DPP EXERCISE
NEET
INORGANIC CHEMISTRY

BY
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d & f BLOCK

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DPP -1

1. Which of the following does not have abnormal electronic configuration ?

(1) Cr (2) Pd (3) Pt (4) Hg

Ans. **(4)**

2. The trend in ionisation enthalpy of a transition element is not regular because

(1) Removal of one electron alters the relative energies of 4s and 3d orbitals

(2) Due to different E.C. (stability)

(3) Poor screening of 3p orbital

(4) Due to decrease in effective nuclear charge

Ans. **(1)**

3. The element having lowest IE_1

(1) Fe (2) Co (3) Ni (4) Cu

Ans. **(3)**

4. Choose the correct pair regarding IE_3.

(1) Mn > Cr (2) Mn > Fe (3) Zn > Cu (4) All of these

Ans. **(4)**

5. Which of the following element does not show the variable oxidation state ?

(1) Fe (2) Mn (3) Cu (4) Zn

Ans. **(4)**

6. With F highest stable oxidation state of Mn is

(1) +6 (2) +4 (3) +7 (4) +3

Ans. **(2)**

7. With O highest possible oxidation state of Mn is

(1) +7 (2) +4 (3) +5 (4) +3

Ans. **(1)**

8. Oxygen stabilises higher oxidation state because

(1) It is electronegative

(2) Of its tendency to form double bond

(3) Of small size

(4) Of large size

Ans. **(2)**

9. Which of the following have highest magnetic moment ?

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

Ans. **(2)**

10. Reduction potential of M^{2+}/M will depend on

(1) $IE_1 + IE_2$ (2) $\Delta H_{atomisation}$ (3) Hydration energy (4) All of these

Ans. **(4)**

DPP-2

1. Amongst the following ions, which is considered as most stable in M^{2+} state ?

(1) Ti^{2+}/Ti (–1.63V) (2) V^{2+}/V (–1.11V) (3) Cr^{2+}/Cr (–0.90V) (4) Mn^{2+}/Mn (+1.18V)

Ans. **(1)**

2. Electrode potential of M^{2+} / M for Ni is abnormal because of

(1) High $IE_1 + IE_2$ (2) High hydration energy

(3) $\Delta H_{atomisation}$ (4) Electronic configuration of Ni^{2+}

Ans. **(2)**

3. The species which is paramagnetic

(1) Cr^{+} (2) Zn^{2+} (3) Cu^{+} (4) MnO_4^{-}

Ans. **(1)**

4. The inner transition element that is radioactive is

(1) Pm (2) Gd (3) Lu (4) Sm

Ans. **(1)**

5. The lanthanoid contraction is responsible for the fact that

(1) Zr and Y have about the same radius

(2) Zr and Nb have similar oxidation state

(3) Zr and Hf have about the same radius

(4) Zr and Zn have the same oxidation state

Ans. **(3)**

6. Size of lanthanoid decrease because of poor screening of

(1) 4f (2) 3d (3) 5f (4) 4d

Ans. **(1)**

7. The strongest base is

(1) $Ce(OH)_3$ (2) $Lu(OH)_3$ (3) $Yb(OH)_3$ (4) $Pm(OH)_3$

Ans. **(1)**

8. The element that is not present in misch metal is

(1) La (2) Iron (3) Na (4) Ce

Ans. **(3)**

9. Most stable oxidation state of lanthanoids

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

Ans. **(2)**

10. 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 ?

(1) CrO_3 (2) Cr_2O_3 (3) CrO_2Cl_2 (4) $CrCl_2$

Ans. **(3)**

DPP-3

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

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

Ans. **(2)**

2. $Cr_2O_7^{2-} + X \xrightarrow{H^+} Cr^{3+} + H_2O$ + oxidised product of X. X in the above reaction cannot be

(1) $C_2O_4^{2-}$ (2) Fe^{2+} (3) SO_4^{2-} (4) S^{2-}

Ans. **(3)**

3. The reducing nature of any metal in aqueous solution depends upon

a. Enthalpy of atomisation b. Ionisation enthalpies c. Hydration energy

(1) a & b only (2) Only b (3) b & c only (4) a, b & c

Ans. **(4)**

4. Which of the following oxide is basic ?

(1) CrO (2) Cr_2O_3 (3) CrO_3 (4) Cr_2O_4

Ans. **(1)**

5. The magnetic moment of a transition metal ion is found to be 5.92 BM. The number of unpaired electrons present in it is

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

Ans. **(4)**

6. Which of the following is the consequences of lanthanoid contraction ?

(1) Separation of mixture of lanthanoids is difficult

(2) Basic nature of hydroxides decrease from first member to last member of lanthanoids

(3) Size of Hf and Zr is different

(4) Both (1) & (2)

Ans. **(4)**

7. Which of the following is non-typical transition element ?

(1) Ti (2) Cr (3) Fe (4) Sc

Ans. **(4)**

8. n-factor of $KMnO_4$ in neutral medium is

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

Ans. **(4)**

9. $K_2Cr_2O_7 + I^- + H^+ \rightarrow$ Oxidized product. The product is

(1) KIO_3 (2) I_2 (3) I_3^- (4) Cr_2O_3

Ans. **(2)**

10. Which of the following is coloured due to charge transfer ?

(1) MnO_4^- (2) CrO_4^{2-} (3) Cu_2O (4) All of these

Ans. **(4)**

DPP-4

1. Coinage metals are

(1) Normal metals (2) Transition metals

(3) Active metals (4) Highly electropositive

Ans. **(2)**

2. Pyrolusite is used to prepare potassium permanganate $MnO_2 \xrightarrow{X} MnO_4^{2-} \xrightarrow{Y} MnO_4^- X$ and Y are

(1) Fuse with KOH/air, electrolytic reduction (2) Fuse with KOH/air, electrolytic oxidation

(3) Fuse with Conc. HNO_3/air, electrolytic reduction (4) All are correct

Ans. **(2)**

3. Which one of the following exhibits highest oxidation state ?

(1) Zr (2) V (3) Mn (4) Ni

Ans. **(3)**

4. Ce (Z = 58) and Yb (Z = 70) exhibits stable +4 and +2 oxidation states respectively. This is because

(1) Ce^{4+} and Yb^{2+} acquire f^7 configuration (2) Ce^{4+} and Yb^{2+} acquire f^0 configuration

(3) Ce^{4+} and Yb^{2+} acquire f^0 and f^{14} configuration (4) Ce^{4+} and Yb^{2+} acquire f^7 and f^{14} configuration

Ans. **(3)**

5. The purple coloured solution is made alkaline with KOH and is treated with KI forming potassium iodate. The same solution is acidified with H_2SO_4 and again it H is treated with KI. However this time instead of potassium iodate, Iodine gas is released. The purple coloured solution is of

(1) $K_2Cr_2O_7$ (2) $K_2Cr_2O_4$ (3) $KMnO_4$ (4) K_2MnO_4

Ans. **(3)**

6. Acidified solution of chromic acid on treatment with H_2O_2 gives blue colour which is due to

(1) $CrO_3 + H_2O + O_2$ (2) $Cr_2O_3 + H_2O + O_2$ (3) $CrO_5 + H_2O$ (4) $H_2Cr_2O_7 + H_2O + CO_2$

Ans. **(3)**

7. $FeSO_4$ on heating gives

(1) SO_2 and SO_3 (2) SO_2 only (3) SO_3 only (4) SO_2 and O_2

Ans. **(1)**

8. What are the species X and Y in the following ?

$X + H_2O \longrightarrow H_2Cr_2O_7 \xrightarrow{OH^-} Y$

(1) CrO_4^{-2}, $Cr_2O_7^{-2}$ (2) CrO_3, Cr_2O_3 (3) H_2CrO_4, $H_2Cr_2O_7$ (4) CrO_3, CrO_4^{2-}

Ans. **(4)**

9. The correct statement

(1) Green vitriol and blue vitriol are isomorphus

(2) $KMnO_4$ and $K_2Cr_2O_7$ are coloured due to d - d transitions

(3) Cu_2Cl_2 and Ag_2S are coloured

(4) Upon strong heating paramagnetic gases are evolved by $NaNO_3$ and $AgNO_3$

Ans. **(4)**

10. Which oxide of manganese is acidic in nature ?

(1) MnO (2) Mn_2O_7 (3) Mn_2O_3 (4) MnO_2

Ans. **(2)**

DPP-5

1. The blue colour produced on adding H_2O_2 to acidified $K_2Cr_2O_7$ is due to the formation of

(1) CrO_5 (2) Cr_2O_3 (3) CrO_4^{2-} (4) CrO_3

Ans. **(1)**

2. $4K_2Cr_2O_7 \longrightarrow 4K_2CrO_4 + 3O_2 + X$, in this reaction X is

(1) CrO_3 (2) Cr_2O_7 (3) Cr_2O_3 (4) CrO_5

Ans. **(3)**

3. Which of the following is not coloured ?

(1) Mn^{2+} (2) Cr^{3+} (3) Zn^{2+} (4) Cu^{2+}

Ans. **(3)**

4. Ammonium dichromate is used in fireworks. The green coloured powder blown in the air is

(1) CrO_3 (2) Cr_2O_3 (3) Cr (4) $CrO(O)_2$

Ans. **(2)**

5. Which of the following statement is correct for 3d-transition element ?

(1) All the metals except Sc forms 'MO' oxide

(2) All the metals except Zn forms 'MO' oxide

(3) All the metals except Zn and Sc forms 'MO' oxide

(4) All the metals except Mn forms 'MO' oxide

Ans. **(1)**

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

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

Ans. **(3)**

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

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

Ans. **(2)**

8. The equivalent of $MnSO_4$ is equal to its molecular weight when it is converted to

(1) Mn_2O_3 (2) MnO_2 (3) MnO_4^- (4) MnO_4^{2-}

Ans. **(1)**

9. Transuranic elements being with

(1) Np (2) Cm (3) Pu (4) U

Ans. **(1)**

10. Gun metal contains

(1) Cu, Sn, Zn (2) Cu, Ni (3) Cu, Ni, Fe (4) Cu, Sn, P

Ans. **(3)**

DPP-6

1. The colour of $K_2Cr_2O_7$ and Fe^{+2} ions are respectively due to

(1) d-d transition and charge transfer spectra

(2) Charge transfer spectra and d-d transition

(3) Crystal defects and charge transfer spectra

(4) Charge transfer spectra and crystal defects

Ans. **(2)**

2. The element which does not show d^0 configuration in its highest oxidation state

(1) V (2) Mn (3) Cr (4) Fe

Ans. **(4)**

3. CrO_3 is coloured due to

(1) Crystal defect (2) Unpaired electrons

(3) Charge transfer spectra (4) Low I.E.

Ans. **(3)**

4. Which of the following occur when $AgNO_3$ becomes, red hot

(1) $2AgNO_3 \rightarrow 2Ag + 2NO_2 + O_2$ (2) $AgNO_3 \rightarrow Ag + NO + O_2$

(3) $2AgNO_3 \rightarrow Ag\ NO_2 + O_2$ (4) $2AgNO_3 \rightarrow 2Ag + N_2 + 3O_2$

Ans. **(1)**

5. Which one alloys does not contain copper ?

(1) Bronze (2) Brass (3) German silver (4) Mischmetal

Ans. **(4)**

6. The metal which can form cation having metal - metal bond

(1) Mercury (2) Copper (3) Osmium (4) Iron

Ans. **(1)**

7. Value of magnetic moment of a divalent metal ion is 5.92 BM. Total number of electron in its atom would be

(1) 24 (2) 25 (3) 26 (4) 27

Ans. **(2)**

8. In black and white photography, the developed film is fixed by washing with

(1) AgBr solution (2) Hypo solution (3) $Na_2S_4O_6$ solution (4) FeC_2O_4 solution

Ans. **(2)**

9. Gold dissolves in aqua regia to give

(1) $H[AuCl_4]$ (2) $AuNO_3$ (3) $H_2[AuCl_6]$ (4) $Au(NO_3)_3$

Ans. **(1)**

10. $FeO.Cr_2O_3 \xrightarrow[O_2]{Na_2CO_3} A \xrightarrow{H_2SO_4} B \xrightarrow{KCl} C$

The hybridization of compound C and colour of its crystal is

(1) sp^3, orange red (2) sp^3, yellow (3) sp^2, orange red (4) sp^2, yellow

Ans. **(1)**