

ACIDS, BASES AND INDICATORS

1. 1990 P1A QUESTION 21

Explain why concentrated Sulphuric acid is a weaker acid than dilute Sulphuric acid

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2. 1992 P1A QUESTION 6

Solution may be classified as strongly basic, weakly basic, neutral. Weakly acid, strongly acidic. The information below gives solutions and their PH values. Study it and answer the questions that follow.

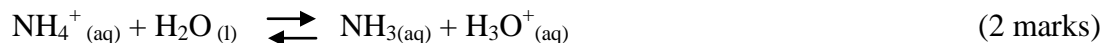
Solution	PH value
B	0.5
C	6
D	14.5

Classify the solutions in the table above using the stated classifications. (3 Marks)

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3. 1994 P1A QUESTION 9

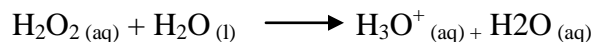
In the equation below, identify the reactant that acts as an acid and explain how you arrive at our choice.



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4. 1997 P1A QUESTION 17

In the equation below, identify the reagent that acts as a base. Give a reason (2 marks)



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5. **1998 PP1A QUESTION 12**

Distinguish between a strong and weak acid. Give an example of each (2 Marks)

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6. **1998 PP1A QUESTION 24**

A beekeeper found that when stung by a bee, application of a little solution of sodium hydrogen carbonate helped to relieve the irritation from the affected area. Explain (2 marks)

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7. **1999 P1A QUESTION 3**

State and explain the observations that would be made when a few drops of concentrated Sulphuric acid are added to a small sample of hydrated copper (II) sulphate. (2 Marks)

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8. **1999 P1B Q1a**

The table below gives the volume of the gas provided when different volumes of 2M hydrochloric were reacted with 0.6g of magnesium powder at room temperature

Volume of 2M hydrochloric acid (cm ³)	Volume of gas (cm ³)
0	0
10	240
20	480
30	600
40	600
50	600

(a) Write an equation for the reaction between magnesium and hydrochloric acid

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9. 2000 Q 27 PP1

State and explain the function of tartaric acid in baking powder

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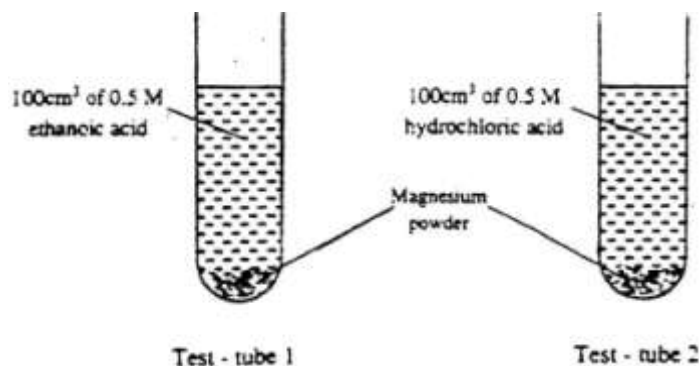
10. 2001 Q 26 PP1

The Ph of a sample of soil was found to be 5.0. An agricultural office recommended the addition of calcium oxide in the soil. State two functions of the calcium oxide in the soil.

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11. 2003 Q 7 PP1

In an experiment equal amounts of magnesium powder were placed into test – tube 1 and 2 as shown below



Explain why the amount of hydrogen gas liberated in test – tube 2 is greater than in test- tube 1 before the reaction is complete.

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12. 2003 Q 18 PP1

The table below shows the tests carried out on a sample of water and the results obtained.

	Tests	Results
I	Addition of sodium hydroxide solution	White precipitate which dissolves in excess
II	Addition of excess aqueous ammonia	Colourless solution obtained
III	Addition of dilute hydrochloric acid and barium chloride	White precipitate

a) Identify the anion present in the water

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b) Write an ionic equation for the reaction in III

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c) Write the formula of the complex ion formed in II

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13. 2003 Q 1d PP2

Write two ionic equations to show that aluminium hydroxide is amphoteric (2 marks)

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14. 2004 Q 8

When wood is burnt, a grey powder called ash remains. The ash is stirred with water and filtered, a colourless solution is obtained.

a) What is the main component of the colourless solution? (1 mark)

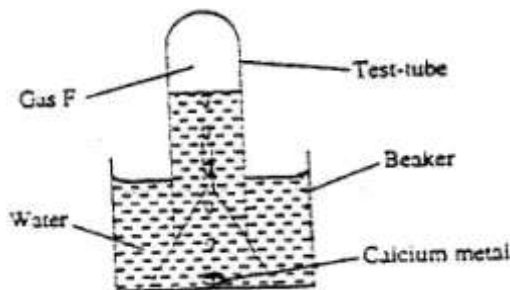
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b) Explain your answer in (a) above (2 marks)

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15. 2004 Q 2a PP2

- a) The set-up below was used to collect gas F, produced by the reaction between water and calcium metal.



- (i) Name gas f

- (ii) At the end of the experiment, the solution in the beaker was found to be a weak base. Explain why the solution is a weak base. (2 marks)

- (iii) Give one laboratory use of the solution formed in a beaker. (1 mark)

16. 2006 Q 19

- b) Give one use of magnesium hydroxide. (1 mark)

17. 2006 Q 24

- a) Complete the table below to show the colour of the given indicator in

Indicator	Colour in	
	Acid solution	Basic solution
Methyl orange	Yellow
Phenolphthalein	Colourless

- b) How does the pH value of 0.1 M potassium hydroxide solution compare with that of 0.1M aqueous ammonia? Explain. (2 marks)

18. 2007 Q 5

When a student was stung by a nettle plant, a teacher applied an aqueous solution of ammonia to the affected area of the skin and the student was relieved of pain. Explain. (2 marks)

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19. 2007 Q 16

The table below shows the tests that were carried out on solid N and the observations made.

I	Test	Observations
II	Dilute hydrochloric acid was added to solid N.	A colourless solution was formed.
III	To the colourless solution obtained in test II, excess sodium hydroxide solution was added.	A white precipitate was formed which dissolved to form a colourless solution.

Write the formula of the anion in;

a) Solid N (1 mark)

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b) The colourless solution formed in test III (1 mark)

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20. 2008 Q 3

Complete the following table by filling in the missing test and observations (3 marks)

No.	Gas	Test	Observation
I	Chlorine	Put a moist red litmus paper into the gas	
II	Sulphur (IV) oxide		Paper turns green
III	Butane	Add a drop of bromine water	

21. 2008 Q 10

When magnesium was burnt in air, a solid mixture was formed. On addition of water to the mixture a gas which turned moist red litmus paper blue was evolved. Explain these observations.

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