammonium chloride with calcium hydroxide
- C heating ammonium sulfate with sodium hydroxide
- D heating ammonium sulfate with dilute hydrochloric acid

Q9

Which statement about an alkaline solution is correct?

- A It contains equal number of hydrogen and hydroxide ions.
- B It contains more hydrogen ions than hydroxide ions.
- C It contains more hydroxide ions than hydrogen ions.
- D It contains only hydroxide ions.

Q10

Nitrogenous fertiliser such as ammonium nitrate is used to increase crop yield.

Which substance can be added to increase the pH of acidic soil containing ammonium nitrate without causing a loss of nitrogen?

- A calcium carbonate
- B calcium hydroxide
- C magnesium hydroxide
- D potassium hydroxide

Answers

Acids and Bases Test 1.0

Q1 D

Q2 A

Q3 C

Q4 C

Q5 C

Q6 A

Q7 B

Q8 D

Q9 C

Q10 A

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