

Q1 - 25 January - Shift 1

49. Match the List-I with List-II :

Space for your notes:

Cations	Group reaction
P \rightarrow Pb^{2+} , Cu^{2+}	(i) H_2S gas in presence of dilute HCl
Q \rightarrow Al^{3+} , Fe^{3+}	(ii) $(NH_4)_2CO_3$ in presence of NH_4OH
R \rightarrow Co^{2+} , Ni^{2+}	(iii) NH_4OH in presence of NH_4Cl
S \rightarrow Ba^{2+} , Ca^{2+}	(iv) H_2S in presence of NH_4OH

(1) P \rightarrow i, Q \rightarrow iii, R \rightarrow ii, S \rightarrow iv(2) P \rightarrow iv, Q \rightarrow ii, R \rightarrow iii, S \rightarrow i(3) P \rightarrow iii, Q \rightarrow i, R \rightarrow iv, S \rightarrow ii(4) P \rightarrow i, Q \rightarrow iii, R \rightarrow iv, S \rightarrow ii

Q2 - 30 January - Shift 1

In the wet tests for identification of various cations by precipitation, which transition element cation doesn't belong to group IV in qualitative inorganic analysis?

Space for your notes:

(1) Fe^{3+} (2) Zn^{2+} (3) Co^{2+} (4) Ni^{2+}

Q3 - 30 January - Shift 2

Formulae for Nessler's reagent is:

Space for your notes:

(1) KHg_2I_2 (2) $KHgI_3$ (3) K_2HgI_4 (4) HgI_2

Q4 - 31 January - Shift 2

Given below are two statements :

Space for your notes:

Statement I : Upon heating a borax bead dipped in cupric sulphate in a luminous flame, the colour of the bead becomes green.

Statement II : The green colour observed is due to the formation of copper(I) metaborate.

In the light of the above statements, choose the

most appropriate answer from the options given

below :

(1) Both **Statement I** and **Statement II** are true

(2) **Statement I** is true but **Statement II** is false

(3) Both **Statement I** and **Statement II** are false

(4) **Statement I** is false but **Statement II** is true

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Answer Key

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(As per Official NTA Key released on 2 Feb)

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Q1 (4)

Q2 (1)

Q3 (3)

Q4 (3)

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#MathBoleTohMathonGo

Q1 (4)

Cations	Group No.	Group reagent
$\text{Pb}^{+2}, \text{Cu}^{+2}$	II	$\text{H}_2\text{S}(\text{g})$ in presence of dilHCl
$\text{Al}^{+3}, \text{Fe}^{+3}$	III	NH_4OH in presence of NH_4Cl
$\text{CO}^{+2}, \text{Ni}^{+2}$	IV	H_2S in presence of NH_4OH
$\text{Ba}^{+2}, \text{Ca}^{+2}$	V	$(\text{NH}_4)_2\text{CO}_3$ in presence of NH_4OH

Q2 (1)

 $\text{Zn}^{+2}, \text{Co}^{+2}, \text{Ni}^{+2} = \text{IV}^{\text{th}} \text{Group}$ $\text{Fe}^{+3} = \text{III}^{\text{rd}} \text{Group}$

Q3 (3)

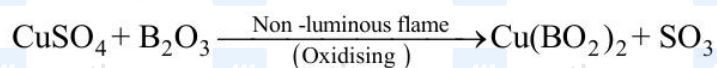
Nessler's reagent is K_2HgI_4

Q4 (3)

(Borax Bead Test)

On treatment with metal salt, boric anhydride forms metaborate of the metal which gives different colours in oxidising and reducing flame.

For example, in the case of copper sulphate, following reactions occur.



Cupric metaborate

blue-green

Two reactions may take place in reducing flame

(Luminous flame)

(i) The blue-green $\text{Cu}(\text{BO}_2)_2$ is reduced to colourless cuprous metaborate as :



(ii) Cupric metaborate may be reduced to metallic copper and bead appears red opaque.

