



WEIRD CHEMIST

d-Block Elements

Classification and Electronic Configuration

DPP – 01

Topic: Classification and EC

Questions: 40 Questions

Exam: NEET / JEE

▶ TYPE 1 : General Characteristics, Classification & Properties

Q1. Coinage metals are (Cu, Ag, Au)

- (1) Normal metals (2) Transition metals (3) Active metals (4) Highly electropositive

Q2. Which of the following group of transition metal is called coinage metals?

- (1) Cu, Ag, Au (3) Fe, Co, Ni
(2) Ru, Rh, Pb (4) Os, Ir, Pt

Q3. Which of the following belongs to group '8'?

- (1) Ni, Pd, Pt (3) Fe, Ru, Os
(2) F, Cl, Br (4) Xe, Ar, Kr

Q4. Transition element is defined as one which has

- (1) Fully filled $(n - 1)d$ subshell
(2) Incompletely filled nd subshell in ground or in higher oxidation state
(3) Incompletely filled $(n - 1)d$ subshell in ground state
(4) Incompletely filled $(n - 1)d$ subshell in ground state or any one of its oxidation states

Q5. Zn, Cd and Hg are not regarded as transition elements on the basis of electronic configuration because

- (1) they do not have electrons in d-subshell
(2) their d and s-subshells remain fully filled in ground and higher oxidation states
(3) their s-subshell remains incomplete in ground and ionic state
(4) their penultimate shell remains completely filled in ground and in higher oxidation state

Q6. Statement-A: The hardness of Cr is due to covalent bond.

Statement-B: The metallic lustre of Cr is due to metallic bond.

Both A and B statements are

- (1) True, True (2) True, False (3) False, True (4) False, False

Q7. Match the column

Column-I	Column-II
A. Zn	i. coinage metal
B. Cr	ii. highest Mp in 3d series
C. Cu	iii. non-typical transition metal
D. Ce	iv. f-block element

- (1) A–iii; B–ii; C–i; D–iv (3) A–i; B–iv; C–iii; D–ii
 (2) A–iv; B–i; C–ii; D–iii (4) A–ii; B–i; C–iv; D–iii

Q8. Which of the following group of transition metal is used to prepare currency coins?

- (1) Cu, Ag, Au (3) Fe, Co, Ni
 (2) Ru, Rh, Pd (4) Os, Ir, Pt

Q9. Which groups of elements are called d-block elements in modern periodic table?

- (1) 1 to 2 (2) 3 to 10 (3) 3 to 12 (4) 13 to 18

Q10. Which block elements are more electropositive in modern periodic table?

- (1) s (2) p (3) d (4) f

Q11. Which block elements are less electropositive in modern periodic table?

- (1) s (2) p (3) d (4) f

Q12. Which elements transit between more electropositive and less electropositive elements?

- (1) s (2) p (3) d (4) f

Q13. In modern periodic table, by which name are d-block elements known?

- (1) More electropositive elements (3) Transition elements
 (2) Less electropositive elements (4) Inner-transition elements

Q14. Which of the following is not considered as a transition element?

- (1) Cd (2) Pd (3) Ag (4) Ru

Q15. Which of the following is not considered as a transition element?

- (1) Au (2) Hg (3) La (4) Pt

Q16. Which one of the following is not a transition metal?

- (1) Chromium (2) Titanium (3) Lead (4) Tungsten

Q17. The name 'transition metal' was derived from the fact that

- (1) chemical properties transition between s & p block elements
(2) chemical properties transition between s & f block elements
(3) chemical properties transition between p & f block elements
(4) None of these

Q18. Which statement is correct?

- (1) Transition metals have incomplete d-subshell either in neutral atom or in their ions.
(2) Zn, Cd and Hg are not regarded as transition metals.
(3) Due to presence of partly filled d or f orbitals in their atoms, transition elements differ from non-transition elements.
(4) All are correct.

Q19. Transition elements from $Z = 39$ to $Z = 48$ belong to

- (1) 3d series (2) 4d series (3) 5d series (4) 6d series

Q20. Which of the following is not a transition element?

- (1) Cu (2) Ac (3) Zn (4) Pd

Q21. The first transition element is

- (1) scandium (2) chromium (3) nickel (4) copper

Q22. Iron is a/an

- (1) normal element (3) transition element
(2) representative element (4) inner-transition element

Q23. Which one of the following statements is not correct?

- (1) Iron belongs to VIII group (3) Iron is a member of the 3d-series
(2) Iron belongs to third period (4) Iron is a transition metal

Q24. Assertion: Transition elements are different from non-transition elements.

Reason: Due to the presence of partly filled d or f orbitals in their atoms.

- (1) If both Assertion & Reason are True and the Reason is a correct explanation of the Assertion.
- (2) If both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.
- (3) If Assertion is True but the Reason is False.
- (4) If both Assertion & Reason are False.

▶ TYPE 2 : Electronic Configuration

Q25. Which one of the following ions has electronic configuration $[\text{Ar}]3d^6$?

[AIPMT (Prelims)-2010]

- (1) Ni^{3+} (2) Mn^{3+} (3) Fe^{3+} (4) Co^{3+}

Q26. Among the following series of transition metal ions, the one where all metal ions have $3d^2$ electronic configuration is [At. No. Ti = 22, V = 23, Cr = 24, Mn = 25]

- (1) $\text{Ti}^{3+}, \text{V}^{2+}, \text{Cr}^{3+}, \text{Mn}^{4+}$ (3) $\text{Ti}^{4+}, \text{V}^{3+}, \text{Cr}^{2+}, \text{Mn}^{3+}$
 (2) $\text{Ti}^{+}, \text{V}^{4+}, \text{Cr}^{6+}, \text{Mn}^{7+}$ (4) $\text{Ti}^{2+}, \text{V}^{3+}, \text{Cr}^{4+}, \text{Mn}^{5+}$

Q27. Which one of the following pairs of ions have same electronic configuration?

- (1) $\text{Cr}^{3+}, \text{Fe}^{3+}$ (3) $\text{Fe}^{3+}, \text{Co}^{3+}$
 (2) $\text{Mn}^{2+}, \text{Fe}^{3+}$ (4) $\text{Sc}^{3+}, \text{Cr}^{3+}$

Q28. Match the column

Element	Unpaired e^-
A. Fe	i. 4
B. Mn	ii. 5
C. Cu	iii. 0
D. Zn	iv. 1

- (1) A-i; B-ii; C-iii; D-iv (3) A-i; B-ii; C-iv; D-iii
 (2) A-ii; B-i; C-iv; D-iii (4) A-iv; B-iii; C-ii; D-i

Q29. Assertion: Group 11 is also known as coinage metals.

Reason: In Cu, there are $17 e^-$ in penultimate shell.

- (1) If both Assertion & Reason are True and the Reason is a correct explanation of the Assertion.
- (2) If both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.
- (3) If Assertion is True but the Reason is False.
- (4) If both Assertion & Reason are False.

Q30. Which of the following is general electron configuration of transition elements?

- (1) $(n-1)d^{1-9}ns^{1-2}$
 (2) $(n-1)d^{1-10}ns^{1-2}$

- (3) $(n-1)d^{1-10}ns^1$
 (4) $(n-1)d^{1-9}ns^2$

Q31. How many d-electrons are there in Fe^{2+} ($Z = 26$)?

- (1) 4 (2) 5 (3) 6 (4) 3

Q32. Which of the following is an electron configuration of Cr?

- Ar $3d^4 4s^2$
 Ar $3d^5 4s^2$

- Ar $3d^5 4s^1$
 Ar $3d^5 3s^1$

Q33. Which of the following is an electron configuration of Cu?

- Ar $3d^9 4s^2$
 Ar $3d^9 3s^2$

- Ar $3d^{10} 3s^1$
 Ar $3d^{10} 4s^1$

Q34. In which of the following group, all ions have $3d^2$ configuration? [Atomic No. Ti = 22, V = 23, Cr = 24, Mn = 25]

- (1) Ti^{3+} , V^{2+} , Cr^{3+} , Mn^{4+}
 (2) Ti^+ , V^{4+} , Cr^{6+} , Mn^{7+}

- (3) Ti^{4+} , V^{3+} , Cr^{2+} , Mn^{3+}
 (4) Ti^{2+} , V^{3+} , Cr^{4+} , Mn^{5+}

Q35. Which of following pair of elements has $(n-1)d^{10}ns^2$ electronic configuration?

- (1) Fe, Co, Ni
 (2) Cu, Ag, Au

- (3) Zn, Cd, Hg
 (4) Sc, Y, La

Q36. General electronic configuration of Zn, Cd, Hg and Cn is

- (1) $(n-1)d^{10}ns^1$
 (2) $(n-1)d^{10}ns^2$

- (3) $(n-1)d^9ns^2$
 (4) $(n-1)d^{1-10}ns^1$

Q37. The general electronic configuration of transition elements is

- (1) $(n-1)d^{1-5}$
 (2) $(n-1)d^{1-10}ns^1$

- (3) $(n-1)d^{1-10}ns^1 \text{ or } 2$
 (4) none

Q38. The electronic configuration of the element which is just above the element with atomic number 43 in the same periodic group is

- (1) $1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^5, 4s^2$
 (2) $1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^{10}, 4s^2 4p^5$
 (3) $1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^6, 4s^1$
 (4) $1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^{10}, 4s^1 4p^6$

Q39. The number of d-electrons in Fe^{2+} (at. no. of iron = 26) is not equal to that of

- (1) p electrons in neon (at. no. = 10)
- (2) s electrons in Mg (at. no. = 12)
- (3) d electrons in Fe
- (4) p electrons in Cl^- (at. no. of Cl = 17)

Q40. Match the column

Column-I (Element)	Column-II (Electronic configuration)
(i) Rg ($Z = 111$)	(a) $[\text{Kr}] 4d^6 5s^1$
(ii) W ($Z = 74$)	(b) $[\text{Rn}] 5f^{14} 6d^{10} 7s^1$
(iii) Mo ($Z = 42$)	(c) $[\text{Xe}] 4f^{14} 5d^4 6s^2$
(iv) Tc ($Z = 43$)	(d) $[\text{Kr}] 4d^5 5s^1$

(1) i-b; ii-c; iii-d; iv-a

(2) i-c; ii-b; iii-d; iv-a

(3) i-a; ii-c; iii-d; iv-b

(4) i-d; ii-b; iii-c; iv-a