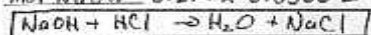


KEY

- b) What volume of 0.1M HCl would be needed for the neutralization in (a)? (2 marks)

$$\text{mol NaOH} = 0.2M \times 0.0500L = 0.010\text{mol NaOH}$$



$$\text{mol HCl} = 0.01\text{mol NaOH} \times \frac{1\text{mol HCl}}{1\text{mol NaOH}} = 0.01\text{mol HCl}$$

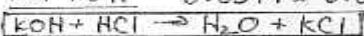
$$V(\text{HCl}) = \frac{\text{mol}}{M} = \frac{0.01\text{mol}}{0.1M} = 0.1L = 100\text{mL}$$

Answer 100 mL

- c) Which beaker would require the least volume of 0.1M HCl for complete neutralization? # 3 (KOH) (1 mark)

- d) What volume of 0.1M HCl would be needed for the neutralization in (c)? (2 marks)

$$\text{mol KOH} = 0.05M \times 0.0200L = 0.001\text{mol KOH}$$



$$\text{mol HCl} = 0.001\text{mol KOH} \times \frac{1\text{mol HCl}}{1\text{mol KOH}} = 0.001\text{mol HCl}$$

$$V(\text{HCl}) = \frac{\text{mol}}{M} = \frac{0.001\text{mol}}{0.1M} = 0.010L = 10\text{mL}$$

Answer 10 mL

25. Calculate the mass of NaOH which is required to neutralize 15.00 mL of 0.350 M H_2SO_4 ? (3 marks)

$$\text{mol H}_2\text{SO}_4 = 0.350M \times 0.01500L = 0.00525\text{mol H}_2\text{SO}_4$$



mass NaOH

$$0.00525\text{mol H}_2\text{SO}_4 \times \frac{2\text{mol NaOH}}{1\text{mol H}_2\text{SO}_4} \times \frac{40.0\text{g NaOH}}{1\text{mol NaOH}} = 0.420\text{g}$$

(0.0105 mol)

Answer 0.420 grams

26. When a 0.1 M strong base titrates a 0.1 M weak monoprotic acid, it takes

(less/more/the same) the same volume of the base as it would to titrate a 0.1 M strong monoprotic acid. (1 mark)

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