NEET ANSWER KEY & SOLUTIONS

SUBJECT :- CHEMISTRY

CLASS :- 12th **PAPER CODE :- CWT-5**

CHAPTER :- d & f-BLOCK

ANSWER KEY

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

SOLUTIONS

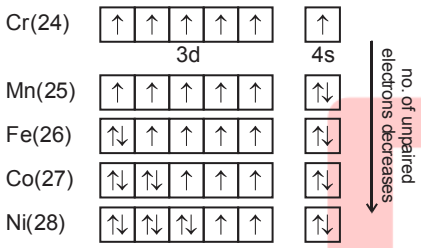
SECTION-A

1. (B)

Sol. For a catalyst, high Ionisation energy is not required.

2. (A)

Sol.



3. (A)

Sol. In contact process, V_2O_5 is used.

4. (A)

Sol. Zn is used with copper.

5. (B)

Sol. Z = 39 to Z = 48 belongs to 4d series.

6. (C)

Sol. Coinage metals (Cu, Ag, Au)

7. (C)

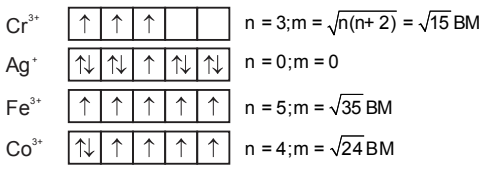
Sol. Mn^{+2} shows most stable electronic configuration due to half filled electronic configuraion.

8. (C)

Sol. No unpaired electrons.

9. (B)

Sol.



10. (A)

Sol. Highest oxidation state of transition metal is acidic.

Lowest oxidation state of transition metal is basic.

11. (C)

Sol. Atomic no. $\rightarrow$ 90 to atomic no. 103 are called actinides.

12. (C)

Sol. Due to its tendency to attain noble gas configuration of xenon, cerium shows +4 oxidation state.

13. (D)

Sol. Cerium (at. no. 58) to lutetium (at. no. 21) are called lanthanides, rare earths & lanthanones.

14. (D)

Sol. Gd is a lanthanide.

15. (D)

Sol. Cr (24) : $3d^5\ 4s^1$, Cu (29) : $3d^{10}\ 4s^1$ } stability of half filled and full filled orbital

16. (A)

Sol. $K_2Cr_2O_7$ is a strong oxidising agent.

17. (C)

Sol. 5d transition series is placed in 6th period.

18. (D)

Sol. 24 carat gold means 100% pure gold.

19. (B)

Sol. Electrical conductivity; Ag > Au > Al

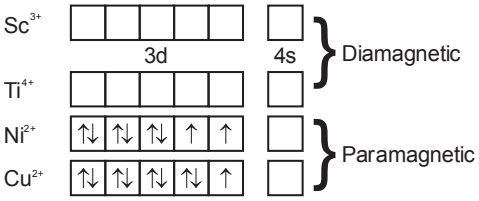
Density ; Os > Au > Hg

Melting Point ; Cr < Mo < W

Atomic Size ; Sc > Ti > V

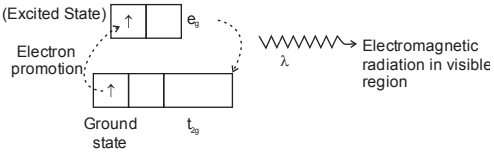
20. (D)

Sol.



21. (B)

Sol.



22. (A)

Sol. Fluoride (F^-) ion can stabilise the highest oxidation state of metal due to high enthalpy of hydration of fluoride ions.

23. (C)

Sol. Form left to right in a period atomic radii decreases but the 3d series, the atomic radii from Sc to Cr decreases and then from Mn to Ni remains the same and after that from Cu to Zn increases.

24. (D)

Sol. Fe^{2+} ; $3d^6\ 4s^0$, Fe^{3+} ; $3d^5\ 4s^0$

Stable configuration

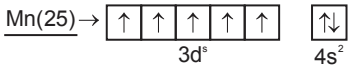
$Fe^{2+} \longrightarrow Fe^{3+} + e^-$ IE_3 is small (less than IE_2).

25. (A)

Sol. Cu – Au form alloy.

26. (C)

Sol.



Maximum O.S. = 7

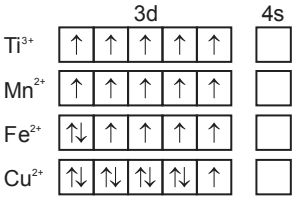
27. (B)

Sol. Ferromagnetic materials have some unpaired electrons so their atoms have a net magnetic moment.

Example → Fe, Co, Ni

28. (B)

Sol.

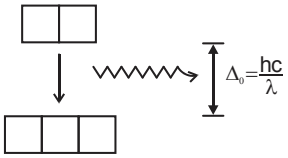


29. (B)

Sol. Highest oxidation state is acidic in nature.

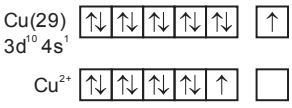
30. (C)

Sol. Nature of ligands or Lewis bases attached to the metal ion will produce crystal field splitting energy (Δ).



31. (A)

Sol. One electron from 4s and one from 3dorbitals



32. (B)

Sol. Zr(40) and Hf(72) have nearly same atomic radii

33. (B)

Sol. Most characteristics oxidation state of lanthanide is +3 means 5d & 6s electrons are removed.

34. (B)

Sol.

Sm	Oxidation state : +2, +3
Eu	Oxidation state : +2, +3
Yb	Oxidation state : +2, +3

35. (B)

Sol. Lanthanide Contraction

SECTION-B

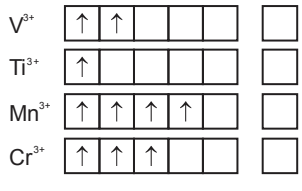
36. (C)

Sol. Lesser energy difference between 5f and 6d orbitals than between 4f and 5d orbitals.

37. (D)

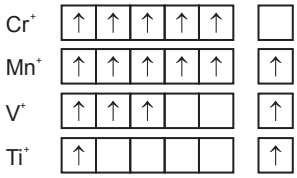
Sol. Cr^{3+}

Most stable O.S. of Cr is (+3)



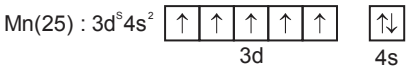
38. (C)

Sol. Cr > Mn > V > Ti



39. (D)

Sol.



40. (C)

Sol. Sc^{3+} : $3d^0\ 4s^0$

Ti^{3+} : $3d^1\ 4s^0$

La^{3+} : $5d^0\ 6s^0$

Lu^{3+} : $4f^{14}\ 5d^0\ 6s^0$

41. (A)

Sol. Mn > Fe > Cr > Co

42. (A)

Sol. +6

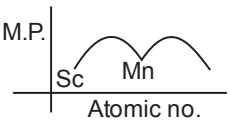
In alkaline medium ; $Mn^{+7} \longrightarrow Mn^{+6}$

43. (D)

Sol. Being hygroscopic , $Na_2Cr_2O_7$ cannot be used in volumetric analysis.

44. (A)

Sol.



45. (A)

Sol. Their ability to adopt variable oxidation states.

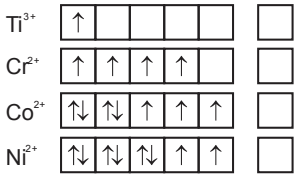
46. (D)

Sol. $KMnO_4$ cannot oxidise CO_2. CO_2 will react with OH^-.

47. (D)

Sol. $\mu = 2.84\ BM = \sqrt{n(n+2)}$

n = 2 = no. of unpaired electrons



48. (B)

Sol. Oxidation state of Fe in $Fe(CO)_5$ is zero.

49. (B)

Sol. Zn^{2+} is dimagnetic because it has no unpaired electrons

50. (C)

Sol. The assertion is correct but the reason is false. Actually transition metal show variable valency due to very small difference between the ns^2 and $(n-1)d$ electrons, Therefore, assertion is correct but reason is false.