8. The indicator HIn is used in a titration between hydrochloric acid and magnesium hydroxide solutions. The following equation represents how the indicator works.

$$\underset{\text{green}}{HIn(aq)} \rightleftharpoons H^+(aq) + \underset{\text{purple}}{In^-(aq)}$$

The indicator is added to 20.0 mL of magnesium hydroxide solution in a conical flask and the hydrochloric acid is added via a burette until the end point is observed. The acidic and basic solutions are of similar concentrations and the flask is swirled continuously as the acid is added.

Which one of the following statements describes the expected observations for the colour of the solution in the conical flask?

(a) The solution starts green and turns purple after the addition of approximately 10 mL.
(b) The solution starts green and turns purple after the addition of approximately 40 mL.
(c) The solution starts purple and turns green after the addition of approximately 10 mL.
(d) The solution starts purple and turns green after the addition of approximately 40 mL.