CHEMISTRY **Max. Marks: 80**

SECTION – I
(SINGLE CORRECT CHOICE TYPE)

This section contains **7 multiple choice questions.** Each question has 4 choices (A), (B), (C) and (D) for its answer, out of which **ONLY ONE** is correct

1. From which one of the following solutions, calcium ions can be precipitated to the maximum extent by addition of oxalic acid

A) $CaCl_2$ B) $Ca(NO_3)_2$ C) $CaBr_2$ D) $(CH_3COO)_2Ca$

2. Which one of the following is pink coloured

A) $CoZnO_2$ B) $Co(AlO_2)_2$ C)$CoMgO_2$ D) MnO_4^{2-}

3. Which one of the following cannot be identified by borax bead test

A) Zn^{2+} B) Ni^{2+} C) Cu^{2+} D) Mn^{2+}

4. For which one of the following salts, preparation of sodium carbonate extract is not required to carry confirmation test for the anion

A) $Cu(NO_3)_2$ B) $Cr(NO_3)_3$ C) $ZnCl_2$ D) $PbCl_2$

5. Addition of ammonium thiocyanate to Cobalt (II) acetate in the presence of ions 'x' gives deep blue colour precipitate. Ion 'x' is

A) Cu^{2+} B) Na^{+} C) Hg^{2+} D) Zn^{2+}

6. Which one of the following is used to identify Fe^{2+} ion in the presence of Fe^{3+} ions

A) $K_4[Fe(CN)_6]$ B) $K_3[Fe(CN)_6]$ C) NH_4OH D) DMG

7. A salt gives white precipitate with barium chloride aqueous solution and it is insoluble in dil. HCl. Anion in the salt is

A) SO_3^{2-} B) CO_3^{2-} C) SO_4^{2-} D) NO_2^{-}

SECTION – II
(MORE THAN ONE TYPE)

This section contains 4 **multiple choice questions.** Each question has four choices a), b), c), d) out of which **ONE OR MORE** may be correct.

8. $MnSO_4$ on reaction with which of the following gives violet – red or purple coloured compound?

   A) PbO_2 +Conc.HNO_3, boil B) Fused with Na_2CO_3+$KClO_3$

   C) $NaBiO_3$+dil.HNO_3 D) KIO_4

9. Among the following which gives precipitate with NH_4OH and it dissolves in excess of reagent to give blue solution

   A) Zn^{2+} B) Cd^{2+} C) Cu^{2+} D) Ni^{2+}

10. Among the following how many are soluble in dil HNO_3

    A) HgS B) PbS C) Bi_2S_3 D) CdS

11. $AgNO_3$ do not give precipitate with of the following ions

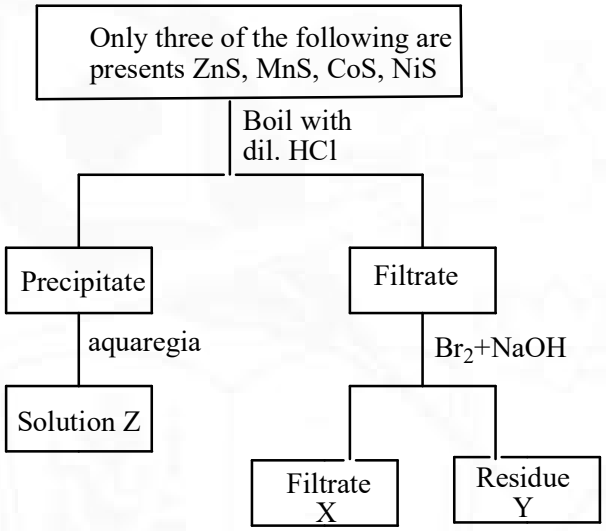
A) CN^- B) F^- C) ClO_4^- D) CO_3^{2-}

SECTION – III
(PARAGRAPH TYPE)

This section contains 2 **paragraphs.** Each of these questions has four choices a), b), c) and d) out of which ONLY ONE is correct

Paragraph for Questions Nos. 12 to 14

Read the following paragraph and answer the Q.no 12 – 13



12. Solution 'Z' is acidified with CH_3COOH and excess of KNO_2 is added then yellow precipitate is formed. Which one of the following is absent in the initial mixture

A) CoS B) NiS C) ZnS D) MnS

13. Incorrect statement about 'X' is

A) X gives white precipitate with $K_4[Fe(CN)_6]$ and this precipitate is insoluble in excess of $K_4[Fe(CN)_6]$

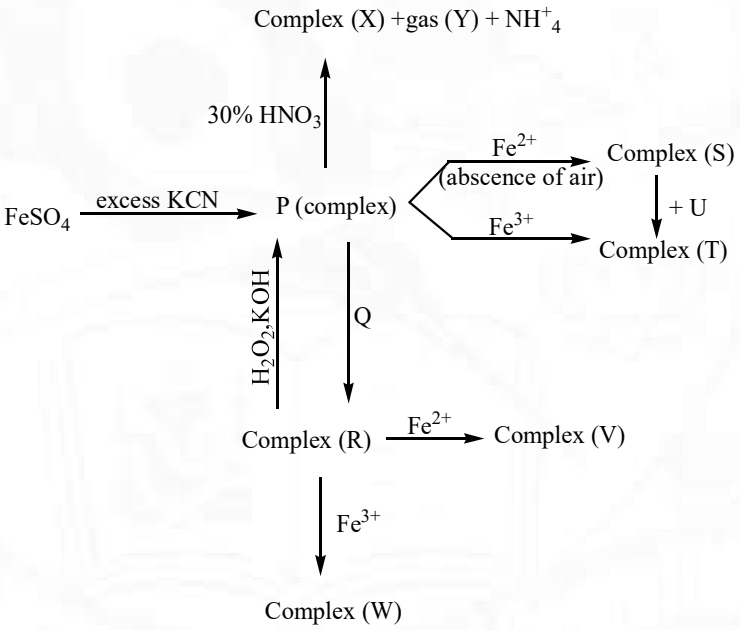
B) X is a compound of non transition element

C) In 'X', d-block metal ion is in anion part

D) It is colourless

Paragraph for Questions Nos. 15 to 16

Read the following paragraph and answer the Q.no 14 – 16



14. Incorrect statement among the following is

A) Q is H_2O_2, H_2SO_4 B) S is colourless(or white)

C) Complex T and W are same D) Formation of p is not a redox reaction

15. Incorrect statement among the following is

A) In P and X, oxidation state of iron is different

B) Y is CO_2

C) X gives violet colour with Na_2S

D) in the reaction S → T, counter ion is oxidized

16. Correct statement among the following is

A) 'P' is colourless due to the absence of unpaired 'd' electron

B) 'X' is colourless complex

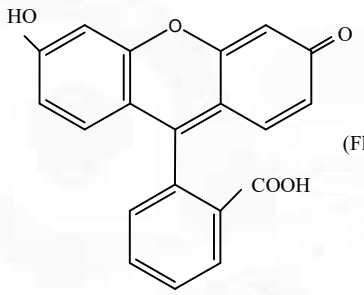
C) 'P' is coloured complex

D) 'P' and 'X' are paramagnetic

SECTION – IV
INTEGER TYPE

(This section contains **7 questions.** The answer to each question is a single digit integer ranging from 0 to 9. The correct digit below the question number in the ORS is to be bubbled)

17. Filter paper impregnated with fluoresce in solution is exposed to bromine vapour then paper acquires red colour due to formation of eosin



(Fluorescein)

Number of bromines per each eosin is/are

18. $CO_{2(g)}$ and $SO_{2(g)}$ can be distinguished by using how many of the following

I) $KMnO_4 / H^+$ II) $K_2Cr_2O_7 / H^+$ III) starch iodide solution

IV) $FeCl_3$ solution V) I_2 Water VI) Baryta water

VII) lime water VIII) starch iodate solution

IX) Smell of gas

19. How many of the following gives sulphide precipitate with the reagent

$NH_4Cl + NH_4OH + H_2S_{(g)}$

$Mn^{2+}, Zn^{2+}, Co^{2+}, Ni^{2+}, Hg^{2+}, Pb^{2+}, As^{3+}, Cd^{2+}, Mg^{2+}$

20. Among the following how many are soluble in excess KCN

AgCN, CuCN, $Cd(CN)_2$, $Fe(CN)_2$, $Fe(CN)_3$, $Pb(CN)_2$

21. IO_3^- ion can be reduced to I_2 by I^- ion in acidic medium. How many moles iodine are produced per every mole of IO_3^- consumed in the reaction is

22. Among the following how many statements are correct

a) Reaction of Hg_2Cl_2 with ammonia solution is disproportion reaction

b) Reaction of $HgCl_2$ with ammonia solution is disproportionation reaction

c) K_{sp} order is CuS<ZnS<MgS<Na_2S

d) $[Ag(NH_3)_2]Cl$ solution on long standing it forms explosive $AgNH_2$

e) Stability $K_3[Cu(CN)_4] > K_2[Cd(CN)_4]$

f) Fe^{3+} can be identified in the presence of Fe^{2+} by using NH_4SCN

g) Cu^{2+} and Cd^{2+} cannot be distinguished from each other by using NH_4SCN

h) In the fifth group reagent Na_2CO_3 can be used in place of $(NH_4)_2\ CO_3$

i) In flame test Conc.HNO_3 can be used in place of Conc.HCl

23. Among the following how many salts liberate reddish brown fumes and leaves coloured mass (in hot or cold condition) on heating

a) $Pb(NO_3)_2$ b) $Zn(NO_3)_2$ c) NH_4NO_3 d) $NaNO_3$

e) KNO_3 f) $Ca(NO_3)_2$ g) $(NH_4)_2Cr_2O_7$