DPP # 04

Single correct :

1. Select incorrect match

(A) $[Co(NO_2)(H_2O)(en)_2)]Cl_2$, $[CoCl(NO_2)(en)_2]$ Cl . H_2O – Hydrate isomerism

(B) $[Cu(NH_3)_4][PtCl_4]$, $[CuCl_2(NH_3)_2]$ $[PtCl_2(NH_3)_2]$ – Coordination isomerism

(C) $[Ni(CN)(H_2O)(NH_3)_4]Cl$, $[NiCl(H_2O)(NH_3)_4]CN$ – Ionization isomerism

(D) $[Cr(NCS)(NH_3)_5]$ $[ZnCl_4]$, $[Cr(SCN)(NH_3)_5]$ $[ZnCl_4]$ – Linkage isomerism

2. The two compounds pentaamminesulphatocobalt(III) bromide and pentaamminesulphatocobalt(III) chloride represent

(A) Linkage isomerism (B) Ionization isomerism

(C) Coordination isomerism (D) No isomerism

3. Which one of the following is an example of coordination isomerism?

(A) $[Co(NH_3)_5Br]SO_4$ and $[Co(NH_3)_5SO_4]Br$

(B) $[Co(NH_3)_5NO_2]Cl_2$ and $[Co(NH_3)_5ONO]Cl_2$

(C) $[Cr(H_2O)_6]Cl_3$ and $[Cr(H_2O)_5Cl]Cl_2 \cdot H_2O$

(D) $[Cr(NH_3)_6][Co(CN)_6]$ and $[Co(NH_3)_6][Cr(CN)_6]$

4. Isomerisms exhibited by $[Cr(NH_3)_2(H_2O)_2Cl_2]^+$ are

(A) ionisation, optical (B) hydrate, optical

(C) geometrical, optical (D) coordinate, geometrical

5. The total possible co-ordination isomers for the following compounds respectively are

$[Co(en)_3]$ $[Cr(C_2O_4)_3]$

$[Cu(NH_3)_4]$ $[CuCl_4]$

$[Fe(en)_3]$ $[Co(NO_2)_6]$

(A) 4, 4, 4 (B) 2, 2, 2 (C) 2, 2, 4 (D) 4, 2, 4

6. Of the following complex ions, one exhibits isomerism. That is:

(A) $[Ag(NH_3)_2]^+$ (B) $[Co(NH_3)_5NO_2]^{2+}$

(C) $[Pt(en)Cl_2]$ (D) $[Co(NH_3)_5Cl]^{2+}$

7. $[Cr(NH_3)_5Br]Cl$ and $[Cr(NH_3)_5Cl]Br$ can be distinguished by/and isomerism shown is:

(A) $BaCl_2$, ionisation (B) $AgNO_3$, ionisation

(C) $AgNO_3$, coordinate (D) $BaCl_2$, linkage

8. Select correct code about complex $[Cr(NO_2)(NH_3)_5][ZnCl_4]$

(I) IUPAC name of the compound is Pentaamminenitrito-N-chromium (III) tetrachlorozincate (II)

(II) It shows geometrical isomerism

(III) It shows linkage isomerism

(IV) It shows co-ordination isomerism

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

Paragraph for question nos. 9 to 10

Complex compounds which have same molecular formula but have different structural arrangements of ligands around central metal atom or ion are called structural isomers and phenomenon is named as structural isomerism.

9. Which of the following compounds is/are polymerisation isomer of $[Fe(NO_2)_3(NH_3)_3]$.

(I) $[Fe(NO_2)(NH_3)_5]$ $[Fe(NO_2)_5(NH_3)]$ (II) $[Fe(NO_2)_2(NH_3)_4]_2$ $[Fe(NO_2)_5(NH_3)]$

(III) $[Fe(NO_2)(NH_3)_5]$ $[Fe(NO_2)_4(NH_3)_2]_2$ (IV) $[Fe(NO_2)_2(NH_3)_4]$ $Fe(NO_2)_4(NH_3)_2]$

Choose the correct code :

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

10. How many more coordination isomers are possible of the following complex compound.

$[PtCl_2(NH_3)_4]$ $[Pt(SCN)_4]$

(A) 5 (B) 6 (C) 8 (D) 9

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Que.	1	2	3	4	5	6	7	8	9	10
Ans.	B	D	D	C	D	B	B	B	D	C