

**Marks**  
**4**

- Buffer systems are frequently used in chemistry. What is a buffer system and how does it function? Use equations where appropriate.

What ratio of concentrations of acetic acid to sodium acetate would you require to prepare a buffer with  $\text{pH} = 4.00$ ? The  $K_a$  of acetic acid is  $1.8 \times 10^{-5}$  M.

Answer: