

## C2 Acids, Bases and Salts Quiz Answers

1. Suggest a pH value for hydrochloric acid.

1-3

2. What ions make ethanoic acid acidic?

H<sup>+</sup> ions

3. What ions make ammonia solution alkaline?

OH<sup>-</sup> ions

4. Which acid is needed to make ammonium nitrate?

Nitric acid

5. What is the formula of ammonium sulphate?

(NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>

6. Suggest a pH value for ammonia solution.

10-13

7. What type of reaction occurs between sulphuric acid and ammonia?

Neutralisation

8. Why do farmers use ammonium salts on their fields?

To help plants grow (as fertilisers)

9. What is a precipitate?

A solid formed when two aqueous solutions react.

10. What do plants use the nitrogen in fertilisers for?

To build amino acids and proteins.

11. How can solid lead iodide be separated from solution?

Filtration

12. How can copper sulphate crystals be separated from copper sulfate solution?

Evaporation

13. Why is KOH a strong alkali?

Because in solution it fully dissociates into  $K^+$  and  $OH^-$

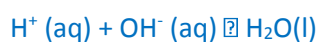
14. Why is ethanoic acid a weak acid?

Because it only partially dissociates in solution.

15. What is the Brønsted- Lowry definition of an acid and base?

Acids are proton donors and bases are proton acceptors.

16. Write an ionic neutralisation equation including state symbols.



17. What are the four state symbols and what do they mean?

(s) solid, (l) liquid, (g) gas, (aq) aqueous

18. What is produced when an acid reacts with a metal oxide?

Salt and water

19. What is produced when an acid reacts with a metal hydroxide?

Salt and water

20. What is produced when an acid reacts with a metal?

Salt and hydrogen

21. What is produced when an acid reacts with a metal carbonate or metal hydrogen carbonate?

Salt, water and carbon dioxide

22. What is produced when an acid reacts with ammonia?

An ammonium salt

23. What is the difference between ammonia and ammonium?

Ammonia is a base, ammonium is the ion formed when ammonia acts as a base.  $NH_3$  is ammonia,  $NH_4^+$  is ammonium.

24. When copper sulphate is made by reacting copper oxide with sulphuric acid, the acid is heated. Why?

To increase the rate of reaction

25. How would you remove unreacted copper oxide from solution?

Filtration

26. Name the salt formed from hydrochloric acid.

Metal chloride

27. Name the salt formed from sulphuric acid.

Metal sulphate

28. Name the salt formed from nitric acid.

Metal nitrate

29. Why is dry hydrogen chloride gas not acidic?

H is bonded to Cl in dry HCl and not dissociated

30. Why is NaCl neutral?

It does not contain any hydrogen or hydroxide ions

31. How do you make a soluble salt from an acid and an alkali?

Measure out acid using a pipette and transfer into conical flask. Add a few drops of indicator. Fill a burette with alkali. Add alkali to acid until indicator changes colour. Note down the volume of alkali used. Repeat without indicator, adding the same volume of alkali. Evaporate water slowly. Wash and dry the salt.

32. How do you make a soluble salt from an acid and a solid base?

Warm acid. Add excess solid base until no more dissolves. Filter off excess base. Evaporate water slowly, wash and dry the salt

33. Which salts are insoluble?

Barium, silver and lead sulphate; silver and lead halides, transition metal hydroxides

34. Which salts are soluble?

Nitrates, chlorides (apart from lead and silver chlorides), group 1 salts, ammonium salts

35. How does universal indicator show the difference in acid strength when added to ethanoic acid and hydrochloric acid of same concentration?

Universal indicator goes red in HCl and orange in ethanoic acid.