



5.  $\text{CO}_2$  was passed through  $25.00 \text{ cm}^3$  of a  $0.10 \text{ mol dm}^{-3}$  NaOH solution until 50% of NaOH was converted to  $\text{Na}_2\text{CO}_3$ . This solution was titrated with  $0.10 \text{ mol dm}^{-3}$  HCl solution using phenolphthalein as the indicator. The endpoint of the titration would be,
- (1)  $1.75 \text{ cm}^3$       (2)  $20.00 \text{ cm}^3$       (3)  $37.50 \text{ cm}^3$       (4)  $25.00 \text{ cm}^3$       (5)  $12.50 \text{ cm}^3$

6. A student intends to titrate  $25.00 \text{ cm}^3$  of solution Y with solution X. Which of the following washing procedures is most suitable in preparation for this titration?

	Washing burette with	Washing titration flask with
(1)	distilled water	solution Y
(2)	solution X	solution Y
(3)	solution X	distilled water
(4)	solution Y	distilled water followed by solution X
(5)	distilled water followed by solution X	distilled water

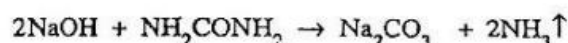
7. S is a solution of  $\text{Na}_2\text{CO}_3$  and  $\text{NaHCO}_3$  in water. By which method/methods given below can the concentrations of  $\text{Na}_2\text{CO}_3$  and  $\text{NaHCO}_3$  in S be determined by titrating  $25.0 \text{ cm}^3$  of S with standard HCl?

- (a) Using phenolphthalein as indicator  
 (b) First using methyl orange as indicator and further titrating the same solution using phenolphthalein as indicator  
 (c) First using phenolphthalein as indicator and further titrating the same solution using methyl orange as indicator  
 (d) Titrate using phenolphthalein as indicator and thereafter titrate a separate  $25.0 \text{ cm}^3$  of S using methyl orange as indicator

8. Which of the following is a correct step/are correct steps, in the measurement of a given volume of solution using a pipette?

- (a) When the level of solution in the pipette is adjusted to coincide with the graduated mark, the tip of the pipette must be held immersed in the solution.  
 (b) In transferring the solution to the titration flask the pipette tip should be held against the inner surface of the titration flask.  
 (c) In transferring the solution to the titration flask the pipette should be held vertical and the flask held inclined.  
 (d) The little bit of solution remaining in the tip of the pipette, after the transfer, should be blown into the flask.

9. NaOH reacts with urea as follows.



0.6 g of urea (relative molecular mass of urea = 60.0) reacted completely with  $25.0 \text{ cm}^3$  of  $1.0 \text{ mol dm}^{-3}$  NaOH. All  $\text{NH}_3$  was expelled by boiling. The volume of  $0.5 \text{ mol dm}^{-3}$  HCl necessary to neutralise the resulting solution is

- (1)  $10.0 \text{ cm}^3$ .      (2)  $12.5 \text{ cm}^3$ .      (3)  $20.0 \text{ cm}^3$ .      (4)  $25.0 \text{ cm}^3$ .      (5)  $50.0 \text{ cm}^3$ .

10. Solution S is prepared by mixing equal volumes of  $0.2 \text{ mol dm}^{-3}$  aqueous  $\text{H}_2\text{SO}_4$  and  $0.2 \text{ mol dm}^{-3}$  aqueous  $\text{CH}_3\text{COOH}$ .  $25.0 \text{ cm}^3$  portions of S are titrated separately with  $0.1 \text{ mol dm}^{-3}$  NaOH solution (in burette) using (A) phenolphthalein and (B) methyl orange as indicators. The end-points of the two titrations are respectively

- (1) (A)  $75.0 \text{ cm}^3$  (B)  $25.0 \text{ cm}^3$ .  
 (2) (A)  $25.0 \text{ cm}^3$  (B)  $25.0 \text{ cm}^3$ .  
 (3) (A)  $75.0 \text{ cm}^3$  (B)  $50.0 \text{ cm}^3$ .  
 (4) (A)  $50.0 \text{ cm}^3$  (B)  $75.0 \text{ cm}^3$ .  
 (5) (A)  $25.0 \text{ cm}^3$  (B)  $50.0 \text{ cm}^3$ .

