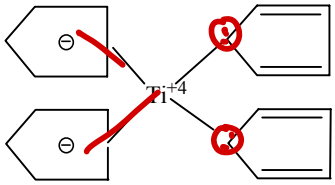
RACE # 14 INORGANIC CHEMISTRY

TIME : 90 Min.

1. $K_2[HgI_4]$ ⟶ Potassium tetraiodidomercurate(II)
2. $LiAlH_4$ ⟶ Lithium tetrahydridoaluminate(III)
3. $K_3[Fe(CN)_6]$ ⟶ Potassium hexacyanidoferrate(III)
4. $K_2[Pt\ Cl_6]$ ⟶ Potassium hexachloridoplatinate(IV)
5. $[PtCl_2(NH_3)_2]$ ⟶ Diamminedichloridoplatinum(II)
6. $[Co(NH_3)_6]Cl_3$ ⟶ Hexaamminecobalt(III) chloride
7. $[Fe(en)_3]Cl_3$ ⟶ Tris(ethylenediamine)iron(III) chloride
8. $K_3[Ir(C_2O_4)_3]$ ⟶ Potassium tris(oxalato)iridate(III)
   ⟶ Potassium trioxalatoiridate(III)
9. $[Co(NCS)(NH_3)_5]Cl_2$ ⟶ Pentaammineisothiocyanatocobalt(III) chloride
   Pentaamminethiocyanato–Ncobalt(III) chloride
10. $[CoBr(ONO)(en)_2]^{+1}$ ⟶ Bromidobis(ethylenediamine)nitrito-Ocobalt(III) ion
11. $[(CO)_3Fe(CO)_3Fe(CO)_3]$ ⟶ Triμ-carbonyl-bis(tricarbonyl iron(0))
12. $[CoI(NH_3)_5]SO_4$ ⟶ Pentaammineiodidocobalt(III) sulphate
13. $[Co(NH_3)_6]\ [Co(ONO)_6]$ ⟶ Hexaamminecobalt(III) hexanitrito–Ocobaltate(III)
14. $(NH_4)_2[Pt(SCN)_6]$ ⟶ Ammonium hexathiocyanato–Splatinate(IV)
   ⟶ Ammonium hexathiocyanatoplatinate(IV)
15. $[(NH_3)_5CrOHCr(NH_3)_4(H_2O)]^{5+}$ ⟶ Pentaamminechromium(III)μ hydroxidotetraammine aquachromium(III) ion
16. $(NH_4)_3[Cr(NCS)_6]$ ⟶ Ammonium hexaisothiocyanatochromate(III)
   ⟶ Ammonium hexathiocyanato-Nchromate(III)
17. $[Pt(NH_3)_4][PtCl_4]$ ⟶ Tetraammineplatinum(II) tetrachloridoplatinate(II)
18. $(NH_4)_4[Mo(CN)_8]$ ⟶ Ammonium octacyanidomolybdate(IV)
19. $[FeF_6]^{3-}$ ⟶ Hexafluoridoferrate(III) ion
20. $[CoCO_3(NH_3)_5]Cl$ ⟶ Pentaamminecarbonatocobalt(III) chloride

21. $Ti(\sigma\text{-}C_5H_5)_2(\pi\text{-}C_5H_5)_2$ → Bis(η^1-cyclopentadienyl)bis(η^5-cyclopentadienyl)titanium(IV)



22. $[PtCl_3(SnCl_3)]^{2-}$ ⟶ Trichloridotrichlorostannitoplatinate(II) ion

23. $Na_3[Co(NO_2)_6]$ ⟶ Sodium hexanitrito–N–cobaltate(III)

24. $Mo(\sigma\text{-}C_3H_5)(\pi\text{-}C_5H_5)(CO)_3$ ⟶ Allyltricarbonyl(η^5–cyclopentadienyl)molybdenum(II)

$CH_2{=}CH{-}CH_2^{(-)}$ allyl

25. $[PtCl_2(NH_3)_4]\,[PtCl_4]$ ⟶ Tetraamminedichloridoplatinum(IV) tetrachloridoplatinate(II)

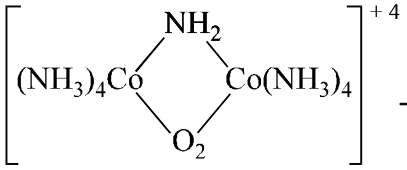
26. $[PdI_2(ONO)_2(H_2O)_2]$ ⟶ Diaquadiiodidodinitrito–Opalladium(IV)

27. $Cr(C_6H_6)_2$ ⟶ Bis(η^6–benzene)chromium(0)

28. $[CoCl_2(en)_2]_2SO_4$ ⟶ Dichloridobis(ethylenediamine)cobalt(III) sulphate

29. $Fe(\pi\text{-}C_5H_5)_2$ ⟶ Bis(η^5–cyclopentadienyl)iron(II)

30. $Na_2[Ni(EDTA)]$ ⟶ Sodium ethylenediaminetetraacetatonickelate(II)

31.  ⟶ μ-amido-μ-superoxidobis(tetraammine)dicobalt(III) ion

Tetraamminecobalt(III) μ-amido-μ-superoxidotetraamminecobalt(III) ion

μ-amido-μ-superoxidobis{tetraamminecobalt(III)} ion

32. $[Be_4O(CH_3COO)_6]$ ⟶ Hexa-μ-acetato-μ_4-oxido-tetraberyllium(II)

33. $\pi\text{-}C_4H_4Fe(CO)_3$ ⟶ tricarbonyl(η^4–cyclobutadiene)iron(0)

34. $[CoBr(H_2O)(NH_3)_4](NO_3)_2$ ⟶ Tetraammineaquabromidocobalt(III) nitrate

35. $[NiCl_2(Ph_3P)_2]$ ⟶ Dichloridobis(triphenylphosphine)nickel(II)

36. $[Zn_4O(CH_3COO)_6]$ ⟶ Hexa-μ-acetato-μ_4-oxido-tetrazinc(II)

37. $[(C_6H_5)_3PCl\ Pd\ Cl_2\ PdCl(C_6H_5)_3P]$ ⟶ • chloridotriphenylphosphinepalladium(II)

di-μ-chloridochloridotriphenylphosphinepalladium(II)

• di-μ-chloridodichloridobis(triphenylphosphine)dipalladium(II)

• di-μ-chloridobis{chloridotriphenylphosphinepalladium(II)}

• bis{μ-chloridochloridotriphenyl phosphinepalladium(II)}

38. $H_2[PtCl_6]$ ⟶ Hexachloridoplatinic(IV) acid

39. $[(Cl_3Sn)_2RhCl_2Rh(SnCl_3)_2]^{4-}$ ⟶

IV

$SnCl_2$ + Cl^- ⟶ $SnCl_3^-$

Stannous chloride Trichlorostannite

⟶ Bis(trichlorostannito) rhodate (I) di μ -chlorido bis (trichlorostannito) rhodate(I) ion

⟶ Di–μ–chloridotetrakis(trichlorostannito) dirhodate(I)ion

⟶ Di–μ–chloridobis{bis(trichlorostannito) rhodate(I)}ion

40. $Fe(CO)_5$ ⟶ Pentacarbonyl iron (O)

41. $Co_2(CO)_8$ ⟶ Octacarbonyl dicobalt(O)

42. $[Al(OH)(H_2O)_5]SO_4$ ⟶ Pentaaquohydroxidoaluminium(III) sulphate

[redacted]

44. $Hg[Co(SCN)_4]$ ⟶ Mercury(II) tetrathiocyanato-S cobaltate(II)

45. $[Ag(NH_3)_2]Cl$ ⟶ Diammine silver(I) chloride

46. $K[SbCl_5(C_6H_5)]$ ⟶ Potassium pentachloridophenylantimonate(V)

47. $[RuBr_2(NH_3)_4]NO_3$ ⟶ Tetraamminedibromidoruthenium(III) nitrate

48. $[CoCl(NO_3)(NH_3)_4]\,[Au(CN)_2]$ ⟶
Tetraamminechloridonitratocobalt(III)dicyanidoaurate(I)

49. $[PtCl(NO_2)(en)(NH_3)_2]\,Cl_2$ ⟶ Diamminechloridoethylenediaminenitrito-Nplatinum(IV)

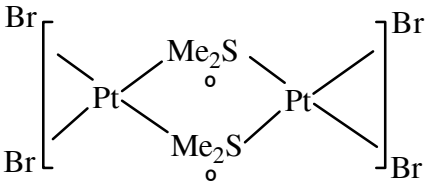
50. $Na[Co(CO)_4]$ ⟶ Sodium tetracarbonylcobaltate(–I)

51. $[(NH_3)_5Cr\text{-}OH\text{-}Cr(NH_3)_5]Cl_5$

⟶ Pentaammine Chromium(III) μ-hydroxido pentaammine chromium(III) chloride

⟶ μ–hydroxido bis {pentaammine chromium (III)} chloride

52. $[Br_2Pt(SMe_2)_2PtBr_2]$ ⟶



(Me_2O → dimethyl ether/Me_2S Dimethyl thioehter)

⟶ Dibromidoplatinum(II) bis μ (dimethyl thioether) dibromidoplatinum(II)

⟶ Bis[μ(dimethylthioether)dibromidoplatinum](II)

⟶ bis μ-dimethyl thioether tetrabromidodiplatinum(II)

53. $[PtCl_2(Et_3P)_2]$ ⟶ Dichloridobis(triethylphosphine)platinum(II)

54. $[CuCl_2(Et_2NH)_2]$ ⟶ Dichloridobis(diethylamine)copper(II)

55. $Fe_4[Fe(CN)_6]_3$ ⟶ Iron(III) hexacyanidoferrate(II)

56. $K[PtCl_3(C_2H_4)]$ ⟶ Potassium trichlorido(η^2–ethylene) platinate(II)

⟶ Potassium trichlorido(η^2–ethene)platinate(II)

57. $K_2[OsCl_5N]$ ⟶ Potassium pentachloridonitridoosmate(VI)

58. $Na_3[Ag(S_2O_3)_2]$ ⟶ Sodium bis(thiosulphato)argentate(I)

⟶ Sodium dithiosulphatoargentate(I)

59. [redacted]

[NO in +1 state proved by magnetic moment]

60. $K_3[Fe(CN)_5(CO)]$ ⟶ Potassium carbonyl pentacyanidoferrate (II)