Quiz: d and f block 1

Q1: Which of the following is NOT a characteristic property of d-block elements?

A) Variable oxidation states
B) Formation of coloured ions
C) High electronegativity
D) Catalytic activity

Q2: The highest oxidation state shown by manganese is:

A) +5
B) +6
C) +7
D) +4

Q3: Which of the following transition metal ions is colourless?

A) Ti^{3+}
B) Cr^{3+}
C) Zn^{2+}
D) Cu^{2+}

Q4: Which element of the 3d series shows the maximum number of oxidation states?

A) Fe
B) Cr
C) Mn
D) Cu

Q5: The magnetic moment of Fe^{3+} (high spin) ion is closest to:

A) 3.87 BM
B) 4.90 BM
C) 5.92 BM
D) 6.93 BM

Q6: Which of the following elements does NOT belong to the d-block?

A) Zn
B) Cd
C) Hg
D) Al

Q7: The catalytic activity of transition metals is mainly due to:

A) High ionisation energy
B) Variable oxidation states
C) Large atomic size
D) Low density

Q8: Which of the following has the highest melting point?

A) Zn
B) Fe
C) Cu

D) Hg

Q9: Which of the following ions has maximum number of unpaired electrons?

A) Fe2+
B) Mn2+
C) Cr3+
D) Ni2+

Q10: Which transition metal is used as a catalyst in the Haber process?

A) Ni
B) Fe
C) Cu
D) Pt

Q11: The oxidation state of chromium in K2Cr2O7 is:

A) +3
B) +4
C) +5
D) +6

Q12: Which of the following statements about transition metals is correct?

A) They form only colourless compounds
B) They show only one oxidation state
C) They generally form paramagnetic compounds
D) They have completely filled d-orbitals

Q13: Which of the following is an inner transition element?

A) Ce
B) Fe
C) Zn
D) Cu

Q14: The electronic configuration of Cu+ is:

A) [Ar] 3d9
B) [Ar] 3d10
C) [Ar] 3d10 4s1
D) [Ar] 3d8

Q15: Which lanthanoid shows the highest oxidation state?

A) Ce
B) Eu
C) Gd
D) Lu

Q16: Lanthanoid contraction is mainly due to:

A) Poor shielding by 4f electrons
B) Increase in nuclear charge
C) Decrease in atomic mass
D) Poor shielding by 5d electrons

Q17: Which of the following ions is most stable in aqueous solution?

A) Cu+
B) Cu2+
C) Ag2+
D) Fe4+

Q18: Which of the following has the highest paramagnetism?

A) Fe2+
B) Fe3+
C) Co2+
D) Ni2+

Q19: Which of the following statements about Zn, Cd, and Hg is correct?

A) They are typical transition metals
B) They have partially filled d-orbitals in ground state
C) They do not show variable oxidation states
D) They form coloured compounds

Q20: The most common oxidation state of lanthanoids is:

A) +2
B) +3
C) +4
D) +5

Q21: Which of the following elements is used in nuclear reactors as control rods?

A) Uranium
B) Plutonium
C) Cadmium
D) Thorium

Q22: Which of the following 3d metals has the highest atomic radius?

A) Sc
B) Ti
C) V
D) Zn

Q23: The electronic configuration of Fe3+ is:

A) [Ar] 3d5
B) [Ar] 3d6
C) [Ar] 3d4
D) [Ar] 3d7

Q24: Which actinoid element is used as nuclear fuel?

A) Thorium
B) Uranium
C) Neptunium
D) Americium

Q25: The colour of transition metal compounds is mainly due to:

A) Charge transfer transitions
B) d-d transitions
C) Large atomic size
D) Metal-metal bonding

Q26: Which of the following shows the maximum number of oxidation states?

A) Cr
B) Mn
C) Fe
D) Co

Q27: Which of the following ions is diamagnetic?

A) Mn^{2+}
B) Fe^{3+}
C) Ni^{2+}
D) Zn^{2+}

Q28: The lanthanoids are also known as:

A) Rare earth metals
B) Alkali metals
C) Noble metals
D) Heavy metals

Q29: Which of the following is the strongest reducing agent among lanthanoids?

A) La
B) Ce
C) Eu
D) Lu

Q30: Which transition metal forms a protective oxide layer on its surface?

A) Fe
B) Cu
C) Al
D) Zn

Q31: The electronic configuration of Cr is exceptional because:

A) It has completely filled 4s orbital
B) It has half-filled 3d subshell
C) It has empty d-orbitals
D) It has fully filled d-orbitals

Q32: Which of the following is used as a catalyst in hydrogenation reactions?

A) Fe
B) Ni
C) Cu
D) Zn

Q33: Which f-block elements show radioactive nature?

A) Lanthanoids
B) Actinoids
C) Both lanthanoids and actinoids
D) None

Q34: The oxidation state of vanadium in V_2O_5 is:

A) +3
B) +4
C) +5
D) +2

Q35: Which of the following shows maximum lanthanoid contraction?

A) La^{3+}
B) Ce^{3+}
C) Gd^{3+}
D) Lu^{3+}

Q36: Which transition metal does NOT form coloured ions?

A) Fe
B) Co
C) Ni
D) Sc

Q37: The stability of +2 oxidation state in Cu is due to:

A) High ionisation energy
B) High hydration energy
C) Half-filled d-orbitals
D) Large atomic size

Q38: Which of the following elements is NOT an actinoid?

A) Th
B) U
C) Np
D) Ce

Q39: Which transition metal is used in stainless steel?

A) Cu
B) Ni
C) Zn
D) Ag

Q40: The most stable oxidation state of iron is:

A) +1
B) +2
C) +3
D) +6

Q41: Which of the following properties of transition metals is due to the presence of unpaired d-electrons?

A) High melting point
B) Variable oxidation states
C) Paramagnetism
D) Metallic bonding

Q42: Which of the following ions will have zero unpaired electrons?

A) Fe^{2+}
B) Mn^{2+}
C) Cu^{2+}
D) Zn^{2+}

Q43: The most stable oxidation state of copper in aqueous solution is:

A) +1
B) +2
C) +3
D) +4

Q44: Which of the following transition metal oxides is amphoteric?

A) MnO
B) Cr_2O_3
C) FeO
D) CuO

Q45: The electronic configuration of Mn^{2+} is:

A) [Ar] $3d^4$
B) [Ar] $3d^5$
C) [Ar] $3d^6$
D) [Ar] $3d^7$

Q46: Which of the following transition metals shows maximum paramagnetism?

A) Cr^{3+}
B) Mn^{2+}
C) Fe^{2+}
D) Ni^{2+}

Q47: Which of the following pairs shows similar chemical properties due to lanthanoid contraction?

A) Zr and Hf
B) Fe and Co
C) Cu and Ag
D) Cr and Mo

Q48: Which lanthanoid ion shows maximum paramagnetism?

A) Ce^{3+}
B) Gd^{3+}
C) Eu^{3+}
D) Lu^{3+}

Q49: Which of the following is responsible for the irregular decrease in atomic radii of lanthanoids?

A) Increase in atomic mass
B) Increase in nuclear charge
C) Poor shielding by 4f electrons
D) Decrease in screening by 5d electrons

Q50: Which of the following metals is extracted by aluminothermic process?

A) Zn
B) Cu
C) Cr
D) Ag

Q51: Which transition metal does NOT exhibit variable oxidation states?

A) Fe
B) Mn
C) Sc
D) Cr

Q52: Which of the following ions is strongest reducing agent in aqueous solution?

A) Fe^{2+}
B) Sn^{2+}
C) Cr^{2+}
D) Cu^{+}

Q53: Which actinoid shows the widest range of oxidation states?

A) Thorium
B) Uranium
C) Plutonium
D) Americium

Q54: The compound responsible for the green colour of chromium salts is:

A) CrO_4^{2-}
B) $Cr_2O_7^{2-}$
C) Cr^{3+}
D) Cr^{6+}

Q55: Which of the following transition metals forms the largest number of alloys?

A) Iron
B) Copper
C) Nickel
D) Zinc

Q56: Which of the following ions shows maximum tendency to form complexes?

A) Na^{+}
B) Mg^{2+}
C) Fe^{3+}
D) Ca^{2+}

Q57: The blue colour of $CuSO_4 \cdot 5H_2O$ is due to:

A) Charge transfer transition
B) d-d transition of Cu^{2+}
C) Hydration of SO_4^{2-}
D) Metal-metal bonding

Q58: Which of the following ions is least paramagnetic?

A) Fe^{2+}
B) Co^{2+}
C) Ni^{2+}
D) Mn^{2+}

Q59: Which transition metal oxide is acidic in nature?

A) MnO
B) CrO_3
C) FeO
D) CuO

Q60: The oxidation state of iron in $K_4[Fe(CN)_6]$ is:

A) +1
B) +2
C) +3
D) +4

Q61: Which of the following statements about actinoids is correct?

A) They are non-radioactive
B) They show limited oxidation states
C) They have more tendency for complex formation
D) They do not show actinoid contraction

Q62: Which metal ion is used in photography?

A) Cu^{+}
B) Ag^{+}
C) Fe^{3+}
D) Zn^{2+}

Q63: The electronic configuration of Cr^{3+} is:

A) [Ar] $3d^3$
B) [Ar] $3d^4$
C) [Ar] $3d^5$
D) [Ar] $3d^2$

Q64: Which of the following metals is used for electroplating due to corrosion resistance?

A) Fe
B) Ni
C) Zn
D) Al

Q65: Which lanthanoid ion has zero unpaired electrons?

A) Ce^{3+}
B) Eu^{3+}
C) Gd^{3+}
D) Lu^{3+}

Q66: Which of the following transition metals is most corrosion resistant?

A) Fe
B) Cu
C) Ni
D) Cr

Q67: Which of the following ions shows Jahn-Teller distortion most strongly?

A) Mn^{2+}
B) Fe^{3+}
C) Cu^{2+}
D) Zn^{2+}

Q68: Which of the following is used as a moderator in nuclear reactors?

A) Graphite
B) Cadmium
C) Boron
D) Uranium

Q69: Which transition metal compound is used as an oxidizing agent?

A) $KMnO_4$
B) $FeSO_4$
C) $CuSO_4$
D) $ZnSO_4$

Q70: The most common oxidation state of actinoids is:

A) +2
B) +3
C) +4
D) +6

Q71: Which transition metal forms amalgams with mercury?

A) Fe
B) Zn
C) Cu
D) Ni

Q72: Which ion shows maximum hydration enthalpy?

A) Na^{+}
B) Mg^{2+}
C) Al^{3+}
D) Ca^{2+}

Q73: Which transition metal is used in coins?

A) Fe
B) Cu
C) Zn
D) Cr

Q74: Which of the following oxides is basic in nature?

A) CrO_3
B) Mn_2O_7
C) FeO
D) V_2O_5

Q75: The electronic configuration of Ni^{2+} is:

A) [Ar] $3d^6$
B) [Ar] $3d^7$
C) [Ar] $3d^8$
D) [Ar] $3d^9$

Q76: Which of the following is the strongest oxidizing agent?

A) MnO_4^-
B) $Cr_2O_7^{2-}$
C) Fe^{3+}
D) Cu^{2+}

Q77: Which transition metal forms coloured compounds in all oxidation states?

A) Zn
B) Sc
C) Mn
D) Cu

Q78: The lanthanoid contraction results in:

A) Increase in atomic size
B) Decrease in basicity of hydroxides
C) Increase in metallic character
D) Increase in shielding effect

Q79: Which metal is used as a catalyst in the Ostwald process?

A) Iron
B) Platinum
C) Nickel
D) Copper

Q80: Which of the following ions is diamagnetic?

A) Ti^{3+}
B) V^{2+}
C) Sc^{3+}
D) Cr^{3+}

Q81: Which of the following transition metal ions has the highest spin-only magnetic moment?

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

Q82: The reason for the formation of interstitial compounds by transition metals is:

A) High ionisation energy
B) Small atomic size of metal atoms
C) Presence of vacant interstitial sites in lattice
D) High electronegativity

Q83: Which of the following oxides shows acidic character?

A) MnO
B) FeO
C) CrO_3
D) CoO

Q84: The oxidation state of manganese in MnO_2 is:

A) +2
B) +3
C) +4
D) +7

Q85: Which of the following ions is most strongly hydrated in aqueous solution?

A) Na^+
B) Mg^{2+}
C) Al^{3+}
D) K^+

Q86: Which transition metal shows only +3 oxidation state?

A) Fe
B) Cr
C) Sc
D) Mn

Q87: Which of the following lanthanoid ions has the highest paramagnetism?

A) Ce^{3+}
B) Eu^{3+}
C) Gd^{3+}
D) Lu^{3+}

Q88: Which of the following elements shows the least tendency to form complexes?

A) Fe^{3+}
B) Cu^{2+}
C) Ni^{2+}
D) Zn^{2+}

Q89: The most stable oxidation state of vanadium is:

A) +2
B) +3
C) +4
D) +5

Q90: Which transition metal compound is used as an oxidising agent in acidic medium?

A) K_2CrO_4
B) $K_2Cr_2O_7$
C) $FeSO_4$
D) $CuSO_4$

Q91: The colour of Cu^{2+} salts is mainly due to:

A) Charge transfer transitions
B) d-d transitions
C) Ligand excitation
D) Metal-metal bonding

Q92: Which of the following ions shows Jahn-Teller distortion most prominently?

A) Mn^{2+}
B) Fe^{3+}
C) Cu^{2+}
D) Zn^{2+}

Q93: Which of the following is the correct order of increasing atomic radius in 3d series?

A) Zn < Cu < Ni < Co
B) Sc < Ti < V < Cr
C) Zn < Cu < Ni < Fe
D) Sc > Ti > V > Cr

Q94: Which actinoid element is used as nuclear fuel?

A) Thorium
B) Uranium
C) Neptunium
D) Americium

Q95: The lanthanoid contraction causes similarity in properties of:

A) Cu and Ag
B) Zn and Cd
C) Zr and Hf
D) Fe and Co

Q96: Which of the following oxides is amphoteric?

A) Cr_2O_3
B) MnO
C) FeO
D) CoO

Q97: The electronic configuration of Fe^{2+} is:

A) [Ar] 3d4
B) [Ar] 3d5
C) [Ar] 3d6
D) [Ar] 3d7

Q98: Which of the following is the strongest reducing agent among the given ions?

A) Fe^{2+}
B) Cr^{2+}
C) Cu^{+}
D) Sn^{2+}

Q99: Which of the following lanthanoid ions is diamagnetic?

A) Ce^{3+}
B) Eu^{3+}
C) Gd^{3+}
D) Lu^{3+}

Q100: The oxidation state of iron in Fe_3O_4 is:

A) +2 only
B) +3 only
C) +2 and +3
D) +4

Q461: Which transition metal is used as a catalyst in the Contact process?

A) Fe
B) Ni
C) V_2O_5
D) Pt

Q462: Which of the following ions has zero CFSE in octahedral field?

A) d^3
B) d^5 (high spin)
C) d^6 (low spin)
D) d^8

Q463: Which transition metal shows anomalous electronic configuration due to extra stability?

A) Sc
B) Cr
C) Mn
D) Co

Q464: Which of the following ions is colourless in aqueous solution?

A) Fe^{2+}
B) Cu^{2+}
C) Ti^{3+}
D) Zn^{2+}

Q465: The main reason for higher melting points of transition metals is:

A) High atomic mass
B) Strong metallic bonding
C) Large atomic size
D) High electronegativity

Q466: Which of the following shows maximum oxidation state in its compounds?

A) V
B) Cr
C) Mn
D) Fe

Q467: Which of the following metals is used in making magnets?

A) Cu
B) Fe
C) Zn
D) Ag

Q468: Which of the following transition metal ions is diamagnetic?

A) Ti^{3+}
B) V^{3+}
C) Sc^{3+}
D) Cr^{3+}

Q469: The stability of +3 oxidation state in lanthanoids is due to:

A) Low ionisation energy
B) High hydration enthalpy
C) Shielding effect of f-electrons
D) Half-filled f-subshell

Q470: Which of the following elements is radioactive?

A) La
B) Ce
C) U
D) Nd

Q471: Which transition metal forms the largest number of alloys?

A) Cu
B) Fe
C) Ni
D) Zn

Q472: The electronic configuration of Cu^+ is:

A) [Ar] 3d9
B) [Ar] 3d10
C) [Ar] 3d10 4s1
D) [Ar] 3d8

Q473: Which transition metal ion has the highest hydration enthalpy?

A) Na^+
B) Mg^{2+}
C) Al^{3+}
D) Ca^{2+}

Q474: Which of the following oxides is basic?

A) CrO_3
B) V_2O_5
C) FeO
D) Mn_2O_7

Q475: Which of the following transition metals is used in electroplating?

A) Ni
B) Fe
C) Zn
D) Cr

Q476: Which of the following ions is paramagnetic?

A) Zn^{2+}
B) Sc^{3+}
C) Cu^{2+}
D) Cd^{2+}

Q477: Which transition metal oxide is used as a catalyst in petroleum cracking?

A) V_2O_5
B) Al_2O_3
C) Cr_2O_3
D) Fe_2O_3

Q478: The colour of $KMnO_4$ is due to:

A) d-d transitions
B) Charge transfer transitions
C) Metallic bonding
D) Ligand excitation

Q479: Which of the following ions shows maximum number of unpaired electrons?

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

Q480: Which of the following statements about actinoids is correct?

A) They are all stable
B) They show only +3 oxidation state
C) They are mostly radioactive
D) They do not form complexes

Q481: Which of the following transition metal ions shows maximum CFSE in octahedral field?

A) d3
B) d5 (high spin)
C) d6 (low spin)
D) d8

Q482: The main reason for variable oxidation states in transition metals is:

A) Small atomic size
B) Availability of (n-1)d and ns electrons
C) High electronegativity
D) High ionisation enthalpy

Q483: Which of the following ions is the strongest oxidising agent in acidic medium?

A) MnO_4^-
B) $Cr_2O_7^{2-}$
C) Fe^{3+}
D) Ce^{4+}

Q484: The electronic configuration of Co^{3+} is:

A) [Ar] 3d6
B) [Ar] 3d7
C) [Ar] 3d5
D) [Ar] 3d4

Q485: Which of the following oxides is neutral in nature?

A) CO
B) CrO_3
C) FeO
D) MnO_2

Q486: Which transition metal ion shows the highest tendency for complex formation?

A) Na^+
B) Mg^{2+}
C) Fe^{3+}
D) Ca^{2+}

Q487: Which of the following lanthanoids shows +2 oxidation state most readily?

A) Ce
B) Eu
C) Gd
D) Lu

Q488: The lanthanoid contraction results in:

A) Increase in atomic radii across series
B) Decrease in size from La^{3+} to Lu^{3+}
C) Increase in shielding effect
D) Increase in basicity of hydroxides

Q489: Which of the following transition metals shows maximum number of oxidation states?

A) V
B) Cr
C) Mn
D) Fe

Q490: Which ion shows strongest Jahn-Teller distortion?

A) d3
B) d5 (high spin)
C) d9
D) d10

Q491: The colour of KMnO4 is due to:

A) d-d transition
B) Charge transfer transition
C) Metallic bonding
D) Ligand field splitting

Q492: Which transition metal is used as a catalyst in the Ostwald process?

A) Fe
B) Pt-Rh
C) Ni
D) V2O5

Q493: Which of the following ions has zero unpaired electrons?

A) Fe2+
B) Mn2+
C) Ni2+
D) Zn2+

Q494: The oxidation state of vanadium in KVO3 is:

A) +3
B) +4
C) +5
D) +2

Q495: Which of the following actinoids shows maximum number of oxidation states?

A) Th
B) U
C) Pu
D) Am

Q496: Which transition metal ion shows the least paramagnetism?

A) Mn2+
B) Fe2+
C) Co2+
D) Ni2+

Q497: The stability of +3 oxidation state in lanthanoids is mainly due to:

A) Low ionisation enthalpy
B) High lattice energy
C) High hydration enthalpy
D) Poor shielding by f-electrons

Q498: Which of the following oxides acts as a basic oxide?

A) CrO_3
B) V_2O_5
C) FeO
D) Mn_2O_7

Q499: Which transition metal is used in galvanisation?

A) Fe
B) Cu
C) Zn
D) Ni

Q500: Which of the following ions shows maximum hydration enthalpy?

A) Na^+
B) Mg^{2+}
C) Al^{3+}
D) Ca^{2+}

Q501: Which transition metal forms amalgams most readily?

A) Fe
B) Zn
C) Cu
D) Ni

Q502: The electronic configuration of V^{3+} is:

A) [Ar] $3d^1$
B) [Ar] $3d^2$
C) [Ar] $3d^3$
D) [Ar] $3d^4$

Q503: Which of the following ions is diamagnetic?

A) Ti^{3+}
B) V^{2+}
C) Sc^{3+}
D) Cr^{3+}

Q504: The main reason for coloured compounds of transition metals is:

A) Charge transfer transitions only
B) d-d transitions
C) Metallic bonding
D) Large atomic size

Q505: Which of the following shows maximum reducing character?

A) Ce^{3+}
B) Eu^{2+}
C) Gd^{3+}
D) Lu^{3+}

Q506: Which transition metal is used in making stainless steel?

A) Ni
B) Zn
C) Ag
D) Cu

Q507: Which oxide of manganese is acidic in nature?

A) MnO
B) Mn_2O_3
C) MnO_2
D) Mn_2O_7

Q508: The oxidation state of iron in FeO is:

A) +1
B) +2
C) +3
D) +4

Q509: Which of the following ions shows maximum number of unpaired electrons?

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

Q510: Which transition metal oxide is used as catalyst in Contact process?

A) Cr_2O_3
B) V_2O_5
C) MnO_2
D) Fe_2O_3

Q511: The electronic configuration of Ti^{3+} is:

A) [Ar] $3d^1$
B) [Ar] $3d^2$
C) [Ar] $3d^3$
D) [Ar] $3d^4$

Q512: Which of the following lanthanoids shows +4 oxidation state?

A) Ce
B) Eu
C) Gd
D) Lu

Q513: Which of the following ions is colourless in aqueous solution?

A) Ti^{3+}
B) Cu^{2+}
C) Fe^{3+}
D) Zn^{2+}

Q514: Which transition metal shows anomalous electronic configuration?

A) Fe
B) Cr
C) Co
D) Ni

Q515: Which of the following statements about actinoids is correct?

A) They are non-radioactive
B) They show limited oxidation states
C) They form complexes readily
D) They do not show actinoid contraction

Q516: The oxidation state of chromium in CrO_4^{2-} is:

A) +4
B) +5
C) +6
D) +7

Q517: Which transition metal ion shows maximum CFSE in tetrahedral field?

A) d^3
B) d^5
C) d^7
D) d^{10}

Q518: Which of the following ions is paramagnetic?

A) Zn^{2+}
B) Sc^{3+}
C) Cu^{2+}
D) Cd^{2+}

Q519: Which transition metal is used as a catalyst in hydrogenation reactions?

A) Fe
B) Ni
C) Cu
D) Zn

Q520: The most stable oxidation state of iron is:

A) +1
B) +2
C) +3
D) +6

Q521: Which of the following transition metal ions has the maximum number of unpaired electrons?

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

Q522: The stability of +3 oxidation state in Fe compared to +2 is due to:

A) Higher hydration enthalpy of Fe^{2+}
B) Lower ionisation enthalpy of Fe^{3+}
C) Half-filled d5 configuration of Fe^{3+}
D) Larger ionic size of Fe^{3+}

Q523: Which of the following 3d metal ions is diamagnetic?

A) Ti^{3+}
B) V^{2+}
C) Sc^{3+}
D) Cr^{2+}

Q524: The colour of $K_2Cr_2O_7$ solution is mainly due to:

A) d-d transition
B) Charge transfer transition
C) Ligand field splitting
D) Metal-metal bonding

Q525: Which transition metal oxide is amphoteric in nature?

A) MnO
B) Cr_2O_3
C) FeO
D) CuO

Q526: The electronic configuration of Co^{2+} is:

A) [Ar] $3d^5$
B) [Ar] $3d^6$
C) [Ar] $3d^7$
D) [Ar] $3d^8$

Q527: Which lanthanoid ion has exactly one unpaired electron?

A) Ce^{3+}
B) Pr^{3+}
C) Sm^{3+}
D) Lu^{3+}

Q528: The lanthanoid contraction is responsible for the similarity in properties of:

A) Fe and Co
B) Cu and Ag
C) Zr and Hf
D) Ni and Pd

Q529: Which of the following ions shows the strongest reducing nature in aqueous solution?

A) Fe^{2+}
B) Cr^{2+}
C) Cu^{+}
D) Sn^{2+}

Q530: The oxidation state of chromium in $Cr_2O_7^{2-}$ is:

A) +4
B) +5
C) +6
D) +7

Q531: Which of the following transition metals is used as a catalyst in the Haber process?

A) Ni
B) Fe
C) Pt
D) Cu

Q532: The magnetic moment of Mn^{2+} ion is closest to:

A) 3.87 BM
B) 4.90 BM
C) 5.92 BM
D) 6.93 BM

Q533: Which of the following actinoids exhibits the widest range of oxidation states?

A) Th
B) U
C) Pu
D) Am

Q534: Which of the following oxides is acidic in nature?

A) MnO
B) FeO
C) CrO_3
D) NiO

Q535: The electronic configuration of Fe^{2+} is:

A) [Ar] $3d^4$
B) [Ar] $3d^5$
C) [Ar] $3d^6$
D) [Ar] $3d^7$

Q536: Which of the following lanthanoid ions is diamagnetic?

A) Ce^{3+}
B) Eu^{3+}
C) Gd^{3+}
D) Lu^{3+}

Q537: Which transition metal forms amalgams most readily?

A) Fe
B) Zn
C) Ni
D) Cu

Q538: The oxidation state of vanadium in V_2O_5 is:

A) +2
B) +3
C) +4
D) +5

Q539: Which transition metal ion shows Jahn-Teller distortion most strongly?

A) Mn^{2+}
B) Fe^{3+}
C) Cu^{2+}
D) Zn^{2+}

Q540: The colour of aqueous $CuSO_4$ solution is due to:

A) Charge transfer transition
B) d-d transition of Cu^{2+}
C) Ligand excitation
D) Metal-metal bonding

Q541: Which of the following ions has zero CFSE in octahedral field?

A) d^3
B) d^5 (high spin)
C) d^6 (low spin)
D) d^8

Q542: The most common oxidation state of lanthanoids is:

A) +2
B) +3
C) +4
D) +5

Q543: Which transition metal is used in stainless steel along with chromium?

A) Cu
B) Ni
C) Zn
D) Ag

Q544: Which of the following elements does NOT belong to actinoid series?

A) Th
B) U
C) Np
D) Ce

Q545: The electronic configuration of V3+ is:

A) [Ar] 3d1
B) [Ar] 3d2
C) [Ar] 3d3
D) [Ar] 3d4

Q546: Which transition metal oxide is used as catalyst in the Contact process?

A) MnO2
B) V2O5
C) Cr2O3
D) Fe2O3

Q547: Which of the following ions is colourless in aqueous solution?

A) Ti3+
B) Fe3+
C) Cu2+
D) Zn2+

Q548: The most stable oxidation state of copper in aqueous solution is:

A) +1
B) +2
C) +3
D) +4

Q549: Which of the following oxides is basic in nature?

A) CrO3
B) V2O5
C) FeO
D) Mn2O7

Q550: The electronic configuration of Ti3+ is:

A) [Ar] 3d1
B) [Ar] 3d2
C) [Ar] 3d3
D) [Ar] 3d4

Q551: Which lanthanoid shows +4 oxidation state most commonly?

A) Ce
B) Eu
C) Gd
D) Lu

Q552: Which of the following ions is paramagnetic?

A) Zn2+
B) Sc3+
C) Cu2+
D) Cd2+

Q553: Which transition metal is used as a catalyst in hydrogenation reactions?

A) Fe
B) Ni
C) Cu
D) Zn

Q554: The oxidation state of iron in Fe_3O_4 is:

A) +2 only
B) +3 only
C) +2 and +3
D) +4

Q555: Which of the following shows maximum reducing character among lanthanoids?

A) La^{3+}
B) Ce^{3+}
C) Eu^{2+}
D) Lu^{3+}

Q556: Which transition metal ion shows the least paramagnetism?

A) Mn^{2+}
B) Fe^{2+}
C) Co^{2+}
D) Ni^{2+}

Q557: The electronic configuration of Ni^{2+} is:

A) [Ar] $3d^6$
B) [Ar] $3d^7$
C) [Ar] $3d^8$
D) [Ar] $3d^9$

Q558: Which of the following transition metal oxides acts as a neutral oxide?

A) CO
B) CrO_3
C) FeO
D) Mn_2O_7

Q559: Which actinoid is used as nuclear fuel?

A) Th
B) U
C) Np
D) Am

Q560: The most stable oxidation state of iron is:

A) +1
B) +2
C) +3
D) +6