

APOLLO

Titration

FBISE Chemistry Class 12 (HSSC-II)

Domain G: Lab and Practical Skills

7 questions | questions

Original FBISE question crops. National Curriculum 2022-23 topic.

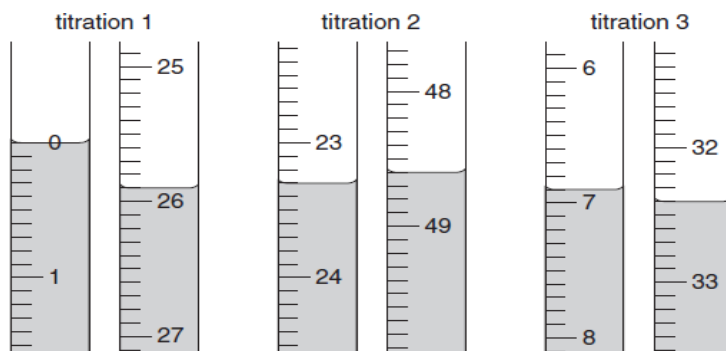
acetophenone from benzene.		
OR	A 20.0 cm ³ sample of 0.200 moldm ⁻³ NH ₃ (aq) was titrated with 0.100 moldm ⁻³ HCl. Sketch how the pH changes during this titration. Mark clearly where the end point occurs.	03

Titration is the example of:	Structural analysis	Quantitative analysis	Qualitative analysis	Speculative analysis
Which element in Period 2 has the highest				

with the help of chemical equations.	
Sketch the titration curve of a weak base with a strong acid and indicate the position of the equivalence point.	2+1
Write the IUPAC name of the following coordination	1 E

Q No. 2. The formula for iron (II) sulphate crystals is $\text{FeSO}_4 \cdot x\text{H}_2\text{O}$, where x is a whole number. A student determined the value of ' x ' using 0.0200 M Potassium manganate (VII). This was solution **A**. 28g of a given sample of $\text{FeSO}_4 \cdot x\text{H}_2\text{O}$ is dissolved per dm^3 of solution. This was solution **B**.

- (a) A 25.0 cm^3 sample of solution **B** followed by half test tube of sulfuric acid was measured into the titration flask. Solution **A** was run from a burette into the flask containing Solution **B** until an end-point was reached. What was the colour change at the end point? [1]
- (b) Three titrations were done. The diagrams below show parts of the burette before and after each titration.



Use these diagrams to complete the table of results. [2]

Titration number	1	2	3
Final reading (cm^3)			
First reading (cm^3)			
Volume of solution A used			
Best titration result (✓)			

Summary.

Tick (✓) the best titration results. Using these results, the average volume of **A** was..... cm^3 .

When acidified KMnO_4 reacts with hydrated Iron (II) sulfate, $\text{FeSO}_4 \cdot x\text{H}_2\text{O}$ the following reaction occurs:



- (c) Calculate molarity of hydrated iron (II) sulfate by using the chemical equation and above data. [2]
- (d) By using your answer to (c) and the strength of hydrated Iron (II) sulfate, calculate the value of ' x ' (water of crystallization) in $\text{FeSO}_4 \cdot x\text{H}_2\text{O}$. [1]

Q No. 3. A 25 cm^3 solution of iodine was titrated with 0.1 mol dm^{-3} (molarity) solution of sodium thiosulfate. The titration required 15.5 cm^3 of sodium thiosulfate solution to reach the end point.

- (a). Write balanced equation for the reaction between iodine and sodium thiosulfate. [1]
- (b). Name the indicator used in this titration. Describe the change in colour that occurs when the end point of the titration is reached. [2]
- (c). Calculate the moles of sodium thiosulfate used in the titration. [1]
- (d). Use your answer to (c), calculate the concentration (molarity) of iodine in mol dm^{-3} . [2]

Q No. 2. The formula for iron (II) sulphate crystals is $\text{FeSO}_4 \cdot x\text{H}_2\text{O}$, where x is a whole number.

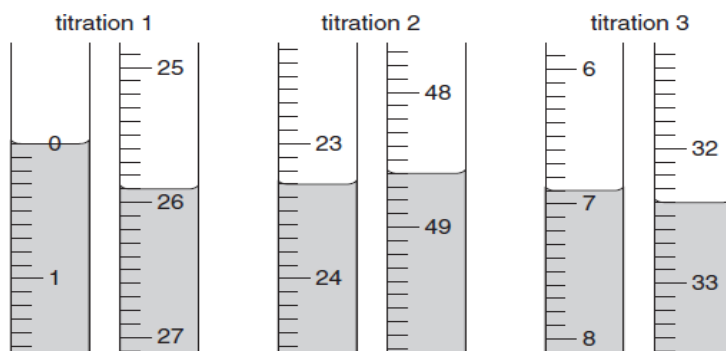
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Tick (✓) the best titration results. Using these results, the average volume of **A** was cm^3 .

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- (d). Use your answer to (c), calculate the concentration (molarity) of iodine in moldm^{-3} . [2]