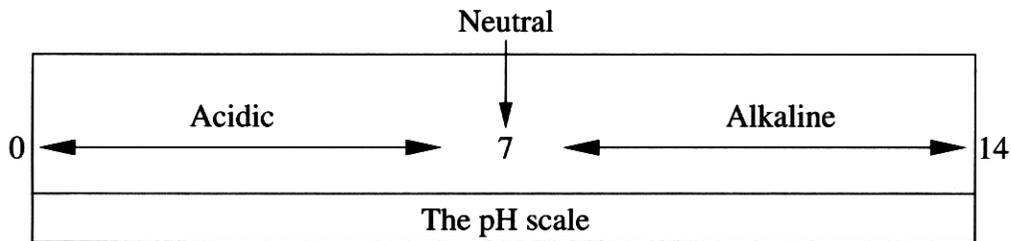


Marks

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.

A hydrangea plant is grown to full size.
(cuttings) are taken and propagated to produce
a number of ^{genetically} identical hydrangea plants. say 10. ^{and allow to grow the iron content}
Soil or the same potting mix as is
taken and separated into 10 equal amounts, 1 kg each.
The soils are made ^{different} acidic or basic - a range
of acidity from pH 1, pH 2, pH 7, pH 11, pH 14
by adding acid such as HCl or base such as NaOH.
This is tested using a soil acidity testing kit.
2 amounts of potting mix are made the same pH.
The hydrangea plants are planted in each potting
mix. They are kept in the same conditions for
a week. The colour of the petals of the flower
is noted. Hydrangea plants in the acidic soils
should be blue, the one in basic neutral, pink,
red.