

CBSE Class 12 physics
Important Questions
Chapter 8
The d- and f- Block Elements

1 Marks Questions

1. Zinc, cadmium and mercury are not considered as transition metals. Why?

Ans. Zinc, cadmium and mercury have fully filled d^{10} configuration. Therefore they are not considered as transition metal.

2. Write the general configuration of d- block elements.

Ans. General electronic configuration of d- block elements is $(n-1)d^{1-10}ns^{1-2}$.

3. What are the factors that decide the ionization potential?

Ans. The ionization potential values are governed by various ionization enthalpy values, bond enthalpy values and hydration enthalpy values.

4. What are interstitial compounds. Give two examples

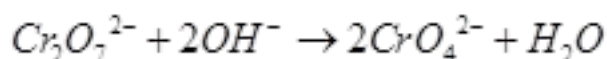
Ans. Compounds formed by trapping small atoms like H, C, or N inside the crystal lattices of metals eg. TiC, Mn_4N etc.

5. What is the ore of $K_2Cr_2O_7$ and $KMnO_4$?

Ans. Potassium dichromate \rightarrow chromite ore ($FeCr_2O_4$) Potassium Permanganate \rightarrow MnO_2 pyrolusite.

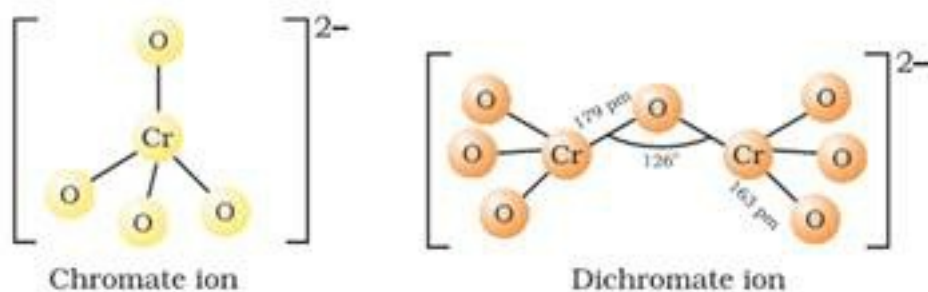
6. What is the effect of adding a base to potassium dichromate?

Ans. When a base is added to orange coloured potassium dichromate its colour changes to yellow due to formation of potassium chromate.



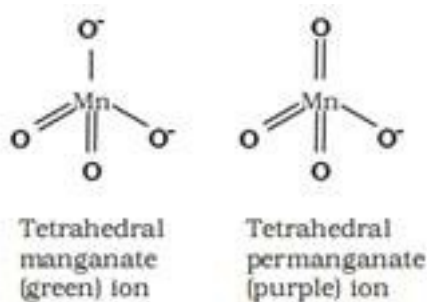
7. Draw the structure of chromate and dichromate ions?

Ans.



8. Draw the structure of manganate and permanganate ions?

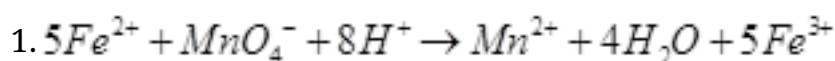
Ans.

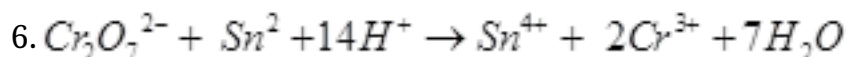
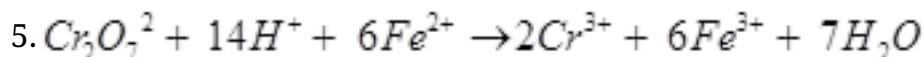
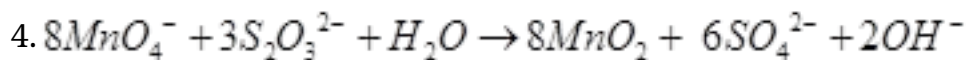
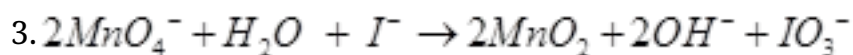
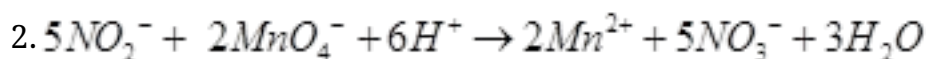


9. Complete and balance:-

- $5Fe^{2+} + MnO_4^- + 8H^+ \rightarrow$
- $5NO_2^- + 2MnO_4^- + 6H^+ \rightarrow$
- $2MnO_4^- + H_2O + I^- \rightarrow$
- $8MnO_4^- + 3S_2O_8^{2-} + H_2O \rightarrow$
- $Cr_2O_7^{2-} + 14H^+ + 6Fe^{2+} \rightarrow$
- $Cr_2O_7^{2-} + Sn^{2+} + 14H^+ \rightarrow$

Ans.





10. Name the two series of f-block.

Ans. The two series are-

i) 4f series or Lanthanoids ii) 5f series or actinoids.

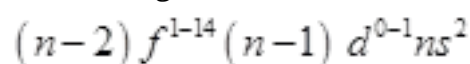
11. The chemistry of actinoids is more complicated than lanthanoids. Why?

Ans. The complications in the actinoid series is due to

i) Existence of a wide range of oxidation states. ii) Their radioactivity.

12. What is the general valence configuration of f-block elements?

Ans. The general electronic configuration of f-block elements is



13. What is the most common oxidation state of lanthanoids and actinoids?

Ans. The common oxidation states of

(1) 4f series is +3

(2) 5f series is +3, +4, +5, +6 & +7

14. Actinoid contraction is more than lanthanoid contraction. Give reason.

Ans. The actinoid contraction is more than Lanthanoid contraction as the shielding

Power of 5f orbitals is poorer than 4f orbitals.

15. What is the composition of mischmetall? Give its one use.

Ans. Mischmetall is an alloy of a Lanthanoid metal and iron and traces of S, C, Ca &

Al. It is used in Magnesium based alloy to produce bullets, shell and lighter Flint.

16. Actinoids show larger number of oxidation states than lanthanoids. Why?

Ans. Actinoids can show many oxidation states as in actinoids 5f orbitals are filled which are not as buried as Lanthnoids and can also participate in bonding to a greater extent besides 6d and 7s electrons.