d- and f- Block Elements

1.Which of the following reasons is responsible for the formation of alloys by transition elements?

(a) They have same atomic number

(b) They have same electronic configuration

(c) They have nearly same atomic size

(d) None of the above

Answer: (c) They have nearly same atomic size

2.The property which is not characteristic of transition metals is

(a) variable oxidation states.

(b) tendency to form complexes.

(c) formation of coloured compounds.

(d) natural radioactivity.

Answer: (d) natural radioactivity.

3.The pair in which both the elements generally show only one oxidation state is -

(a) Sc and Zn

(b) Zn and Cu

(c) Cu and Ag

(d) Zn and Au

Answer: (a) Sc and Zn

4.Lanthanoid contraction is due to an increase in

(a) atomic number

(b) effective nuclear charge

(c) atomic radius

(d) valence electrons

Answer: (b) effective nuclear charge

5.Which one of the following characteristics of the transition metals is associated with higher

catalytic activity?

(a) High enthalpy of atomisation

(b) Paramagnetic behaviour

(c) Colour of hydrate ions

(d) Variable oxidation states

Answer: (d) Variable oxidation states

6.Zr and Hf have almost equal atomic and ionic radii because of

(a) diagonal relationship

(b) lanthanoid contraction

(c) actinoid contraction

(d) belonging to the same group

Answer: (b) lanthanoid contraction

7.In KMnO4, oxidation number of Mn is

(a) +2

(b) + 4

(c) + 6

(d) + 7

Answer: (d) + 7

8.In alkaline solution, MnO4– changes to

(a) MnO42–

(b) MnO2

(c) Mn2O3

(d) MnO

Answer: (b) MnO2

9.Which one of the following is diamagnetic ion?

(a) Co^{2+}

(b) Ni^{2+}

(c) Cu^{2+}

(d) Zn^{2+}

Answer: (d) Zn^{2+}

10.Transition elements show variable oxidation states due to the loss of electrons from which of the following orbitals?

(a) ns and np

(b) (n – 1) d and ns

(c) (n – 1) d

(d) ns

Answer: (b) (n – 1) d and ns

11.Which metal has the lowest melting point?

(a) Cs

(b) Na

(c) Hg

(d) Sn

Answer: (c) Hg

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

(a) Cu^{2+}, Cr^{2+}

(b) Fe^{3+}, Mn^{2+}

(c) Co^{3+}, Ni^{3+}

(d) Sc^{3+}, Cr^{3+}

Answer: (b) Fe^{3+}, Mn^{2+}

13.Mohr's salt is a -

(a) Normal salt

(b) Acid salt

(c) Basic salt

(d) Double salt

Answer: (d) Double salt

14.Which of the following will give a pair of enantiomorphs?

(a) [Cr(NH3)6][Co(CN)6]

(b) [Co(en)2Cl2]Cl

(c) [Pt(NH3)4][PtCl6]

(d) [Co(NH3)4Cl2]NO2

Answer: (b) [Co(en)2Cl2]Cl

15.Colour of transition metal ions are due to absorption of the same wavelength. This results in

(a) d-s transition

(b) s-s transition

(c) s-t/transition

(d) d-d transition

Answer: (d) d-d transition