

**Marks**  
**8**

- Solution A consists of a 0.15 M aqueous solution of nitrous acid ( $\text{HNO}_2$ ) at 25 °C. Calculate the pH of Solution A. The  $\text{p}K_a$  of  $\text{HNO}_2$  is 3.15.

pH =

At 25 °C, 1.00 L of Solution B consists of 13.8 g of sodium nitrite ( $\text{NaNO}_2$ ) dissolved in water. Calculate the pH of Solution B.

pH =

Solution B (1.00 L) is poured into Solution A (1.00 L) and allowed to equilibrate at 25 °C. Calculate the pH of the final solution.

pH =

If you wanted to adjust the pH of the mixture of Solution A and Solution B to be exactly equal to 3.00, which component in the mixture would you need to increase in concentration?