Q1 - 24 June - Shift 1

During the qualitative analysis of salt with cation y^{2+} , addition of a reagent (X) to alkaline solution of the salt gives a bright red precipitate. The reagent (X) and the cation (y^{2+}) present respectively are:

(A) Dimethylglyoxime and Ni^{2+}

(B) Dimethylglyoxime and Co^{2+}

(C) Nessler's reagent and Hg^{2+}

(D) Nessler's reagent and Ni^{2+}

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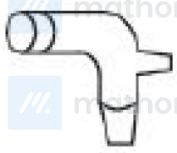
Q2 - 27 June - Shift 1

Which of the following is structure of a separating funnel?

(A) 

(B) 

(C) 

(D) 

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Q3 - 27 June - Shift 2

Match List I with List II

List I (Anion)	List II (Gas evolved on reaction with dil. H_2SO_4)
A. CO_3^{2-}	I. Colourless gas which turns lead acetate paper black
B. S^{2-}	II. Colourless gas which turns acidified potassium dichromate solution green.
C. SO_3^{2-}	III. Brown fumes which turns acidified KI solution containing starch blue.
D. NO_2^-	IV. Colourless gas evolved with brisk effervescence, which turns lime water milky.

Choose the correct answer from the options given below:

(A) A-III, B-I, C-II, D-IV

(B) A-II, B-I, C-IV, D-III

(C) A-IV, B-I, C-III, D-II

(D) A-IV, B-I, C-II, D-III

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Q4 - 29 June - Shift 2

A white precipitate was formed when $BaCl_2$ was added to water extract of an inorganic salt. Further, a gas 'X' with characteristic odour was released when the formed white precipitate was dissolved in dilute HCl. The anion present in the inorganic salt is :

(A) I^- (B) SO_3^{2-}

(C) S^{2-} (D) NO_2^-

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Answer Key

Q1 (A) **Q2** (A) **Q3** (D) **Q4** (B)

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Q1 (A)

$$Ni^{2+} + DMG^{-} \rightarrow [Ni(DMG)_2] \downarrow$$

(Bright red precipitate)

Q2 (A)

It is used to separate liquid-liquid mixture which is immiscible with different densities

Q3 (D)

CO_3^{2-} will give CO_2(g) which will turns lime water milky.

S^{2-} will give H_2S (g), will turns lead acetate paper black

SO_3^{2-} will give SO_2 (g), which will turns acidified potassium dichromate solution green.

NO_2^{-} will give brown NO_2(g) will turn KI solution blue.

Q4 (B)

$$BaCl_2 + SO_3^{2-} \rightarrow \underset{\text{white}}{BaSO_3} \downarrow \xrightarrow{\text{dil.HCl}} \underset{\text{burning sulphur like smell}}{SO_2} \uparrow$$