Year 12 Chemistry
Tutorial 9.3.B – Acid/Base Identification — Answers

1. (a) 11
   (b) 6 - 7

2. See table

Aqueous Solution	Colour in Indicator					
	Thymol blue	Litmus	Alizarin yellow	Universal indicator	pH of solution	Acid or base?
KOH					12-13	Base
NaCl					7	Neutral
HCl					1	Acid
CH_3COOH					3	Acid
$Ca(OH)_2$					11	Base

   (a) HCl
   (b) Ca(OH)2
   (c) NaCl

3. Indicator Q because it is the only indicator that shows a different colour at acid, basic and neutral pH values.

4. A sample of soil should be mixed with soil and allowed to stand for 30 minutes after which it should be filtered. The filtrate can be tested with bromocresol green (BG) and then either bromothymol blue (BB) or phenol red (PR). The required pH is > 5.5 but not too high. BG (blue) and BB (yellow) will indicate a pH between 5.4 and 6.0. BG (blue) and PR (red) indicates a pH between 5.4 and 6.8.

5. Test a sample of water with a few drops of methyl orange. The methyl orange goes red.
   Test a water sample with a few drops of bromothymol blue. The bromothymol blue goes yellow.
   Make sure that the conditions of both tests are the same, eg. temperature, etc.
   The conclusion is that 4.4 < pH water < 6.0.