Principles of Qualitative Analysis

1. Which of the following compounds is not colored yellow? **[JEE (Main)-2015]**

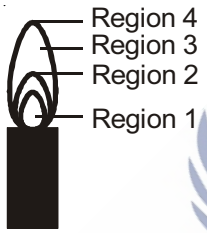
   (1) $Zn_2[Fe(CN)_6]$

   (2) $K_3[Co(NO_2)_6]$

   (3) $(NH_4)_3[As\ (Mo_3O_{10})_4]$

   (4) $BaCrO_4$

2. The hottest region of Bunsen flame shown in the figure below is **[JEE (Main)-2016]**



   (1) Region 2 (2) Region 3

   (3) Region 4 (4) Region 1

3. Sodium salt of an organic acid 'X' produces effervescence with conc. H_2SO_4. 'X' reacts with the acidified aqueous $CaCl_2$ solution to give a white precipitate which decolourises acidic solution of $KMnO_4$. 'X' is **[JEE (Main)-2017]**

   (1) CH_3COONa

   (2) $Na_2C_2O_4$

   (3) C_6H_5COONa

   (4) HCOONa

4. Hydrogen peroxide oxidises $[Fe(CN)_6]^{4-}$ to $[Fe(CN)_6]^{3-}$ in acidic medium but reduces $[Fe(CN)_6]^{3-}$ to $[Fe(CN)_6]^{4-}$ in alkaline medium. The other products formed are, respectively.

   [JEE (Main)-2018]

   (1) $(H_2O + O_2)$ and H_2O

   (2) $(H_2O + O_2)$ and $(H_2O + OH^-)$

   (3) H_2O and $(H_2O + O_2)$

   (4) H_2O and $(H_2O + OH^-)$

5. When metal 'M' is treated with NaOH, a white gelatinous precipitate 'X' is obtained, which is soluble in excess of NaOH. Compound 'X' when heated strongly gives an oxide which is used in chromatography as an adsorbent. The metal 'M' is **[JEE (Main)-2018]**

   (1) Zn (2) Ca

   (3) Al (4) Fe

6. An organic compound 'A' is oxidized with Na_2O_2 followed by boiling with HNO_3. The resultant solution is then treated with ammonium molybdate to yield a yellow precipitate

   Based on above observation, the element present in the given compound is : **[JEE (Main)-2019]**

   (1) Fluorine

   (2) Nitrogen

   (3) Phosphorus

   (4) Sulphur

7. Thermal decomposition of a Mn compound (X) at 513 K results in compound Y, MnO_2 and a gaseous product. MnO_2 reacts with NaCl and concentrated H_2SO_4 to give a pungent gas Z. X, Y and Z respectively are: **[JEE (Main)-2019]**

   (1) K_2MnO_4, $KMnO_4$ and Cl_2

   (2) K_3MnO_4, K_2MnO_4 and Cl_2

   (3) K_2MnO_4, $KMnO_4$ and SO_2

   (4) $KMnO_4$, K_2MnO_4 and Cl_2

8. A metal (A) on heating in nitrogen gas gives compound B. B on treatment with H_2O gives a colourless gas which when passed through $CuSO_4$ solution gives a dark blue-violet coloured solution. A and B respectively, are **[JEE (Main)-2020]**

   (1) Mg and Mg_3N_2

   (2) Na and Na_3N

   (3) Mg and $Mg(NO_3)_2$

   (4) Na and $NaNO_3$

9. The mechanism of action of "Terfenadine" (Seldane) is **[JEE (Main)-2020]**

(1) Activates the histamine receptor

(2) Helps in the secretion of histamine

(3) Inhibits the secretion of histamine

(4) Inhibits the action of histamine receptor

10. Reaction of an inorganic sulphite X with dilute H_2SO_4 generates compound Y. Reaction of Y with NaOH gives X. Further, the reaction of X with Y and water affords compound Z. Y and Z, respectively, are **[JEE (Main)-2020]**

(1) S and Na_2SO_3 (2) SO_2 and $NaHSO_3$

(3) SO_2 and Na_2SO_3 (4) SO_3 and $NaHSO_3$

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