

CHEMISTRY

Topic: D- Block

- Q.1** The metallic bond strength in first transition series increases from -
- (A) Sc to Mn (B) Sc to Cr
(C) Cr to Zn (D) Sc to Cu
- Q.2** Which of the following is a correct statements -
- (A) Iron is an element of third transition series
(B) Iron is a f-block element
(C) Iron is an element of first transition series
(D) None of these
- Q.3** The pair in which both the elements generally shows only one oxidation state is -
- (A) Sc and Zn (B) Zn and Cu
(C) Cu and Ag (D) Zn and Au
- Q.4** Transition elements show variable oxidation states because they lose electrons from the following orbitals -
- (A) ns and np (B) (n - 1) d and ns
(C) (n - 1) d (D) ns
- Q.5** The magnetic moment for Ti^{2+} , V^{3+} , and Ni^{2+} is -
- (A) 4.90 (B) 3.87
(C) 2.83 (D) 1.73

Q.6 $\mu = \sqrt{15}$ is true for the pair -

- (A) Co^{+2} , Cr^{+3} (B) Fe^{+2} , Cr^{+3}
(C) Fe^{+3} , Cr^{+2} (D) Mn^{+2} , Fe^{+2}

Q.7 Which of the following has maximum magnetic moment -

- (A) V^{3+} (B) Cr^{3+}
(C) Fe^{3+} (D) Co^{3+}

Q.8 The ion pair of the following in which both the ions have unpaired electron -

- (A) Cr^{3+} , Co^{2+} (B) Sc^{3+} , Cr^{3+}
(C) Cu^{+} , Fe^{3+} (D) Mn^{2+} , Cu^{+}

Q.9 Ti^{+2} and Ni^{2+} contain -

- (A) Equal number of paired electrons
(B) Equal number of unpaired electrons
(C) Different number of 2p electrons
(D) Different number of 3p electrons

Q.10 The reason for the formation of complex compounds by transition metal is -

- (A) Availability of empty d-orbitals
(B) Completely filled d-orbitals
(C) Paramagnetism
(D) Bigger size

- Q.11** In a transition series, as the atomic number increases, paramagnetism -
- (A) Increases gradually
 - (B) Decreases gradually
 - (C) First increases to a maximum and then decreases
 - (D) First decreases to a minimum and then increases
- Q.12** The magnetic moment of a transition metal ion is found to be 3.87 B.M. The number of unpaired electrons present in it is -
- (A) 2
 - (B) 3
 - (C) 4
 - (D) 5
- Q.13** Which of the following transition metal has the highest melting point -
- (A) Cr
 - (B) Mo
 - (C) W
 - (D) Hg
- Q.14** Ionic character of halides of metals (3d-transition series) decreases in the order -
- (A) M-I > M-Br > M-Cl > M-F
 - (B) M-Cl > M-Br > M-I > M-F
 - (C) M-Br > M-Cl > M-F > M-I
 - (D) M-F > M-Cl > M-Br > M-I
- Q.15** Which of the following group of transition metals is called coinage metals -
- (A) Cu, Ag, Au
 - (B) Ru, Rh, Pd
 - (C) Fe, Co, Ni
 - (D) Os, Ir, Pt
- Q.16** Which of the following contains the maximum number of unpaired electrons -
- (A) TiCl_3
 - (B) MnCl_2
 - (C) FeSO_4
 - (D) CuSO_4

Q.17 $K_2Cr_2O_7$ is preferred to $Na_2Cr_2O_7$ for use in volumetric analysis as a primary standard because -

- (A) $Na_2Cr_2O_7$ is hygroscopic while $K_2Cr_2O_7$ is not
- (B) $K_2Cr_2O_7$ is hygroscopic while $Na_2Cr_2O_7$ is not
- (C) $K_2Cr_2O_7$ is pure while $Na_2Cr_2O_7$ is impure
- (D) None of these

Q.18 Lanthanide contraction implies -

- (A) Decrease in density
- (B) Decrease in mass
- (C) Decrease in ionic radii
- (D) Decrease in radioactivity

Q.19 The lanthanide contraction is responsible for the fact that -

- (A) Zr and Y have about the same radius
- (B) Zr and Nb have similar oxidation state
- (C) Zr and Hf have about the same radius
- (D) Zr and Zn have the same oxidation state

Q.20 The basic character of the transition metal monoxide follows the order -

- (A) $VO > CrO > TiO > FeO$
- (B) $CrO > VO > FeO > TiO$
- (C) $TiO > FeO > VO > CrO$
- (D) $TiO > VO > CrO > FeO$

Q.21 When intimate mixture of potassium dichromate and potassium chloride is heated with conc. H_2SO_4 which of the following is produced in the form of red vapours -

- (A) CrO_3 (B) Cr_2O_3
- (C) CrO_2Cl_2 (D) $CrCl_3$

- Q.22** Which oxide of manganese is acidic in nature -
- (A) MnO (B) Mn₂O₇
(C) Mn₂O₃ (D) MnO₂
- Q.23** Which of the following compounds is used as the starting material for the preparation of potassium dichromate -
- (A) K₂SO₄·Cr₂(SO₄)₃·24H₂O (Chrome alum)
(B) PbCrO₄ (Chrome yellow)
(C) FeCr₂O₄ (Chromite)
(D) PbCrO₄PbO (Chrome red)
- Q.24** The starting material for the manufacture of KMnO₄ is -
- (A) Pyrolusite (B) Manganite
(C) Magnetite (D) Haematite
- Q.25** Which of the following is ionic in nature -
- (A) CuF₂ (B) CuCl₂
(C) CuBr₂ (D) None of these
- Q.26** AgCl is soluble in NH₄OH solution. The solubility is due to the formation of -
- (A) AgOH (B) Ag₂O
(C) [Ag(NH₃)₂]⁺ (D) NH₄Cl
- Q.27** The stability of particular oxidation state of a metal in aqueous solution is determined by -
- (A) Enthalpy of sublimation of the metal
(B) Ionization energy
(C) Enthalpy of hydration of the metal ion
(D) All of these

Q.28 Which of the following compounds is (are) coloured due to charge transfer spectra and not due to d-d transition ?

- (A) $K_2Cr_2O_7$ (B) $KMnO_4$
(C) Both (A) & (B) (D) None of these

Q.29 Which of the following compounds are coloured due to charge transfer spectrum ?

- (A) $K_2Cr_2O_7$ (B) $KMnO_4$
(C) $[Fe(H_2O)_5NO]SO_4$ (D) All of these

Q.30 The correct formula of permanganic acid is -

- (A) $HMnO_4$ (B) $HMnO_5$
(C) H_2MnO_4 (D) H_2MnO_3

ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10
Ans.	B	C	A	B	C	A	C	A	B	A
Que.	11	12	13	14	15	16	17	18	19	20
Ans.	C	B	C	D	A	B	A	C	C	D
Que.	21	22	23	24	25	26	27	28	29	30
Ans.	C	B	C	A	A	C	D	C	D	A