Chemistry Chapterwise Practise Problems (CPP) for NEET

Chapter - d and f-Block Elements

- 1. Which of the following lanthanoids has smallest 9. atomic radius ?
 - (1) Pm (2) Ce
 - (3) Gd (4) Er
- Correct order of oxidising strength of the oxoanions will follow the order
 - (1) $CrO_4^{2-} > MoO_4^{2-} > WO_4^{2-}$
 - (2) $CrO_4^{2-} < MoO_4^{2-} > WO_4^{2-}$
 - (3) $WO_4^{2-} > MoO_4^{2-} > CrO_4^{2-}$
 - (4) $MoO_4^{2-} > WO_4^{2-} > CrO_4^{2-}$
- 3. The colour of $KMnO_4$ is purple due to
 - (1) d-d electronic transition
 - (2) ligand to metal charge transfer spectra
 - (3) metal to ligand charge transfer spectra
 - (4) transition of 4s electrons in Mn
- 4. The Deacon's process for Cl_2 preparation the catalyst used is
 - (1) $CuCl_2$ (2) V_2O_5
 - (3) PdCl₂ (4) Fe
- 5. Which of the following chloride will not give chromyl chloride test ?
 - (1) NaCl (2) KCl
 - (3) AgCl (4) CaCl₂
- 6. Find incorrect statement among the following
 - (1) $Na_2Cr_2O_7$ is more soluble than $K_2Cr_2O_7$ in water
 - (2) $K_2Cr_2O_7$ on heating gives O_2 gas
 - (3) $Cr_2O_7^{2-}$ in acidic medium stronger oxidising agent than MnO_4^-
 - (4) In $\operatorname{Cr}_2 \operatorname{O}_7^{2-}$ anion, there are only two different type of Cr–O bonds
- 7. All the lanthanides are non-radioactive except
 - (1) Pr (2) Sm
 - (3) Lu (4) Pm
- 8. Most common oxidation state of lanthanides is
 - (1) +2 (2) +3
 - (3) +4 (4) +1

- Which of the following salt on heating with solid $K_2Cr_2O_7$ and conc. H_2SO_4 evolved orange red vapour which turn NaOH solution yellow ?
 - (1) NaI (2) AgCI
 - (3) NaBr (4) NaCl
- 10. The transitional element having highest melting point is :
 - (1) Ru (2) Os
 - (3) Rh (4) W
- 11. The correct order of ionic radii of Ce, La, Pm and Yb in +3 oxidation state is :
 - (1) $Yb^{3+} > Ce^{3+} > Pm^{3+} > La^{3+}$
 - (2) $Yb^{3+} > Pm^{3+} > Ce^{3+} > La^{3+}$
 - (3) $Yb^{3+} < Pm^{3+} < Ce^{3+} < La^{3+}$
 - (4) $La^{3+} < Pm^{3+} < Yb^{3+} < Ce^{3+}$
- 12. $KMnO_4$ is manufactured from
 - (1) Siderite (2) Pyrolusite
 - (3) Magnesite (4) Atacamite
- 13. Find the correct statement
 - (1) For M³⁺ of lanthanides, species having same unpaired electrons have nearly same colour
 - (2) Mischmetal is an alloy made up of actinides
 - (3) Higher oxidation states are more probable in lanthanides than in actinides
 - (4) Lanthanides form large number of oxo cations
- 14. The strongest oxidising power of KMnO₄ is observed in
 - (1) Neutral medium
 - (2) Acidic medium
 - (3) Strongly basic medium
 - (4) Equal in all medium
- 15. 63 Eu²⁺ can act as
 - (1) Oxidising agent
 - (2) Reducing agent
 - (3) Both oxidising agent and reducing agent
 - (4) Neither oxidising agent nor reducing agent

- 16. Which of the following element is most unlikely to show +2 oxidation state ?
 - (1) Cu (2) Mn (3) Cr (4) Sc
- 17. The yellow colour of chromate (CrO_4^{2-}) changes to orange colour on acidification due to formation of
 - (1) Cr³⁺ (2) Cr₂O₃
 - (3) CrO_5 (4) $Cr_2O_7^{2-}$
- 18. Highest stable oxidation state observed in Lanthanoids is
 - (1) +4 (2) +3 (3) +2 (4) +6
- 19. KMnO₄ can be prepared by reaction of pyrolusite with

(1) HCI	(2) KOH and O_2
(3) I ₂	(4) MnSO ₄

- 20. Four members of the first row transition element are listed below with atomic numbers. Select the one of them that is expected to have the highest 2nd IE.
 - (1) Ti (2) Mn
 - (3) Cr (4) Zn
- 21. The ore used in preparation of $K_2Cr_2O_7$ is
 - (1) Ferrate ores (2) Ferric ores
 - (3) Chromite ores (4) Potassium ores
- 22. Select from the following halide ion that has maximum ability to stabilise the higher Oxidation number of d-block metals

(1)	F [_]	(2) Ch
(3)	Br⁻	(4) I [−]

- 23. Select from the following that is correct about basic strength of hydroxide
 - (1) $Sc(OH)_3 > Y(OH)_3 > La(OH)_3$
 - (2) La(OH)₃>Y(OH)₃>Sc(OH)₃
 - (3) $La(OH)_3 = Y(OH)_3 > Sc(OH)_3$
 - (4) $Y(OH)_3 > La(OH)_3 > Sc(OH)_3$
- 24. Select that donot decolourise KMnO₄ aqueous solution

(1)	C2042-	(2) HSO ₃ ⁻
(a)	aa 2	(1) (2)

(3) CO_3^{2-} (4) SO_3^{2-}

- 25. In 3d-series which ion has positive value of standard reduction potential?
- (1) Ti²⁺ (2) Zn²⁺ (3) Cu²⁺ (4) Fe²⁺ KMnO₄+KI – Alkaline Medium (B) 26. The product (A) and (B) are respectively (1) I₂, I₂ (2) KI, I₂ (4) I2, KIO3 (3) KIO₄,KIO₃ 27. Correct match of melting point (1) Zr<Mo (2) Re<W (3) Tc<Ru (4) All of these 28. Which of the following pairs are both coloured in aqueous solutions? (2) Cu[⊕], Ti³⁺ (1) Sc³⁺, Co³⁺ (3) Ni²⁺. Ti³⁺ (4) Zn²⁺, Cu²⁺ 29. Select the correct : (i) $FeSO_4 \xrightarrow{\Delta} Fe_2O_3 + SO_3 + O_2$ (ii) $Ag_2O \xrightarrow{\Delta} AgO + O_2$ (iii) E^0 of Mn^{3+}/Mn^{2+} is more positive than $Fe^{3+}/$ Fe²⁺ (1) (i), (ii) only (2) (iii) only (3) (i), (iii) only (4) (i), (ii), and (iii)
- 30. As the oxidation state of metal increases, ionic character generally
 - (1) Decreases
 - (2) Increases
 - (3) First increases then decreases
 - (4) First decreases then increases
- 31. Among Lanthanoid which element can exhibit (+4) oxidation state only in its oxides
 - (1) Gd, Tb, Tm (2) Lu, Yb, Tm
 - (3) Nd, Dy, Ce (4) Pr, Nd, Tb
- 32. Select the statement that is correct
 - (1) K₂Cr₂O₇ is good oxidising Agent
 - (2) K₂Cr₂O₇ is used as primary standard in volumetric Analysis
 - (3) On heating on $\rm K_2 Cr_2 O_7$ forms a green colour compound
 - (4) All of these

- Ce and Yb exhibit +4 and +2 oxidation state respectively. This is because
 - (1) Both Ce⁺⁴ and Yb⁺² acquire f⁷ configuration
 - (2) Both Ce⁺⁴ and Yb⁺² acquire f⁰ configuration
 - (3) Ce⁺⁴ and Yb⁺² acquire f⁰ and f¹⁴ configuration respectively
 - (4) Ce^{+4} and Yb^{+2} acquire f^7 and f^{14} configuration

$$34. \quad \textcircled{\texttt{O}}_{+\mathsf{Na}_2\mathsf{CO}_3+\mathsf{O}_2\to\mathsf{Na}_2\mathsf{CrO}_4+} \\ \textcircled{\texttt{O}}_{+} \\ \textcircled{O}_{+} \\ \textcircledO}_{+} \\ \textcircled{O}_{+} \\ \textcircled{O}_{+} \\ \textcircled{O}_{+} \\ \textcircled{O}_{+} \\ \textcircledO}_{+} \\ \textcircled{O}_{+} \\ \textcircled{O}_{+} \\ \textcircled{O}_{+} \\ \textcircledO}_{+} \\ \textcircledO}_{+} \\ \textcircled{O}_{+} \\ \textcircledO}_{+} \\ \textcircledO}_{+} \\ \textcircledO}_{+} \\ \textcircledO}_{+} \\ \textcircledO}_{+} \\ O$$

In the above reaction (A), (B) and (C) respectively are

- (1) $FeCr_2O_4$, Fe_3O_4 , CO_2
- (2) FeCr₂O₄, Fe₂O₃,CO₂
- (3) FeCrO₄, Fe₂O₃,CO
- (4) FeCr₂O₄,Fe₃O₄,CO
- 35. Which of the following compound are coloured due to charge transfer spectral?
 - (1) $K_2 Cr_2 O_7$ (2) KMnO₄
 - (3) AgBr (4) Both (1) and (2)
- 36. $K_2Cr_2O_7 + H_2O_2 + H^+ \longrightarrow \text{ products}$
 - Product of the above reaction is
 - (1) Cr₂O₃ (2) K₂CrO₄
 - (3) CrO₅ (4) CrO₃
- 37. The orange colour of $K_2Cr_2O_7$ is due to
 - (1) Incomplete d subshell (2) Charge transfer
 - (3) d d transition (4) None of these
- 38. In 3d-series which one of the following has positive standard reduction potential

(1) Chromium	(2) Cobal	t
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- (3) Copper (4) Gold
- 39. Which is **incorrect** regarding interstial compounds?
 - (1) They are non stoichiometric in nature
 - (2) The bonds present in them are neither typically ionic nor covalent
 - (3) Their melting points are higher than those of pure metals
 - (4) Their density is same as that of pure metals
- 40. Which one is most acidic in nature ?

(1) MnO	(2)	Mn_2O_3
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- (3) MnO₂ (4) MnO₃
- 41. Most stable oxidation state for Ti is

(1)	+2	(2)	+3
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(3) +4 (4) +5

- 42. $E^{\circ}(M^{2+}/M)$ value for copper is positive because
 - (1) of high enthalpy of atomisation
 - (2) of high second ionisation
 - (3) of high first ionization enthalpy
 - (4) both (1) and (2)
- 43. Lanthanide for which (+2) and (+3) oxidation states are common in
 - (1) La (2) Nd
 - (3) Ce (4) Eu
- 44. Which of the following set has all the coloured ions due to d-d transition ?
 - (1) Cu^+ , Co^{3+} , Ni^{2+} (2) Cu^{2+} , Sc^{3+} , Co^{2+}
 - (3) Cu²⁺, Fe²⁺, Ti⁴⁺ (4) Cr³⁺, Mn²⁺, Ni²⁺
- 45. The lowest S.R.P. value for the M^{2+}/M couple is for
 - (1) Mn (2) Cu
 - (3) Zn (4) Fe
- 46. Find the most basic oxide from the following
 - (1) ZnO (2) Cr₂O₃
 - (3) Mn₂O₇ (4) FeO
- 47. Which of the following transition metals can have highest oxidation state ?
 - (1) $(Ar)3d^{6}4s^{2}$ (2) $(Ar)3d^{10}4s^{1}$
 - (3) $(Ar)3d^{10}4s^2$ (4) $(Ar)3d^34s^2$
- 48. Find the incorrect statement.
 - (1) in alkaline medium, $KMnO_4$ oxidises I⁻ to IO_3^{-1}
 - (2) in acidic medium, $KMnO_4$ oxidises I⁻ to I₂
 - (3) in acidic medium, $KMnO_4$ oxidises I⁻ to IO_3^{-1}
 - (4) KMnO₄ in acidic medium stronger oxidising agent than K₂Cr₂O₇
- 49. Which one pair of ions having similar magnetic moment ?
 - (1) Ti^{3+} , V^{3+} (2) Cr^{3+} , Mn^{+2}
 - (3) Fe²⁺, Mn⁺² (4) Mn⁺², Fe⁺³
- 50. Find the correct statement
 - (1) Al(OH)₃ is more basic than Ce(OH)₃
 - (2) All lanthanides are radioactive
 - (3) Actinides are radioactive
 - (4) Maximum lanthanides are man made / artificial
- 51. Amongst $\text{TiF}_6^{2-,} \text{CoF}_6^{3-}$, Cu_2Cl_2 and NiCl_4^{2-} the colourless species are
 - (1) CoF_6^{3-} and NiCl_4^{2-} (2) TiF_6^{2-} and CoF_6^{3-}
 - (3) Cu_2Cl_2 and NiCl_4^{2-} (4) TiF_6^{2-} only

- 52. Which one has maximum second ionisation enthalpy ?
 - (1) Fe (2) Cr
 - (3) Mn (4) Ti
- 53. Choose the correct order of basic strength
 - (1) $Ce(OH)_3 > Lu(OH)_3 > Gd(OH)_3$
 - (2) $Gd(OH)_3 > Ce(OH)_3 > Lu(OH)_3$
 - (3) $Lu(OH)_3 > Gd(OH)_3 > Ce(OH)_3$
 - (4) $Ce(OH)_3 > Gd(OH)_3 > Lu(OH)_3$

CPP-07 ONE YEAR MEDICAL

ANSWERS

1.	(4)	2.	(1)	3.	(2)	4.	(1)	5.	(3)	6.	(3)	7.	(4)
8.	(2)	9.	(4)	10.	(4)	11.	(3)	12.	(2)	13.	(1)	14.	(1)
15.	(2)	16.	(4)	17.	(4)	18.	(1)	19.	(2)	20.	(4)	21.	(3)
22.	(1)	23.	(2)	24.	(3)	25.	(3)	26.	(4)	27.	(4)	28.	(3)
29.	(2)	30.	(1)	31.	(4)	32.	(4)	33.	(3)	34.	(2)	35.	(4)
36.	(3)	37.	(2)	38.	(3)	39.	(4)	40.	(4)	41.	(3)	42.	(4)
43.	(4)	44.	(4)	45.	(1)	46.	(4)	47.	(1)	48.	(3)	49.	(4)
50.	(3)	51.	(4)	52.	(2)	53.	(4)						