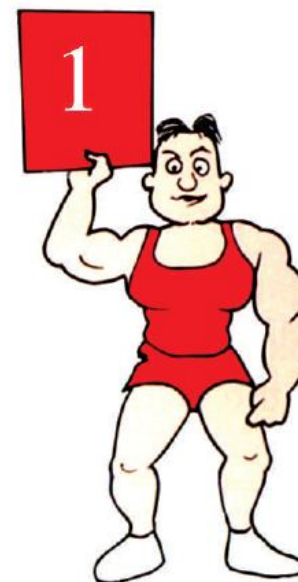


## CASE STUDY QUESTION 11

Read the following and answer any four questions from (i) to (v)

Whenever a solution has a pH of less than 7, it will be an *acidic* solution. For example, a solution having a pH of 4 will be acidic in nature (or it will be an acid). Please note that **more acidic a solution is, the lower will be its pH**. For example, a solution of pH 1 is much more acidic than another solution of pH 4. In other words, a solution of pH 1 will be a much more stronger acid than another acid having pH 4 (see the figure). The solutions having pH of 0, 1, 2 and 3 are usually considered to be strong acids. And the solutions having pH of 4, 5 and 6 are considered to be weak acid solutions. It is clear that the acidity of a substance is related to its pH. Strongly acidic substances have a very low pH. In fact, **lower the pH, the stronger the acid**.



(a) Hydrochloric acid :  
Strong acid



(b) Acetic acid :  
Weak acid

(i) A solution turns red litmus blue. Its pH is likely to be :

- (a) 1                      (b) 4                      (c) 5                      (d) 10

**Ans:** (d) 10

(ii) The pH values of six solutions A to F are given below :

A = 0, B = 11, C = 6, D = 3, E = 13, F = 8

Which of the above solutions are acids

- (a) A, C, D      (b) A, B, C      (c) A, C, D, F                      (d) A, C, D, E

**Ans:** (a) A, C, D

(iii) Fresh milk has a pH of 6. When milk changes into curd, the pH value will :

- (a) become 7                                      (b) become less than 6  
(c) become more than 7                      (d) remain unchanged

**Ans:** (b) become less than 6

(iv) The pH values of three acids A, B and C having equal molar concentrations are 5.0, 2.8 and 3.5 respectively.

Arrange these acids in order of the increasing acid strengths.

- (a) A, C, B                      (b) B, C, A                      (c) A, B, C                      (d) C, B, A

"Lesser the pH, stronger the acid."

Considering the above statement, the order of increasing acidic strength is

$A < C < B$

**Ans:** (a) A, C, B

(v) A beaker of concentrated hydrochloric acid has a pH of 1. What colour will full range universal indicator turn if it is added to this beaker ?

- (a) red                      (b) blue                      (c) pink                      (d) no change in colour

pH = 1 will turn the scale red. It is a strong acid.

**Ans:** (a) red