

PYQSide

JEE MAIN PRINCIPLES RELATED TO PRACTICAL CHEMISTRY — QUALITATIVE SALT ANALYSIS OF CATIONS — PYQS

Max. Marks: 36

Questions: 9

Section A (MCQ)

- Q.1** Among Fe^{3+} , Pb^{2+} , Cu^{2+} and Mn^{2+} , identify the one that gets precipitated out while passing H_2S in presence of NH_4OH as group reagent. The highest possible oxidation state of the corresponding metal is [JEE Main 2026 (Online) 4th April Evening Shift]
- (1) +3 (2) +4 (3) +2 (4) +7

Scan or tap for the full solution



- Q.2** A salt with few drops of conc. HCl gives apple green colour in flame test. The group precipitate of the salt is dissolved in acetic acid and treated with K_2CrO_4 to give yellow precipitate. When the sodium carbonate extract of the salt solution is heated with conc. HNO_3 and ammonium molybdate, it resulted a canary yellow precipitate. The cation and anion present in the salt are respectively,

[JEE Main 2026 (Online) 2nd April Morning Shift]

- (1) Ca^{2+} and SO_4^{2-} (2) Ba^{2+} and PO_4^{3-}
(3) Mn^{2+} and PO_4^{3-} (4) Ba^{2+} and SO_4^{2-}

Scan or tap for the full solution



- Q.3** Consider three metal chlorides x, y and z, where x is water soluble at room temperature, y is sparingly soluble in water at room temperature and z is soluble in hot water. x, y and z are respectively

[JEE Main 2026 (Online) 24th January Morning Shift]

- (1) AgCl , Hg_2Cl_2 and PbCl_2
(2) CuCl_2 , AgCl and PbCl_2
(3) AlCl_3 , PbCl_2 and BaCl_2
(4) MgCl_2 , AgCl and AlCl_3

Scan or tap for the full solution



- Q.4** In the Group analysis of cations, Ba^{2+} & Ca^{2+} are precipitated respectively as

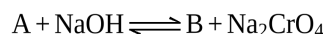
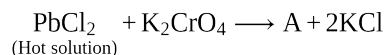
[JEE Main 2026 (Online) 24th January Evening Shift]

- (1) sulphide & sulphide (2) hydroxide & carbonate
(3) chromate & sulphide (4) carbonate & carbonate

Scan or tap for the full solution



- Q.5** Consider the following reactions.



In the above reactions, A, B and X are respectively.

[JEE Main 2026 (Online) 21st January Morning Shift]

- (1) $\text{Na}_2[\text{Pb}(\text{OH})_2]$, PbCrO_4 and $[\text{Pb}(\text{NH}_3)_4]\text{SO}_4$
(2) $\text{Na}_2[\text{Pb}(\text{OH})_2]$, PbCrO_4 and $(\text{NH}_4)_2[\text{Pb}(\text{CH}_3\text{COO})_4]$
(3) PbCrO_4 , $\text{Na}_2[\text{Pb}(\text{OH})_4]$ and $(\text{NH}_4)_2[\text{Pb}(\text{CH}_3\text{COO})_4]$
(4) PbCrO_4 , $\text{Na}_2[\text{Pb}(\text{OH})_4]$ and $[\text{Pb}(\text{NH}_3)_4]\text{SO}_4$

Scan or tap for the full solution



- Q.6** When a salt is treated with sodium hydroxide solution it gives gas X. On passing gas X through reagent Y a brown coloured precipitate is formed. X and Y respectively, are

[JEE Main 2025 (Online) 7th April Morning Shift]

- (1) $\text{X} = \text{NH}_3$ and $\text{Y} = \text{HgO}$
(2) $\text{X} = \text{NH}_4\text{Cl}$ and $\text{Y} = \text{KOH}$
(3) $\text{X} = \text{NH}_3$ and $\text{Y} = \text{K}_2\text{HgI}_4 + \text{KOH}$
(4) $\text{X} = \text{HCl}$ and $\text{Y} = \text{NH}_4\text{Cl}$

Scan or tap for the full solution



- Q.7** Choose the correct tests with respective observations.
Choose the correct answer from the options given below :

- A. CuSO_4 (acidified with acetic acid) + $\text{K}_4[\text{Fe}(\text{CN})_6] \longrightarrow$ Chocolate brown precipitate.
B. $\text{FeCl}_3 + \text{K}_4[\text{Fe}(\text{CN})_6] \longrightarrow$ Prussian blue precipitate.
C. $\text{ZnCl}_2 + \text{K}_4[\text{Fe}(\text{CN})_6]$, neutralised with $\text{NH}_4\text{OH} \longrightarrow$ White or bluish white precipitate.
D. $\text{MgCl}_2 + \text{K}_4[\text{Fe}(\text{CN})_6] \longrightarrow$ Blue precipitate.
E. $\text{BaCl}_2 + \text{K}_4[\text{Fe}(\text{CN})_6]$, neutralised with $\text{NaOH} \longrightarrow$ White precipitate.

[JEE Main 2025 (Online) 2nd April Morning Shift]

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

Scan or tap for the
full solution



Q.8 The metal ion whose electronic configuration is not affected by the nature of the ligand and which gives a violet colour in non-luminous flame under hot condition in borax bead test is

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

- (1) Cr^{3+} (2) Ti^{3+} (3) Ni^{2+} (4) Mn^{2+}

Scan or tap for the
full solution



Q.9 Identify the inorganic sulphides that are yellow in colour :

- A. $(\text{NH}_4)_2\text{S}$ B. PbS
 C. CuS D. As_2S_3
 E. As_2S_5

Choose the **correct** answer from the options given below :

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

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

Scan or tap for the
full solution



ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9		
Ans.	4	2	2	4	3	3	2	3	1		