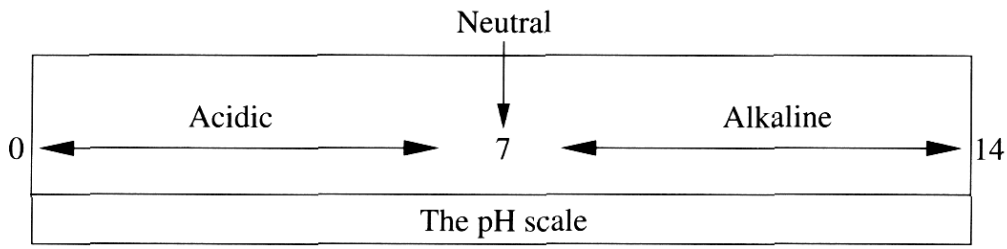
Marks

Question 26 (5 marks)

The following is an extract from a gardening website. **5**



> Hydrangeas are amazingly versatile in that you can alter the flower colour by changing the pH of the soil. In acid soils, hydrangeas produce blue flowers. In alkaline soils, hydrangeas produce mauve, pink and red flowers.

Describe a first-hand investigation that could be used to verify the effects of pH on the colour of hydrangea flowers.

40 Hydrangea seeds would be taken. 30 would be planted in an acidic environment, 30 would be planted in an alkaline environment, and 30 at a neutral soil type. These 3 boxes of soil would be placed together in an area where they would receive equal exposure to wind/water/sun etc. The soil would be identical except for the pH, which could be tested with a pH monitor. The colours of the flowers would be recorded while they were growing and when they are fully developed. This experiment's validity could be increased by repeating it with different strains of hydrangea, and collaborating with other scientists.