

JEE MAIN PRINCIPLES RELATED TO PRACTICAL CHEMISTRY — CHEMISTRY INVOLVED IN TITRIMETRIC EXERCISES — PYQS

Max. Marks: 28
Questions: 7

Section A (MCQ) — 7 questions

Q.1 Given below are two statements :

Statement-I: Sodium dichromate and potassium dichromate are classified as primary standards in titrimetric analysis.

Statement-II: Phenolphthalein is a weak base, therefore it dissociates in acidic medium.

In the light of the above statements, choose the correct answer from the options given below :

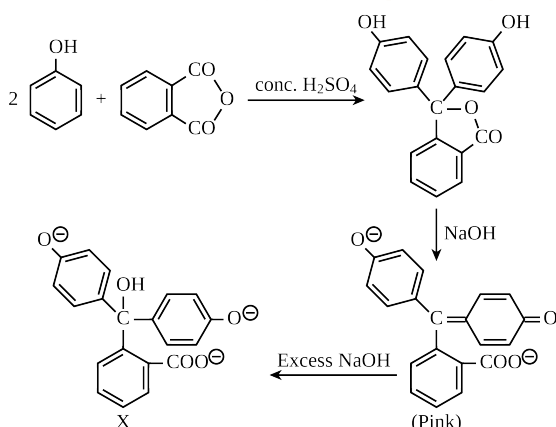
[JEE Main 2026 (Online) 5th April Morning Shift]

- (1) Both Statement-I and Statement-II are true
 (2) Both Statement-I and Statement-II are false
 (3) Statement-I is true but Statement-II is false
 (4) Statement-I is false but Statement-II is true

Scan or tap for the
full solution


Q.2 Identify the colour of compound 'X' in the sequence of the reaction.

[JEE Main 2026 (Online) 4th April Morning Shift]



- (1) Violet (2) Green
 (3) Red (4) Colourless

Scan or tap for the
full solution


Q.3 Identify the correct statements :

Choose the correct answer from the options given below :

- A. Hydrated salts can be used as primary standard.
 B. Primary standard should not undergo any reaction with air.
 C. Reactions of primary standard with another substance should be instantaneous and

stoichiometric.

- D. Primary standard should not be soluble in water.
 E. Primary standard should have low relative molar mass.

[JEE Main 2026 (Online) 22nd January Evening Shift]

- (1) D and E Only (2) A, B and E Only
 (3) A, B, C and E Only (4) A, B and C Only

Scan or tap for the
full solution


Q.4 Compounds that should not be used as primary standards in titrimetric analysis are :

- A. $\text{Na}_2\text{Cr}_2\text{O}_7$ B. Oxalic acid
 C. NaOH D. $\text{FeSO}_4 \cdot 6\text{H}_2\text{O}$
 E. Sodium tetraborate

Choose the most appropriate answer from the options given below:

[JEE Main 2025 (Online) 3rd April Evening Shift]

- (1) C, D and E Only (2) B and D Only
 (3) D and E Only (4) A, C and D Only

Scan or tap for the
full solution


Q.5 Given below are two statements:

Statement-I: In the oxalic acid vs KMnO_4 (in the presence of dil H_2SO_4) titration the solution needs to be heated initially to 60°C , but no heating is required in Ferrous ammonium sulphate (FAS) vs KMnO_4 titration (in the presence of dil H_2SO_4)

Statement-II: In oxalic acid vs KMnO_4 titration, the initial formation of MnSO_4 takes place at high temperature, which then acts as catalyst for further reaction. In the case of FAS vs KMnO_4 , heating oxidizes Fe^{2+} into Fe^{3+} by oxygen of air and error may be introduced in the experiment.

In the light of the above statements, choose the correct answer from the options given below

[JEE Main 2025 (Online) 28th January Morning Shift]

- (1) Statement-I is false but Statement-II is true
 (2) Statement-I is true but Statement-II is false
 (3) Both Statement-I and Statement-II are true
 (4) Both Statement-I and Statement-II are false

Scan or tap for the
full solution



- Q.6** Identify the incorrect statements regarding primary standard of titrimetric analysis.
- It should be purely available in dry form.
 - It should not undergo chemical change in air.
 - It should be hygroscopic and should react with another chemical instantaneously and stoichiometrically.
 - It should be readily soluble in water.
 - KMnO_4 & NaOH can be used as primary standard.

Choose the correct answer from the options given below : [JEE Main 2024 (Online) 9th April Morning Shift]

- (1) (C) and (E) only (2) (A) and (B) only
(3) (B) and (E) only (4) (C) and (D) only

Scan or tap for the full solution



- Q.7** Given below are two statements :
- Statement-I:** Potassium hydrogen phthalate is a primary standard for standardisation of sodium hydroxide solution.
- Statement-II:** In this titration phenolphthalein can be used as indicator.

In the light of the above statements, choose the **most appropriate** answer from the options given below :

[JEE Main 2024 (Online) 1st February Morning Shift]

- (1) Both Statement-I and Statement-II are correct
(2) Statement-I is incorrect but Statement-II is correct
(3) Both Statement-I and Statement-II are incorrect
(4) Statement-I is correct but Statement-II is incorrect

Scan or tap for the full solution



ANSWER KEY

Ques.	1	2	3	4	5	6	7				
Ans.	2	4	4	4	3	1	1				