Review I: Acids and Bases

1. What is an acid?
2. What is a base?
3. What is a salt?
4. What is an indicator?
5. Give the name and formula of two acids.
6. Give the name and formula of two bases.
7. Give the name of two indicators.
8. When acids react with bases, what do they produce?
9. When bases react with acids, what do they produce?
10. What is neutralisation?
11. When acids react with a metal, what do they produce?
12. When acids react with a metal carbonate, what do they produce?
13. How do you recognize an acid?
14. How do you recognize a base?
15. What effects red litmus paper?
16. What effects blue litmus paper?
17. What type of solution is when red litmus paper stays red, and when blue litmus paper stays blue?
18. What effect does an acid have on the electrical conductivity apparatus?
19. What effect does a base have on the electrical conductivity apparatus?
20. What effect does an acid have on pH paper?
21. What effect does a base have on a base?
22. Name two household products that are acids.
23. Name two household products that are bases.
24. What solution is needed to clean fat, oils or grease.
25. A solution causes phenolphthalein to turn magenta, what type of solution is it?
26. An indicator is blue in bases, yellow in acids and green at a pH of 7, what is this indicator likely to be?
27. What is the effect of acid rain on the limestone and marble buildings?

REVIEW II: ACIDS AND BASES

1. The pH scale: (a) begins on the left with the number _____
   (b) ends on the right with the number _____
   (c) number _____ is the most basic
   (d) number _____ is the most acidic.
   (e) number _____ indicates that the solution is neutral.
   (f) pH 4 is _____ more acidic than a pH 6
   (g) pH 11 is _____ more basic than a pH 8
   (h) a solution with a pH of 2 is more / less concentrated than a solution of pH 4

2. When equal volumes of equal concentrations of hydrochloric acid, $HCl_{(aq)}$, and sodium hydroxide, $NaOH_{(aq)}$, they neutralise each other.
   (a) Explain what is meant by neutralization.

   (b) What products are created?

   (c) What is the pH of the resulting solution?

   (d) What happens to the properties of the acid and base?

   (e) Write a word equation for this reaction.

   (f) Write a skeleton equation with states.

   (g) Write a balanced chemical equation for this reaction.

   (h) Briefly explain how you would extract the salt from this solution.

3. Both bees and wasps will sting you if they feel threatened, but there is a big difference between the poisons they inject into you. A wasp's poison is a compound that is highly basic while a bee's poison is highly acidic. Suggest what possible substance you would use to neutralise the effect of the bee and wasp sting, justify your response.

4. Many oven and drain cleaners contain sodium hydroxide, if phenolphthalein was added to a solution of oven or drain cleaner, what colour change would you expect to see.

5. Altering soil pH can affect plant growth and even colour of the flowers. Hydrangeas produce blue flowers in acidic soils and pink flowers in basic soils. If you, at present have pink hydrangeas growing in your garden, however you find the blue more appealing to your taste, what steps, regarding the soil in your garden, would you take to correct this situation.

6. Like the pH scale, scientists use a logarithmic unit to measure the strength of an earthquake — the Richter scale. An earthquake measuring 8 on the Richter scale is 10 times as strong as on of 7. The intensity is sound, like the pH scale, is also measured by the same logarithmic unit of bels. A sound of 90 dB is 10 times the intensity of a sound of 80 dB. Solution A has a pH of 11.8, whilst Solution B has a pH of 9.8, compare the pH of these two solutions on the logarithmic scale.

7. The pH level of human blood must be maintained within a very narrow range. At room temperature, normal blood pH is 7.35. Emphysema, diabetes, or a drug overdose can cause the pH level to drop. This is known as acidosis. Excessive vomiting or kidney disease can cause the pH level to increase. This is known as alkalosis. Explain how you would correct the pH of a person suffering from diabetes or one suffering from kidney disease.