



# INDIAN SCHOOL NIZWA - WORKSHEET

## CHEMISTRY

### CH: 7 d & f block elements

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Class: XII Sec: \_\_\_\_

#### I Give reasons for the following.

1. Transition metal ions form complexes.
2. There is no regular trend in the  $E^0$  values of elements in transition series.
3. Zirconium and Hafnium occur together in minerals.
4. Many transition metals have catalytic properties.
5. Highest oxidation state of transition metals is shown only in oxides and fluorides.
6. Among the lanthanides, Ce(III) can be easily oxidised to Ce (IV).
7.  $\text{Cu}^+$  ion is colourless while Cupric ion  $\text{Cu}^{2+}$  is blue in colour in aqueous solutions.
8. Of the  $d^4$  species Cr(II) is strongly reducing while Mn(III) is strongly oxidising.
9. The  $IE_1$  of the 5d transition metals is higher than those of 3d and 4d transition metals.
10. Ionic radius of  $\text{Cu}^{2+}$  is less than  $\text{Cr}^{2+}$  while atomic radius of Cu is greater than that of Cr.
11.  $E^0$  for  $\text{Mn}^{3+}/\text{Mn}^{2+}$  couple is more positive than that of  $\text{Cr}^{3+}/\text{Cr}$ .
12. HCl is not used for acidifying solution used for permanganometric titrations.
13. Transition metals generally form coloured ions.
14. With  $3d^4$  configuration  $\text{Cr}^{2+}$  acts as reducing agent, but  $\text{Mn}^{3+}$  acts as oxidising agent.
15. Actinoid contraction is greater than lanthanoid contraction.

#### II Answer the following

1. Calculate the magnetic moment of  $\text{Fe}^{3+}$  &  $\text{Ce}^{3+}$  ions.
2. Draw the structures of chromate and dichromate ions.
3. Explain with equations, how the colour of a solution of  $\text{K}_2\text{Cr}_2\text{O}_7$  depends on pH
4. Decide giving reasons which one of the following pairs has the property mentioned.
  - i)  $\text{Sc}^{3+}$  or  $\text{Cr}^{3+}$  exhibit paramagnetism.
  - ii) V or Mn exhibits more number of oxidation states.
  - iii) Fe or Cu has the highest melting point.