



## CHEMISTRY

### BOOKS - R SHARMA CHEMISTRY (HINGLISH)

#### THE D AND F BLOCK ELEMENTS

#### Follow Up Test 1

1. In the d-block elements the less or differentiating electron enters the d-subshell of the

A. last shell

B. third last shell

C. second last shell

D. fourth last shell

**Answer: C**

 [Watch Video Solution](#)

2. Which of the d-block elements are not referred to as the transition elements ?

A. Group 9

B. Group 12

C. Group 10

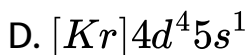
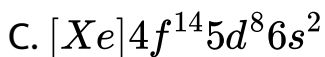
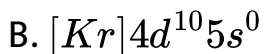
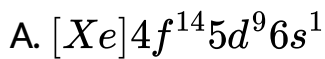
D. Group 13

**Answer: B**



**Watch Video Solution**

**3.** The ground state electronic configuration of platinum is



**Answer: A**



**Watch Video Solution**

4. Which of the following series of d-block elements exhibits the minimum deviation in electronic configuration ?

A. 3d series

B. 4d series

C. 5d series

D. 6d series

**Answer: D**



**Watch Video Solution**

5. In the f-block elements the last or differentiating electron enters the f-subshell of the

- A. third last shell
- B. second last shell
- C. fourth last shell
- D. outermost shell

**Answer: A**



**Watch Video Solution**

**Follow Up Test 2**

1. Unlike s-block metals, have very high melting and boiling points they

- A. are more metallic
- B. are more dense
- C. utilize (n-1) d as well as ns electrons for boiling
- D. have higher ionization enthalpies

**Answer: C**

 [Watch Video Solution](#)

2. Which of the following has the highest melting point in the first row transition elements ?

A. V

B. Mo

C. W

D. Cr

**Answer: D**



**Watch Video Solution**

3. Which of the following has the lowest enthalpy of atomisation ?

A. V

B. Ti

C. Ni

D. Zn

**Answer: D**

 [Watch Video Solution](#)

4. Which of the following d-block metals has the highest boiling point ?

A. Re

B. Ta

C. W

D. Hg



**Answer: A**

 [Watch Video Solution](#)

5. Which of the following d-block metals has the highest density ?

A. Os

B. Ir

C. Pt

D. Sc

**Answer: B**

 [Watch Video Solution](#)

6. Atoms of d-block elements in a given period are smaller than those of s-block elements but bigger than those of p-block elements. However, the variation within a given series is quite small because

A. the energy of the  $(n-1)$  d electron is greater than that of the ns electrons

B. the electrons are added to the  $(n-1)$  d and ns subshells simultaneously

C. the energy of the  $(n-1)$  d electron is similar to that of the ns electrons

D. the electrons are added to the d subshell of the penultimate shell rather than to the outermost

shell.

**Answer: D**

 [Watch Video Solution](#)

7. Which of the following statement is correct ?

- A. Because of lanthanide contraction, the separation of second-row d-block elements from one another is easier
- B. Because of lanthanide contraction, the radii of the third-row d-block elements are almost the same as those of the second-row elements

C. Because of lanthanide contraction, the radii of the third-row elements are almost the same as those of the first-row elements.

D. The second-row elements have smaller radii than the corresponding third-row elements.

**Answer: B**



**Watch Video Solution**

**8.** Which of the following d-block elements has the bigger covalent radius ?

A. Co

B. Ni

C. Cu

D. Zn

**Answer: B**



**Watch Video Solution**

**9.** Which of the following statement is correct regarding 3d-series of elements ?

(1) Sc has the lowest while Zn has the highest first ionization enthlpy.

(2) Cu has the highest while Sc has the lowest second ionization enthalpy

(3) Zn has the highest third ionization enthalpy

(4) Fe has lower third ionization enthalpy relative to Mn

A. (i), (ii), (iii)

B. (ii), (iii)

C. (i), (ii), (iii), (iv)

D. (i), (iv)

**Answer: C**



**Watch Video Solution**

**10.** Which of the d-block elements has the lowest electronegativity?

A. Co

B. Ni

C. Cu

D. Zn

**Answer: D**



**Watch Video Solution**

**11.** The noble character of platinum and gold is favoured by

A. high enthalpies of sublimation, high ionization enthalpies and high enthalpies of solvation

B. high enthalpies of sublimation, high ionization enthalpies and low enthalpies of solvation

C. high enthalpies of sublimation, low ionization enthalpies and low enthalpies of solvation

D. low enthalpies of sublimation, high ionization enthalpies and low enthalpies of solvation

**Answer: B**

 [Watch Video Solution](#)

12. Which of the following is correct for d-block metals ?

A. They form exclusively covalent compounds



- B. They exclusively form coordination compounds but no simple compounds
- C. They may form either ionic or covalent compounds depending on the condition.
- D. They form only ionic compounds.

**Answer: C**



**Watch Video Solution**

**13.** The d-block elements exhibit variable oxidation states. The several different oxidation states shown by the d-block elements is related to their

- A. electronic configurations
- B. electropositive characters
- C. atomic masses
- D. atomic sizes

**Answer: A**



**Watch Video Solution**

**14.** Which of the following transition elements does not exhibit variable oxidation states ?

- A. Zn
- B. Ni

C. Ti

D. Sc

**Answer: D**

 [Watch Video Solution](#)

**15.** Which of the 3d-series of the transition metals exhibits the least number of oxidation states ?

A. Cr

B. Mn

C. Fe

D. Co

**Answer: B**

 [Watch Video Solution](#)

16. Which of the following has  $d^1$  configuration and is stable ?

A. Cr ( + 5)

B. Mn ( + 6)

C. both (1) and (2)

D. V ( + 4)

**Answer: D**

 [Watch Video Solution](#)

17. Which of the following has  $d^3$  configuration and is quite stable ?

A. Fe ( + 3 )

B. Mn ( + 3 )

C. V ( + 3 )

D. Cr ( + 3 )

**Answer: D**



**Watch Video Solution**

18. Which of the following species with  $d^6$  configuration is stable in the presence of strong complexing reagents ?

A. Fe ( + 2)

B. Co ( + 3)

C. Cu ( + 1)

D. Ni ( + 2)

**Answer: B**

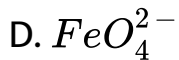


**Watch Video Solution**

**19.** Which of the following is the strongest oxidizing agent ?

A.  $VO_2^+$

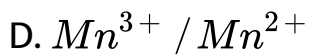
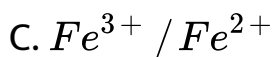
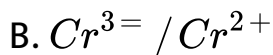
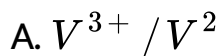
B.  $Cr_2O_7^{2-}$



**Answer:**

 [Watch Video Solution](#)

20. Which of the following couples has the most positive  $E^\ominus$  value ?



**Answer: D**



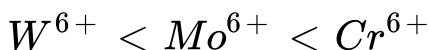
**Watch Video Solution**

**21.** Which of the following statements is correct ?

(1) The highest oxidation state of a metal is exhibited in its oxide or its fluoride

(2)  $Cr^{2+}$  is a stronger reducing agent than  $Fe^{2+}$

(3) The stability of the +6 state for Group 6 elements



(4)  $Cu^+$  ion is not stable in aqueous solutions

A. (i), (iii), (iv)

B. (i), (ii), (iii), (iv)

C. (i), (ii), (iv)



D. (ii), (iii), (iv)

**Answer: C**



**Watch Video Solution**

### Follow Up Test 3

1. Which of the following statements is context of paramagnetic materials ?

A. It is difficult for magnetic lines of force to travel through a paramagnetic material than through a vacuum.

B. Paramagnetism arises as a result of unpaired electron spins in the atom/ion.

C. A paramagnetic material moves from a weaker to a stronger part of the magnetic field

D. A paramagnetic material placed in a magnetic field attracts magnetic lines of force towards it.

**Answer: A**

 [Watch Video Solution](#)

2. Which of the following is not ferromagnetic ?

A.  $Mn^{4+}$

B.  $Ti^{4+}$

C. Co

D. both (1) and (2)

**Answer: D**

 [Watch Video Solution](#)

**3. Which of the following statements is incorrect ?**

A. Magnetic susceptibility of transition metal compounds is experimentally measured by Gouy method.

B. The unit of magnetic moment is Bohr magneton,  $\mu_B$

.

C. The value of Bohr magneton is given by the formula,

$$\mu_B = eh / 4\pi m_e$$

D. One Bohr magneton is equal to  $9.27 \times 10^{-23} \text{ JT}^{-1}$

**Answer: D**



**Watch Video Solution**

4. Calculate the magnetic moment of a divalent ion in aqueous solution if its atomic number is 25.

A.  $5.92\mu_B$

B.  $3.87\mu_B$

C.  $4.90\mu_B$

D.  $2.84\mu_B$

**Answer: A**

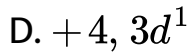
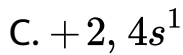


**Watch Video Solution**

5. The 'spin only' magnetic moment of Ti in a given compound is 1.73 BM. The oxidation state and configuration of Ti in the compound are ----- respectively.

A. +1,  $4s^2 3d^1$

B. +3,  $3d^1$

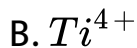


**Answer: B**



**Watch Video Solution**

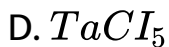
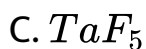
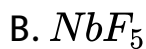
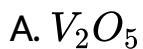
**6. Which of the following metal ions is colored in aqueous solution ?**



**Answer: D**

 [Watch Video Solution](#)

7. Which of the following is coloured ?



**Answer: A**

 [Watch Video Solution](#)

8. The transition metals have a strong tendency to form complexes because of

(i) smaller sizes of the metal ions

(ii) variable oxidation states

(iii) high ionic charges of metal ions

(iv) availability of vacant d-orbitals for bond formation.

A. (i), (ii), (iii), (iv)

B. (i), (iii), (iv)

C. (iv) only

D. (i), (iii)

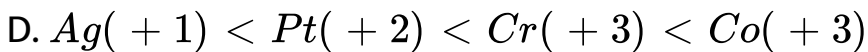
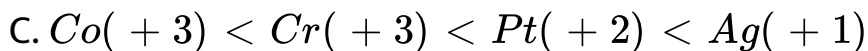
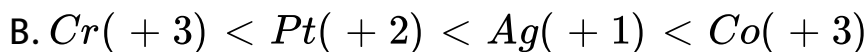
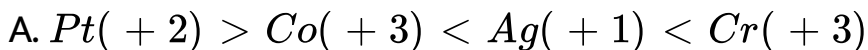
**Answer: B**



**Watch Video Solution**



9. Which of the following is arranged in order of increasing stability of the metal complexes ? (Oxidation states are given in parentheses).



**Answer: D**



**Watch Video Solution**

10. The interstitial compounds of transition metals are than the metal itself.

- A. softer
- B. more malleable
- C. harder
- D. more metallic

**Answer: C**



**Watch Video Solution**

11. Which of the following is used in large amount to make ferrous and non-ferrous alloys ?

A. Cu

B. Ni

C. Cr

D. Mn

**Answer: B**



**Watch Video Solution**

## Follow Up Test 4

1. Which of the following oxides is amphoteric in nature ?

A.  $Mn_2O_7$

B.  $MnO_2$

C.  $Cr_2O_3$

D. both (2) and (3)

**Answer: D**



**Watch Video Solution**

2. Sodium chromate is prepared by fusing

A. sodium dichromate with carbon

B.  $(NH_4)_2Cr_2O_7$  with sodium hydrogen sulphate in  
introgen

C. chromite ( $FeCr_2O_4$ ) with sodium hydroxide in air.

D. chromite ( $FeCr_2O_4$ ) with sodium chloride in air.

**Answer: C**

 [Watch Video Solution](#)

3. The equilibrium  $Cr_2O_7^{2-} \rightleftharpoons 2CrO_4^{2-}$

- A. an acidic medium
- B. an alkaline medium
- C. a netural medium
- D. It does not shift.

**Answer: A**

 [Watch Video Solution](#)

4. The number of moles of  $K_2Cr_2O_7$  reduced by  $1\text{mol}$  of  $Sn^{2+}$  ions is

A. 3

B.  $1/6$

C. 6

D.  $1/3$

**Answer: D**



**Watch Video Solution**

5. How many equivalents of oxygen atoms can be available from 1 mole of  $K_2Cr_2O_7$  ?

A. 6

B. 3

C. 5

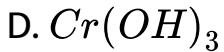
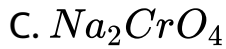
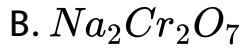
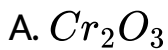
D. 2

**Answer: B**



**Watch Video Solution**

6.  $CrO_3$  on treatment with NaOH solution produces



**Answer: C**



**Watch Video Solution**

7. Which of the following is incorrect regarding  $K_2Cr_2O_7$

?

A. It oxidizes iodide to iodine

B. It oxidizes  $H_2S$  to  $SO_2$



C. It oxidizes  $SO_2$  to  $H_2SO_4$

D. It oxidizes ethyl alcohol to acetic acid

**Answer: B**

 [Watch Video Solution](#)

**8.** Chromyl chloride,  $CrO_2Cl_2$ , is prepared by heating a mixture of

A.  $CrO_3$  and NaCl

B. NaCl,  $K_2Cr_2O_7$  and  $MnO_2$

C. NaCl,  $K_2Cr_2O_7$  and NaOH

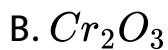
D. NaCl,  $K_2Cr_2O_7$  and concentrated  $H_2SO_4$

**Answer: D**



**Watch Video Solution**

**9. Ammonium dichromate on heating gives**

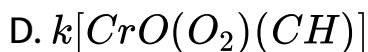
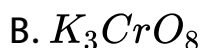
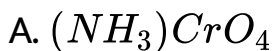


**Answer: B**



**Watch Video Solution**

10. When hydrogen peroxide is added to acidified potassium dichromate, a blue colour is produced due to formation of :



**Answer: C**



**Watch Video Solution**

11. Sodium chromate on treatment with lead acetate gives a precipitate. This precipitate is dried and the solid is used

as a pigment for road sign and markings. The solid is known as

- A. chrome yellow
- B. white lead
- C. red lead
- D. chrome green

**Answer: A**



[Watch Video Solution](#)

**12.** Assertion (A): Potassium dichromate is preferred to  $Na_2Cr_2O_7$  for use in volumetric analysis (titrations)

Reason (R):  $Na_2Cr_2O_7$  is hygroscopic whilst the

$K_2Cr_2O_7$  is not

Which of the following is correct ?

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not the correct explanation of A

C. A is true but R is false

D. Both A and R are false

**Answer: A**



**Watch Video Solution**

13. Postassium permanganate is manufactured a large scale by fusing - with KOH and  $KNO_3$  to form  $K_2MnO_4$ , which is than electrolytically oxidized in an alkaline medium.

A. manganite,  $Mn_2O_3 \cdot H_2O$

B. hausmannite,  $Mn_3O_4$

C. pyrolusite,  $MnO_2$

D. braunite,  $Mn_2O_3$

**Answer: C**



**Watch Video Solution**

14. In strongly alkaline medium, the equivalent mass of  $KMnO_4$  is -----, where formula mass.

A.  $M/6$

B.  $M$

C.  $M/3$

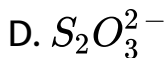
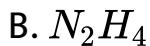
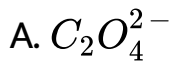
D.  $M/5$

**Answer: B**



**Watch Video Solution**

15. Acidified potassium permanganate can't oxidize



**Answer: C**



**Watch Video Solution**

**16. Baeyer's reagent is dilute and**

A. neutral  $KMnO_4$

B. slightly acidic  $KMnO_4$

C. strongly alkaline  $KMnO_4$



D. slightly alkaline  $KMnO_4$

**Answer: D**



**Watch Video Solution**

**17.** How many of oxygen atoms become available from one mole of  $KMnO_4$  as an oxidizing agent in the acidic medium ?

A. 2.5

B. 5

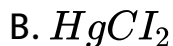
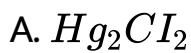
C. 3.0

D. 6

**Answer: A**

 [Watch Video Solution](#)

**18.** Which of the following is used in medicine as a powerful laxative ?



**Answer: A**

 [Watch Video Solution](#)

## Follow Up Test 5

1. The general valence shell electronic configuration of lanthanoides is represented by

A.  $(n - 2)f^{1-14}(n - 1)d^{0-1}ns^2$

B.  $(n - 2)f^{1-14}(n - 1)d^{10}ns^2$

C.  $(n - 2)f^{0-14}(n - 1)d^{0-2}ns^2$

D.  $(n - 2)f^{1-14}(n - 2)d^{0-5}ns^2$

**Answer: A**



**Watch Video Solution**

2. Which of the following lanthanoids is radiocative ?

A. Lutetium

B. Cerium

C. Promethium

D. Thulium

**Answer: C**



**Watch Video Solution**

3. The most common and stable oxidation state of a lanthanide is

A. +2

B. +3

C. +4

D. +1

**Answer: B**



**Watch Video Solution**

**4. Which of the following properties form Ce so Lu ?**

A. Hardness of elements

B. Melting points of elements

C. Boiling points element

D. Basic strength of  $\text{Ln}(\text{OH})_3$

**Answer: D**



**Watch Video Solution**

5. Which of the following statements is incorrect ?

A. Lanthanide do not exhibit magnetic properties and also color and spectral properties.

B. Because of same charge, almost identical radii and similar chemical properties, lanthanide ions ( $\text{Ln}^{3+}$ ) can't be separated easily form one another.

C. The second and third rows of transition elements (Y → Ag and La → Lu) resemble each other more

closely than do the elements of the first and second rows (Sc  $\rightarrow$  Cu and Y  $\rightarrow$  Ag)

D. The vertical pair of elements of second and third transition series, such as Zn/Hf, Nb/Ta and Mo/W, are almost identical in size.

**Answer: A**

 [Watch Video Solution](#)

6. The most common oxidation states of cerium are

A. +2 and +3

B. +3 and +4

C. + 2 and + 4

D. + 3 and + 5

**Answer: B**

 [Watch Video Solution](#)

7. Lanthanum nitride on hydrolysis produces

A.  $HN_3$

B.  $N_2H_4$

C.  $N_2$

D.  $NH_3$

**Answer: D**





[Watch Video Solution](#)

8. Many lanthanides are used to prepare

- A. water softeners
- B. ceramic materials
- C. superconducting materials
- D. enzyme catalyst.

**Answer: C**



[Watch Video Solution](#)

9. Which of the following is not correct regarding lanthanoids ?

A. Neodymium oxide is used as a most powerful liquid

lasers lanthanide it in selenium oxychloride

B. If the lanthanide with  $nf$  electrons has a pink color,

then the lanthanide with  $(14 - n)$   $f$  electrons will be

colorless.

C. Pr and Nd lanthanoids are used in glass blower's

goggles

D. The best single use of lanthanoids is for the

production of alloy steels for plates and pipes

**Answer: B**



**Watch Video Solution**

## Follow Up Test 6

1. The general valence shell electronic configuration of actinoids is represented by

A.  $(n - 2)f^{1-14}(n - 1)d^{0-1}ns^2$

B.  $(n - 2)f^{1-14}(n - 1)d^{1-10}ns^2$

C.  $(n - 2)f^{0-14}(n - 1)d^{0-10}ns^2$

D.  $(n - 2)f^{0-14}(n - 1)d^{0-2}ns^2$

**Answer: D**



**Watch Video Solution**

**2. How many actinoids are radioactive ?**

A. Only one

B. 7

C. 14

D. 12

**Answer: C**



**Watch Video Solution**

3. Naturally occurring uranium contains ----- isotopes

A. three

B. four

C. two

D. five

**Answer: A**



[Watch Video Solution](#)

4. Which of the following is correct ?

A. All the actinides resemble the lanthanoids quite closely

B. Actinides do not exhibit similarity with lanthanides

C. The second half of the actinides resembles the lanthanides quite closely

D. The first half of the actinides resembles the lanthanides

**Answer: C**



**Watch Video Solution**

5. Which of the following actinoids is well known to exhibit +2 oxidation state ?

A. Ce

B. No

C. Lr

D. both (2) and (3)

**Answer: B**



**Watch Video Solution**

**6. Which of the following is incorrect ?**

A. Ionisation enthalpies of the early actinoids are higher than for the early lanthanoids

B. Unlike lanthanoids, actinoids form oxocations

C. Oxides and hydroxides of actinoids are more basic than those of lanthanoids

D. Ion exchange behaviour is exhibited by both actinides and lanthanides.

**Answer: A**



**Watch Video Solution**

## Question Bank Building The Knowledge

1. Oxidation state of in  $Fe_3O_4$  is

A.  $3/2$



B.  $4/5$

C.  $5/4$

D.  $8/3$

**Answer:**



**Watch Video Solution**

2. The most durable metal plating on iron to protect it against corrosion is

A. zinc plating

B. copper plating

C. tin plating

D. nickel plating

**Answer: A**



**Watch Video Solution**

**3. The most common and most stable oxidation state for all the elements of titanium family is**

A. +2

B. +3

C. +4

D. +1

**Answer: C**



[Watch Video Solution](#)

4. The oxidation number of +6 thermodynamically preferred for

A. Cr

B. Mo

C. W

D. both (2) and (3)

**Answer: D**



[Watch Video Solution](#)

5. Which of the following readily forms compounds over a range of oxidation states that is wider than that of any other common metal ?

A. Bh

B. Mn

C. Re

D. Tc

**Answer: B**



**Watch Video Solution**

6. Which of d-block elements can exhibit the highest possible oxidation state ?

A. Fe

B. Rh

C. Os

D. both (2) and (3)

**Answer: D**



**Watch Video Solution**

7. Which of the following elements is an essential element ?

A. Mt

B. Co

C. Rh

D. Ir

**Answer: B**

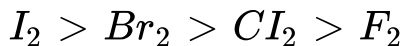


**Watch Video Solution**

**8. Which of the following is incorrect ?**

A. The transition metals react with halogens at elevated temperatures to form halides

B. The reactivity of halogens decreases in the order :



C. Metals are usually oxidized to their highest oxidation states to form fluorides

D. The lower oxidation states are stabilised in iodides.

**Answer: B**



**Watch Video Solution**

9. Silver halides darken in light owing to ----- , a property which is primarily responsible for their use in photography.

A. oxidation

B. photochemical decomposition

C. reaction with  $N_2$

D. photoelectric effect

**Answer: B**



**Watch Video Solution**

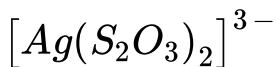
10. The precipitate of  $AgCl$  dissolves in an excess of  $NH_3$ ,  $KCN$  and  $Na_2S_2O_3$  solution respectively, producing complex ions represented by the following chemical formulae

A.  $[Ag(NH_3)_2]^+$ ,  $[Ag(CN)_2]^-$  and  $[Ag(S_2O_3)_2]^{3-}$

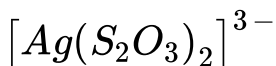


B.  $Ag \cdot 2NH_3$ ,  $Ag \cdot KCN$  and  $AgCl \cdot S_2O_3$

C.  $[Ag(NH_3)_2]^{2+}$ ,  $[Ag(CN)_2]^{2-}$  and



D.  $[Ag(NH_3)_2]^+$ ,  $[Ag(CN)_2]^{2-}$  and



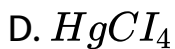
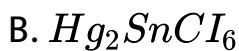
**Answer: A**



**Watch Video Solution**

**11.** When a solution of mercuric chloride treated with an excess of stannic chloride it produces, eventually

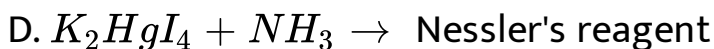
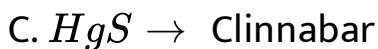
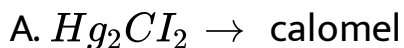
A.  $Hg_2Cl_2$



**Answer: C**

 [Watch Video Solution](#)

12. Which of the following is not correctly matched ?



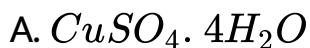
**Answer: D**



**Watch Video Solution**

**13.** The most common oxosalt of copper (II) is blue vitriol.

It has the composition



**Answer: B**



**Watch Video Solution**

14. How many water molecules in blue vitriol are coordinated to the metal ?

A. Five

B. Four

C. Three

D. Two

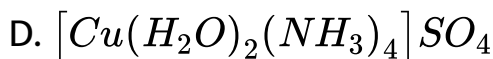
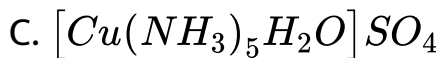
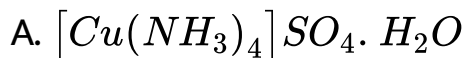
**Answer: B**



**Watch Video Solution**

15. If a aqueous solution of copper (II) sulphate is saturated with ammoina, the blue compound ----

crystallises on evaporation.

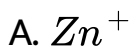


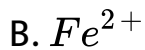
**Answer: A**



**Watch Video Solution**

**16.** Which of the following has more number of unpaired d-electrons ?

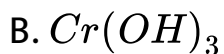
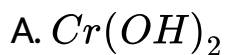




**Answer: B**

 [Watch Video Solution](#)

17.  $K_2Cr_2O_7$  on heating with aqueous NaOH gives



**Answer: C**

 [Watch Video Solution](#)

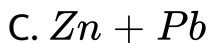
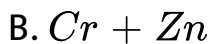
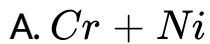
**18.** Cuprous compounds such as  $\text{CuCl}$ ,  $\text{CuCN}$  and  $\text{CuSCN}$  are the only salts stable in water due to

- A. high hydration energy of  $\text{Cu}^+$  ions
- B. their inherent tendency not to disproportionate
- C. diamagnetic nature
- D. insolubility in water

**Answer: D**

 [Watch Video Solution](#)

19. Stainless steel contains iron and



**Answer: A**



**Watch Video Solution**

20. Actinides

A. are synthetic elements



- B. include element 104
- C. have short lived isotopes
- D. exhibit variable valencies

**Answer: D**

 [Watch Video Solution](#)

21. When  $(NH_4)_2Cr_2O_7$  is heated, the gas evolved is

- A.  $NO_2$
- B.  $N_2$
- C.  $O_2$
- D.  $N_2O$

**Answer: B**



**Watch Video Solution**

**22.** The common oxidation states of Ti are

A. +2, +3, +4

B. +2, +3

C. +3, +4

D. +3, -4

**Answer: C**



**Watch Video Solution**

23. When  $CuSO_4$  is electrolysed, using Pt electrodes

A. copper is deposited at cathode, sulphur is liberated at anode

B. copper is deposited at cathode, oxygen gas is liberated at anode

C. oxygen gas is liberated at cathode, copper is deposited at anode

D. sulphur is deposited at cathode, oxygen gas is liberated at anode

**Answer: B**



**Watch Video Solution**

24. The general valence shell electronic configuration of transition elements is

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

B.  $(n - 1)d^{0-10}ns^{1-2}$

C.  $(n - 1)d^{1-10}ns^{0-2}$

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

**Answer: C**



**Watch Video Solution**

25. While extracting an element from its ore, the ore is grind and leached with dil KCN solution to form the

soluble product potassium argentocyanide. The element is

A. Mn

B. Cr

C. Fe

D. Ag

**Answer: D**



[Watch Video Solution](#)

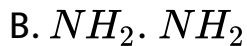
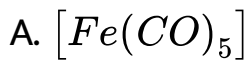
**26.** Within each transition series, the oxidation states

- A. first increase till the middle of the period and then decrease
- B. decrease regularly in moving from left to right
- C. first increase till the middle of period and then increase
- D. increase regularly in moving from left to right

**Answer: A**

 [Watch Video Solution](#)

27. In which of the following compounds transition metal has zero oxidation state ?



**Answer: A**



**Watch Video Solution**

**28.** Which of the following d-block elements has the lowest melting point ?

A. Cu

B. Ag

C. Au

D. Pd

**Answer: B**

 [Watch Video Solution](#)

**29.** In which of the following pairs do the elements have nearly the same densities ?

A. Cr and Fe

B. Zn and Mn

C. Co and Ni

D. Ag and Au



**Answer: C**

 [Watch Video Solution](#)

**30.** The (+5) oxidation state is by far the most stable and best known for

A. V

B. Nb

C. Ta

D. Ag Nb and Ta

**Answer: D**

 [Watch Video Solution](#)

**31.** Which of the following elements is sometimes used to protect iron ?

A. Cu

B. Pt

C. Ni

D. Pd

**Answer: C**



**Watch Video Solution**

**32.** Cigarette smokers absorb significant levels of ---- from tobacco smoke.

A. Cd

B. Zn

C. Hg

D. Cu

**Answer: A**



**Watch Video Solution**

**33.** Which of the following statement are correct about

$Cr^{2+}$  ( $Z = 24$ ) and  $Mn^{3+}$  ( $Z = 25$ ) ?

(i)  $Cr^{2+}$  is a reducing agent

(ii)  $Mn^{3+}$  is an oxidizing agent

(iii) Both  $Cr^{2+}$  and  $Mn^{3+}$  exhibit  $d^4$  configuration

(iv) When  $Cr^{2+}$  is used as a reducing agent, the chromium ion attains  $d^5$  electronic configuration

A. (i), (ii), (iii), (iv)

B. (ii), (iii), (iv)

C. (i), (ii), (iii)

D. (ii), (iii)

**Answer: C**



**Watch Video Solution**

**34.** The color of  $KMnO_4$  is due to

A. d-d transition

B. L  $\rightarrow$  M charge transfer transition

C.  $\sigma - \sigma^*$  transition

D. M  $\rightarrow$  L charge transfer transition

**Answer: B**

 [Watch Video Solution](#)

**35.** Which of the following compounds of silver is soluble in water ?

A. AgF

B. AgCl

C. AgBr

D. AgI

**Answer: A**



**Watch Video Solution**

**36.** Which of the following silver halides is insoluble in liquor ammonia ?

A. AgF

B. AgCl

C. AgBr

D. AgI

**Answer: D**



Watch Video Solution

37. Which of the following silver halides is used in photography chiefly for the production of colloidal emulsion plates ?

A. AgI

B. AgBr

C. AgCl

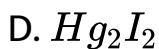
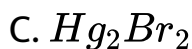
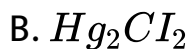
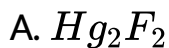
D. AgF

**Answer: A**



Watch Video Solution

38. Which of the following compounds of mercury is commonly known as calomel ?



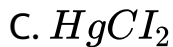
**Answer: B**



**Watch Video Solution**

39. Which of the following compounds is known as corrosive sublimate ?



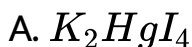


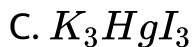
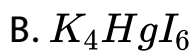
**Answer: C**



**Watch Video Solution**

**40.** Potassium iodide forms a scarlet precipitate of mercuric iodide when added to mercuric chloride solution. The precipitate of mercuric iodide dissolves in excess of potassium iodide forming a complex



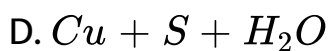
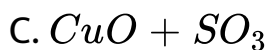


**Answer: A**



**Watch Video Solution**

**41.** On heating at  $750^\circ C$ , blue vitriol yields



**Answer: C**

 [Watch Video Solution](#)

**42.** Bordeaux mixture is a mixture of copper sulphate and

A. Pyridine

B. Rochelle salt

C. Lime

D. Sodium oxide

**Answer: C**

 [Watch Video Solution](#)

43. On strong heating,  $AgNO_3$  produces the gases

A.  $NO_2$  and NO

B. NO and  $O_2$

C.  $N_2O$  and NO

D.  $NO_2$  and  $O_2$

**Answer: D**



[Watch Video Solution](#)

44. Bell metal is an alloy of

A.  $Cu + Ni$

B.  $Cu + Zn$

C.  $Cu + Sn$

D.  $Cu + Pb$

**Answer: C**

 [Watch Video Solution](#)

**45.** Which of the following elements shows maximum number of different oxidation states in its compounds ?

A. Am

B. Gd

C. La

D. Eu

**Answer: A**



**Watch Video Solution**

**46.** Which one of the following may be regarded as an organometallic compound ?

(1) Nickel tetracarbonyl (0)

(2) Chlorophyll

(3)  $K_3 [Fe(C_2O_4)_3]$

(4)  $[Co(en)_3]Cl_3$

A. (i) and (iii)

B. (i), (ii), (iii) and (iv)

C. (i), (ii), and (iii)

D. (i) and (ii)

**Answer: D**



**Watch Video Solution**

**47.** Among the lanthanides the one obtained by synthetic method is

A. Lu

B. Pm

C. Pr

D. Gd

**Answer: B**



[Watch Video Solution](#)

**48.** Cinnabar is an ore of

A. Zn

B. Cu

C. Hg

D. Cr

**Answer: C**



[Watch Video Solution](#)



49. Nitriding is a process of hardening steel by treating it in an atmosphere of



**Answer: A**



**Watch Video Solution**

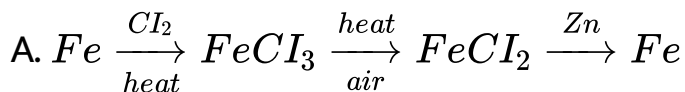
50. Which one of following statements is incorrect ?

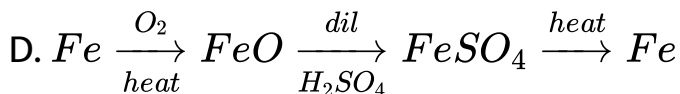
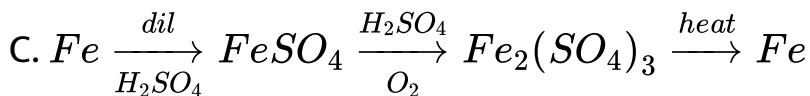
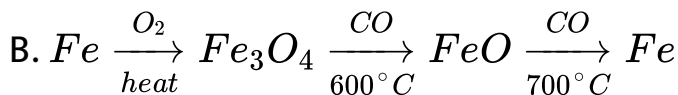
- A. Metal iron is corroded readily in moist air
- B. Argentite is an ore of silver
- C. oxidation state of Cr in  $K_2Cr_2O_7$  is +12
- D. Photographic plates and films have an essential ingredient of silver bromide.

**Answer: C**

 [Watch Video Solution](#)

51. Which series of reactions correctly represents chemical reactions related to iron and its compounds ?

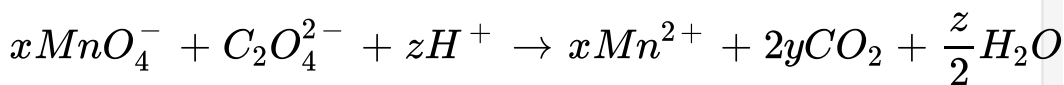




**Answer: B**

 **Watch Video Solution**

**52.** Consider the following reaction



The value of x, y and z in the reaction are respectively

A. 2, 5 and 8

B. 2, 5 and 16

C. 5,2 and 8

D. 5,2 and 16

**Answer:**

 [Watch Video Solution](#)

**53.** Four successive members of first row transition element are listed below. Which one of them is expected to have highest  $E_{\frac{M^{3+}}{(M^{2+})^{\ominus}}}$  value?

A.  $Mn(Z = 25)$

B.  $Fe(Z = 26)$

C.  $Co(Z = 27)$

D.  $Cr(Z = 24)$

**Answer: C**

 [Watch Video Solution](#)

**54.** Which one of the following statements is not correct ?

- A. Mercury (II) iodide dissolve in excuess of  
poptassium iodide solutioun
- B. Tin (IV) chloride is made by dissolving tin solution in  
concentrated hydrochloric acid
- C. Zinc dissolves in sodium hydroxide solution
- D. Carbon monoxide reduces iron (III) oxide to iron

**Answer: B**

 [Watch Video Solution](#)

55. Which of the following has been called the 'wonder metal' ?

A. Ti

B. Zr

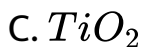
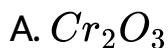
C. Hf

D. Rf

**Answer: A**

 [Watch Video Solution](#)

56. Which of the following is a common white pigment ?



**Answer: C**



**Watch Video Solution**

57. Which of the following is the third most biologically important d-block metal after iron and zinc ?

A. Au

B. Ag

C. Cu

D. Co

**Answer: C**



**Watch Video Solution**

**58.** Both chromate and dichromate ions are in dynamic equilibrium at pH

A. 6

B. 8



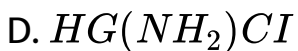
C. 4

D. 10

**Answer: C**

 **Watch Video Solution**

**59.** Mercuric chloride reacts with aqueous ammonia to form a white precipitate of



**Answer: D**



**Watch Video Solution**

**60.** Which of the following elements is responsible for oxidation of water to  $O_2$  in biological processes ?

A. Fe

B. Cu

C. Mn

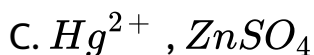
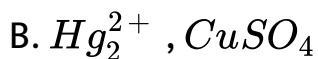
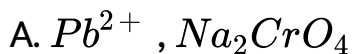
D. Mo

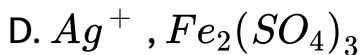
**Answer: C**



**Watch Video Solution**

61. An aqueous solution of a mixture of two inorganic salts, when treated with dilute HCl, gave a precipitate (P) and a filtrate (Q). The precipitate (P) was found to dissolve in hot water. The filtrate (Q) remained unchanged, when treated with  $H_2S$  in a dilute mineral acid medium. However, it gave a precipitate (R) with  $H_2S$  in an ammoniacal medium. The precipitate (R) gave a coloured solution (S), when treated with  $H_2O_2$  in an aqueous NaOH medium. The precipitate (P) contains ----- while the colored solution (S) contains





**Answer: A**

 **Watch Video Solution**

**62.** Which of the following arrangements does not represent the correct order of the property stated against it ?

(i)  $Ni^{2+} < Co^{2+} < Fe^{2+} < Mn^{2+}$  : ionic size

(ii)  $Co^{3+} < Fe^{3+} < Cr^{3+} < Sc^{3+}$  : stability in aqueous solution

(iii)  $Sc < Ti < Cr < Mn$  : number of oxidation states

(iv)  $V^{2+} < Cr^{2+} < Mn^{2+} < Fe^{2+}$  : paramagnetic behaviour

A. (i), (ii), (iii), (iv)

B. (i), (ii), (iii)

C. (ii) and (iv)

D. (ii) and (iii)

**Answer: B**



**Watch Video Solution**

**Archives**

1. Which one of the following statements related to lanthanons is incorrect ?

- A. Europium shows + 2 oxidation state
- B. The basicity decreases as the ionic radius decreases from Pr to Lu.
- C. All the lanthanons are much more reactive than aluminium
- D.  $Ce(+4)$  solution are widely used as oxidizing agent in volumetric analysis.

**Answer: B**

 [Watch Video Solution](#)

2. Which one of the following statement is correct when  $SO_2$  is passed through acidified  $K_2Cr_2O_7$  solution?

A. Green  $Cr_2(SO_4)_3$  is formed

B. The solution turn blue

C. The solution is decolourized

D.  $SO_2$  is reduced

**Answer: A**

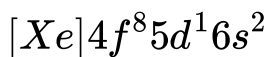
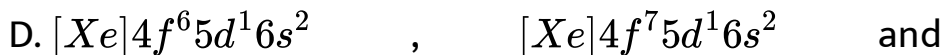
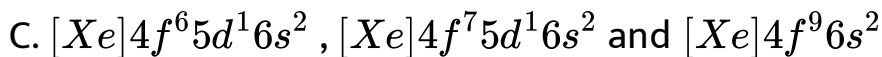


**Watch Video Solution**

**3.** The electronic configuration of Eu (Atomic No. 63), Gd (Atomic No. 64) and Tb (Atomic No. 65) are:

A.  $[Xe]4f^76s^2$  ,  $[Xe]4f^75d^16s^2$  and  $[Xe]4f^96s^2$

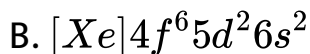
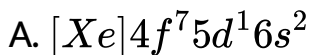
B.  $[Xe]4f^76s^2$  ,  $[Xe]4f^86s^2$  and  $[Xe]4f^86s^2$



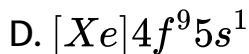
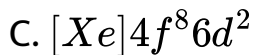
**Answer: A**

 [Watch Video Solution](#)

4. Gadolinium belongs to 4f series. Its atomic number is 64. which of the following is the correct electronic configuration of gadolinium ?



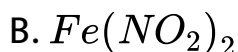
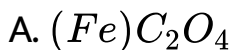




**Answer: A**

 [Watch Video Solution](#)

5. Assuming complete ionization, same moles of which of the following compounds will require the least amount of acidified  $KMnO_4$  for complete oxidation ?



D.  $FeSO_3$

**Answer: C**

 **Watch Video Solution**

6. Which is the correct order of increasing energy of the listed orbitals in the atom of titanium ? (At. No.  $Z = 22$ )

A.  $3s3p3d4s$

B.  $3s3p4s3d$

C.  $3s4s3p3d$

D.  $4s3s3p3d$

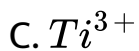
**Answer: B**



Watch Video Solution

7. Magnetic moments  $2.84B$ .  $M$  is given by :

(At. nos. ni = 28, Ti = 22, Cr = 24, Co = 27).



**Answer:**



Watch Video Solution

8. Which of the following processes does not involve oxidation of iron ?

A. Liberation of  $H_2$  from steam by iron at high temperature

B. Rusting of iron sheets

C. Decolourization of blue  $CuSO_4$  solution by iron

D. Formation of  $Fe(CO)_5$  from Fe

**Answer: D**



**Watch Video Solution**

9. Because of lanthanoid contraction, which of the following pairs of elements have nearly same atomic radii ? (Number in the parenthesis are atomic numbers)

A.  $Zr(40)$  and  $Ta(73)$

B.  $Ti(22)$  and  $Zr(40)$

C.  $Zr(40)$  and  $Nb(41)$

D.  $Zr(40)$  and  $Hf(72)$

**Answer: D**



**Watch Video Solution**

10. The number of  $d$  electrons in  $Fe^{2+}$  (atomic number of  $Fe = 26$ ) is not equal to that of the.

A. p- electrons in Ne ( $Z = 10$ )

B. s- electrons Mg ( $Z = 12$ )

C. p- electrons in Cl ( $Z = 17$ )

D. d- electrtons in Fe ( $Z = 26$ )

**Answer: C**



**Watch Video Solution**

11. The pair of compounds that can exist together is:

A.  $FeCl_3$  ,  $SnCl_2$

B.  $HgCl_2$  ,  $SnCl_2$

C.  $FeCl_2$  ,  $SnCl_2$

D.  $FeCl_3$  ,  $KI$

**Answer: C**



**Watch Video Solution**

12. In acidic medium,  $H_2O_2$  changes  $Cr_2O_7^{2-}$  to  $CrO_5$  which has two (  $-O-O-$  ) bonds. Oxidation state of Cr in  $CrO_5$  is

A. +5

B. + 3

C. + 6

D. - 10

**Answer: C**

 [Watch Video Solution](#)

**13.** The reaction of aqueous  $KMnO_4$  with  $H_2O_2$  in acidic conditions gives

A.  $Mn^{4+}$  and  $O_2$

B.  $Mn^{2+}$  and  $O_2$

C.  $Mn^{2+}$  and  $O_3$



D.  $Mn^{4+}$  and  $MnO_2$

**Answer: B**

 [Watch Video Solution](#)

**14.** Lanthanoid contraction is caused due to:

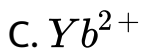
- A. Negligible screening effect of 'f' orbitals
- B. Increasing nuclear charge
- C. Decreasing nuclear charge
- D. Decreasing screening effect

**Answer: A**

 [Watch Video Solution](#)

15. Which of the following lanthanoid ions is diamagnetic? (Atomic number of


$Ce = 58, Sm = 62, Eu = 63, Yb = 70$ ]



**Answer: C**



**Watch Video Solution**

16.  $KMnO_4$  can be prepared from  $K_2MnO_4$  as per the reaction: 

The reaction can go to completion by removing  $OH^\ominus$  ions by adding.

A. KOH

B.  $CO_2$

C.  $SO_2$

D. HCl

**Answer: B**



**Watch Video Solution**

17. Which of the following statements about the interstitial compounds is incorrect?

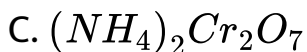
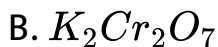
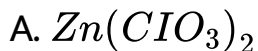
- A. They are chemically reactive
- B. They much harder than the pure metal
- C. They have higher melting points than the pure metal
- D. They retain metallic conductivity

**Answer: A**



**Watch Video Solution**

18. Which of the following does not give oxygen on heating ?



**Answer: C**



**Watch Video Solution**

19. Identify the alloy containing a non metal as a constituent in it

A. Invar

B. Steel

C. Bell metal

D. Bronze

**Answer: A**



**Watch Video Solution**

**20.** Which of the following statements is not true ?

A. On passing  $H_2S$  through acidified  $K_2Cr_2O_7$  solution, a milky colour is observed

B.  $Na_2Cr_2O_7$  is preferred over  $K_2Cr_2O_7$  in volumetric analysis

C.  $K_2Cr_2O_7$  solution in acidic medium is orange

D.  $K_2Cr_2O_7$  solution because yellow on increasing the pH beyond 7

**Answer: B**

 [Watch Video Solution](#)

21. Four successive members of the first series of transition metals are listed below. For which one of the standard potential  $\left(E_{M^{2+}/M}^{\circ}\right)$  value has a positive sign?

A.  $Fe(Z = 26)$

B.  $Co(Z = 27)$

C.  $Ni(Z = 28)$

D.  $Cu(Z = 29)$

**Answer: D**



**Watch Video Solution**

**22.** Which of the following exhibits only +3 oxidation state?

A. Pa

B. U



C. Th

D. Ac

**Answer: D**



**Watch Video Solution**

**23.** The catalytic activity of the transition metals and their compound is ascribed to:

A. their chemical reactivity

B. their magnetic behaviour

C. their unfilled d-orbitals

D. their ability to adopt variable oxidation states

Answer: D

 Watch Video Solution

24. Which one of the following does not correctly represent the correct order of the property indicated against it ?

A.  $Ti < V < Mn < Cr$  : increasing 2 nd ionization enthlpy

B.  $Ti < V < cr < Mn$  : increasing number of oxidation states

C.  $Ti^{3+} < V^{3+} < Cr^{3+} < Mn^{3+}$  : increasing magnetic moment

D.  $Ti < V < Cr < Mn$  : increasing melting points

**Answer: D**



**Watch Video Solution**

25. If  $n = 6$ , the correct sequence for filling of electrons will be.

A.  $ns \rightarrow np \rightarrow (n - 1)d \rightarrow (n - 2)f$

B.  $ns \rightarrow (n - 2)f \rightarrow (n - 1)d \rightarrow np$

C.  $ns \rightarrow (n - 1)d \rightarrow (n - 2)f \rightarrow np$

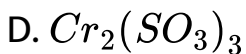
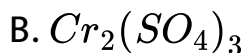
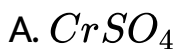
D.  $ns \rightarrow (n - 2)f \rightarrow np \rightarrow (n - 1)d$

**Answer: D**



Watch Video Solution

26. Acidified  $K_2Cr_2O_7$  solution turns green when sodium sulphite is added to it. Explain.



Answer: B



Watch Video Solution

27. For the four successive transition elements (Cr, Mn, Fe, and Co), the stability of +2 oxidation state will be there in which of the following order ?

(At. Nos. Cr = 24, Mn = 25, Fe = 26, Co = 27)

A.  $Cr > Mn > Co > Fe$

B.  $Mn > Fe > Cr > Co$

C.  $Fe > Mn > Co > Cr$

D.  $Co > Mn > Fe > Cr$

**Answer: B**



**Watch Video Solution**

28. which of the following elements is present as the impurity to the maximum extent in the pig iron?

A. Phosphorus

B. Manganese

C. Carbon

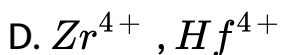
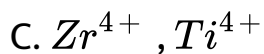
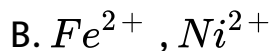
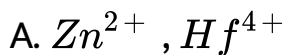
D. Silicon

**Answer: C**



**Watch Video Solution**

29. Which of the following pairs has the same size ?



**Answer: D**



**Watch Video Solution**

**30.** Which one of the following ions has electronic configuration  $[Ar]3d^6$  ?

(*At. Nos. Mn = 25, Fe = 26, Co = 27, Ni = 28*)

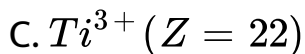
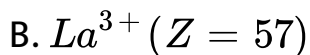
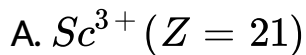




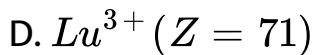
**Answer: A**

 [Watch Video Solution](#)

**31.** Which of the following ions will exhibit colour in aqueous solution ?







**Answer: C**

 [Watch Video Solution](#)

**32.** Which of the following oxidation states is the most common among the lanthanoids ?

A. 4

B. 2

C. 5

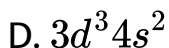
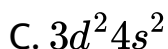
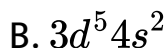
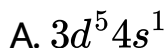
D. 3

**Answer: D**



Watch Video Solution

33. Which one of the elements with the following outer orbital configuration may exhibit the larger number of oxidation states ?

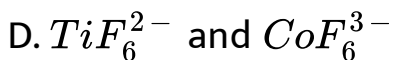
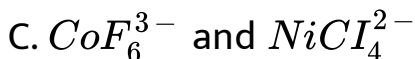
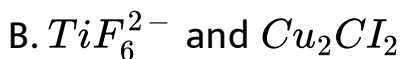
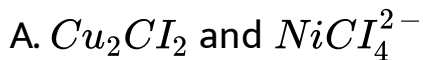


**Answer: B**



Watch Video Solution

34. Among  $TiF_6^{2-}$ ,  $CoF_6^{3-}$ ,  $Cu_2Cl_2$  and  $NiCl_4^{2-}$  (At. No.  $Ti = 22$ ,  $Co = 27$ ,  $Cu = 29$ ,  $Ni = 28$ ), the colourless species are -



**Answer: B**



**Watch Video Solution**

35. The correct order of decreasing second ionisation enthalpy of  $Ti(22)$ ,  $V(23)$ ,  $Cr(24)$  and  $Mn(25)$  is

A.  $Ti > V > Cr > Mn$

B.  $Cr > Mn > V > Ti$

C.  $V > Mn > Cr > Ti$

D.  $Mn > Cr > Ti > V$

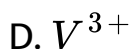
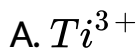
**Answer: B**



**Watch Video Solution**

36. Which of the following ions is the most stable in aqueous solution ?

(*At. No. Ti* = 22, *V* = 23, *Cr* = 24, *Mn* = 25)



**Answer: C**



**Watch Video Solution**

**37.** Identify the incorrect statement among the following:

- A. As a result of lanthanoid contraction, the properties of 4d series of the transition elements have no

similarities with the 5d series of elements.

B. Shielding power of 4d electrons is quite weak

C. There is a decrease in the radii of the atoms or ions  
as one proceeds from La to Lu.

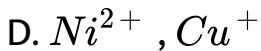
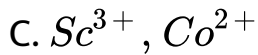
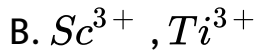
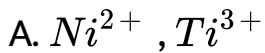
D. Lanthanoid contraction is the accumulation of  
successive shrinkages

**Answer: A**



**Watch Video Solution**

**38.** In which of the following pairs both the ions are coloured in aqueous solution? (Atomic number,  $Sc = 21$ ,  $Ti = 22$ ,  $Ni = 28$ ,  $Cu = 29$ ,  $Co = 27$ )

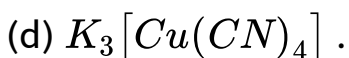
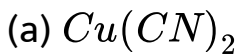


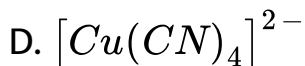
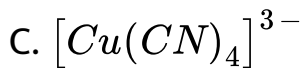
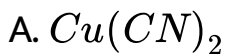
**Answer: A**



**Watch Video Solution**

**39.** Copper sulphate solution reacts with  $KCN$  to give





**Answer: C**



**Watch Video Solution**

**40.** More number of oxidation states are exhibited by the actinoids than by the lanthanoids. The main reason for this is

A. more active nature of the actinoids



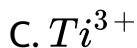
- B. more energy difference between 5d and 6d orbitals than that between 4f and 5d orbitals
- C. lesser energy difference between 5d and 6d orbitals than that between 4f and 5d orbitals
- D. greater metallic character of the lanthanoids than that of the corresponding actinoids

**Answer: C**

 [Watch Video Solution](#)

**41.** The aqueous solution containing which one of the following ions will be colourless

(Atomic number  $Sc = 21$ ,  $Fe = 26$ ,  $Ri = 22$ ,  $Mn = 25$ )



**Answer: A**



**Watch Video Solution**

**42.** Four successive members of the first row transition elements are listed below with their atomic number. Which one of them is expected to have the highest third ionisation enthalpy ?



B. Manganese ( $Z = 25$ )

C. Chromium ( $Z = 24$ )

D. Iron ( $Z = 26$ )

**Answer: B**

 [Watch Video Solution](#)

**43.** The number of moles of  $KMnO_4$  reduced by 1mol of  $KI$  in alkaline medium is

A. one

B. two

C. five

D. one fifth

**Answer: B**



**Watch Video Solution**

**44.** Among  $K$ ,  $Ca$ ,  $Fe$  and  $Zn$  the element which can form more than one binary compound with chlorine is

A. Fe

B. Zn

C. K

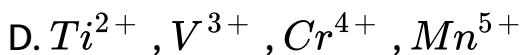
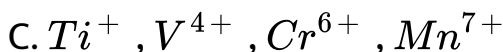
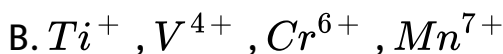
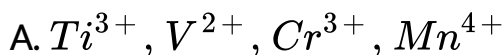
D. Ca

**Answer: A**



Watch Video Solution

45. Among the following series of transition metal ions the one where all metal ions have  $3d^2$  electronic configuration is



Answer: D



Watch Video Solution

**46.** Lanthanoids are

A. 14 elements in the sixth period (atomic no = 90 to 103) that are filling 4f sublevel

B. 14 elements in the seventh period (atomic no = 90 to 103) that are filling 5f sublevel

C. 14 elements in the 6th period (atomic no = 58 to 71) that are filling the 4f sublevel

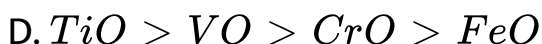
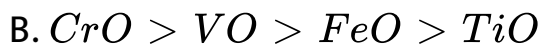
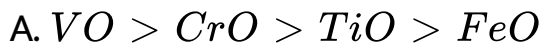
D. 14 elements in the 7th period (atomic no = 50 to 71) that are filling the 4f sublevel

**Answer: C**



**Watch Video Solution**

47. The basic character of the transition metal monoxide follows the order



**Answer: D**



**Watch Video Solution**

48. Which one of the following characteristics of transition metals is associated with their catalytic

activity?

- A. High enthalpy of atomization
- B. Paramagnetic behaviour
- C. Colour of hydrated ions
- D. Variable oxidation states

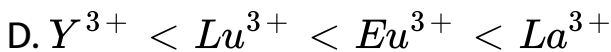
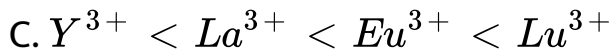
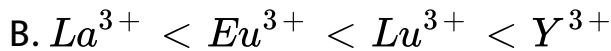
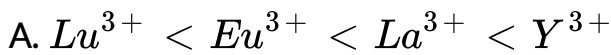
**Answer: D**



**Watch Video Solution**

**49.** The correct order of ionic radii  $Y^{3+}$ ,  $La^{3+}$ ,  $Eu^{3+}$  and  $Lu^{3+}$  is  
(*AT. No: Y = 39, La = 57, Eu = 63, Lu = 71*)





**Answer: D**



**Watch Video Solution**

**50.** In the silver plating of copper,  $K[Ag(CN)_2]$  is used instead of  $AgNO_3$ . The reason is

A. a thin layer of Ag is formed on Cu

B. more voltage is required

C.  $Ag^+$  ions are completely removed from solution

D. less availability of  $Ag^+$  ions, as Cu cannot displace

Ag from  $[Ag(CN)_2]^-$  ion.

**Answer: D**

 [Watch Video Solution](#)

51. An atom has electronic configuration  $1s^2 2s^2 2p^6 3s^2 3p^6 3d^3 4s^2$ . In which group would it be placed ?

A. Fifth

B. Fifteen

C. Second

D. Third

**Answer: A**

 **Watch Video Solution**

**52. General electronic configuration of lanthanides is**

A.  $(n - 2)f^{1-14}(n - 1)s^2p^6d^{0-1}ns^2$

B.  $(n - 2)f^{10-14}(n - 1)d^{0-1}ns^2$

C.  $(n - 2)f^{0-14}(n - 1)d^{10}ns^2$

D.  $(n - 2)d^{0-1}(n - 1)f^{0-14}ns^1$

**Answer: A**



Watch Video Solution

53. Which of the following statements is not correct ?

A.  $La(OH)_3$  is less BASIC than  $Lu(OH)_3$

B. In lanthanide series ionic of  $Ln^{2+}$  ion decreases

C. La is actually an element of transition series rather  
lanthanide series.

D. Atomic radius of Zr and Hf are same because of  
lanthanide contraction

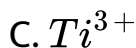
**Answer: A**



Watch Video Solution

54. Which one of the following forms a colourless solution in aqueous medium ?

(Atomic number :  $Sc = 21$ ,  $Ti = 22$ ,  $V = 23$ , and  $Cr = 24$ )



**Answer: D**



**Watch Video Solution**