

1. A student dissolves a substance in water, tests the resulting solution, and observes that red litmus paper turns blue. Based on this result, the solution is

- A) organic                      B) inorganic  
C) basic                          D) acidic

2. Which indicator is blue in a solution that has a pH of 5.6?

- A) bromcresol green    B) bromthymol blue  
C) methyl orange        D) thymol blue

3. Based on the results of testing colorless solutions with indicators, which solution is most acidic?

- A) a solution in which bromthymol blue is blue  
B) a solution in which bromcresol green is blue  
C) a solution in which phenolphthalein is pink  
D) a solution in which methyl orange is red

4. Which indicator would best distinguish between a solution with a pH of 3.5 and a solution with a pH of 5.5

- A) bromthymol blue    B) bromcresol green  
C) litmus                      D) thymol blue

5. The table below shows the color of the indicators methyl orange and litmus in two samples of the same solution.

**Results of Acid-Base Indicator Tests**

Indicator	Color Results from the Indicator Test
methyl orange	yellow
litmus	red

Which pH value is consistent with the indicator results?

- A) 1    B) 5    C) 3    D) 10

6. Which 0.1 M solution will turn phenolphthalein pink?

- A) HBr(aq)                      B) CO<sub>2</sub>(aq)  
C) LiOH(aq)                      D) CH<sub>3</sub>OH(aq)

7. Which aqueous solution would turn blue litmus red?

- A) HCl(aq)                      B) NaCl(aq)  
C) K<sub>2</sub>CO<sub>3</sub>(aq)                      D) NaOH(aq)

8. Which indicator, when added to a solution, changes color from yellow to blue as the pH of the solution is changed from 5.5 to 8.0?

- A) bromcresol green    B) bromthymol blue  
C) litmus                      D) methyl orange

9. According to Reference Table M, what is the color of the indicator methyl orange in a solution that has a pH of 2?

- A) blue                          B) yellow  
C) orange                      D) red

10. In which 0.01 M solution is phenolphthalein pink?

- A) CH<sub>3</sub>OH(aq)                      B) Ca(OH)<sub>2</sub>(aq)  
C) CH<sub>3</sub>COOH(aq)                      D) HNO<sub>3</sub>(aq)

11. Phenolphthalein has a pink color in a solution which has a pH of

- A) 1    B) 5    C) 7    D) 11

12. Which indicator is yellow in a solution with a pH of 9.8?

- A) methyl orange    B) bromthymol blue  
C) bromcresol green    D) thymol blue

13. In which solution will thymol blue indicator appear blue?

- A) 0.1 M CH<sub>3</sub>COOH  
B) 0.1 M KOH  
C) 0.1 M HCl  
D) 0.1 M H<sub>2</sub>SO<sub>4</sub>

14. Which solution when mixed with a drop of bromthymol blue will cause the indicator to change from blue to yellow?

- A) 0.1 M HCl                      B) 0.1 M NH<sub>3</sub>  
C) 0.1 M CH<sub>3</sub>OH                      D) 0.1 M NaOH

15. A student records the following observations about an unknown solution:

- conducts electricity
- turns blue litmus red

The student should conclude that the unknown solution is most likely

- A) an acid                          B) a base  
C) an ester                          D) an alcohol