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Characteristics

Properties of transition metal :-

1. Transition metal have similar ($(n-2)$ electronic configuration) in outermost shell. Hence, they have resemblance in their physical and chemical properties.
2. Transition metal are hard metal. They are malleable, ductile and lustrous.
3. They ~~are~~ have very high M.P and B.P and high tensile strength. M.P of transition metal increases from left to right across a period upto to middle $\frac{1}{2}$ and then (decs).
4. They are good conductor of heat and electricity.
5. Atomic Radii of T.M lie in b/w s and p block. Atomic and Ionic radii (decs) from left to right in a period. The atomic radii (decs) down the group from 3d to 4d series but atomic radii of 4d and 5d transition series, elements are same due to lanthanoid contraction.
6. The first ionisation energy of transition metal are higher than s block element and lower than p-block element. Ionisation energy (Ies) along a transition series but difference b/w two successive element is very small.
7. T.M show variable oxidation state and valency of Fe(II), Fe(III) and Cu(I), Cu(II).

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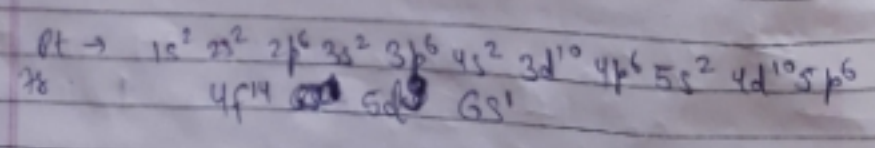
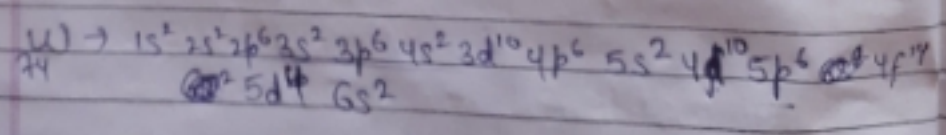
4f¹⁴

5p⁶

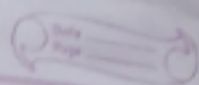
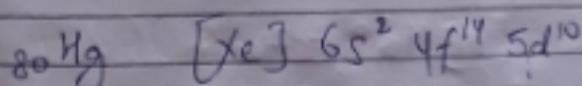
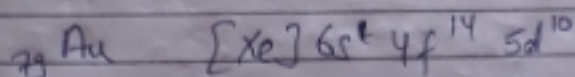
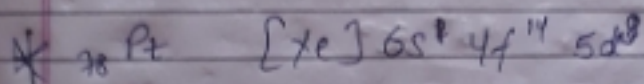
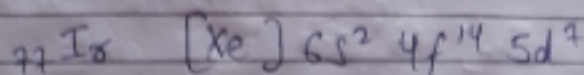
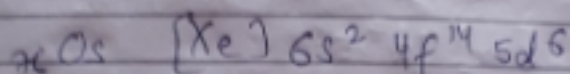
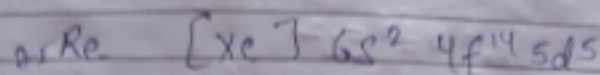
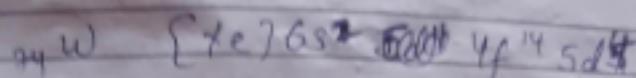
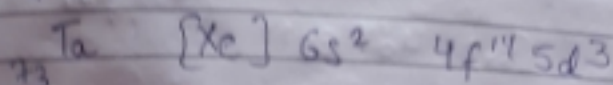
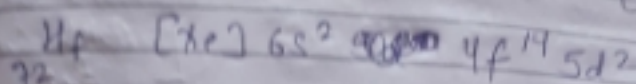
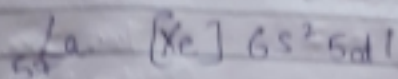
→ Members of 4d orbital

- $_{35}Y$ $[Kr] 4d^1 5s^2$
- $_{40}Zr$ $[Kr] 4d^2 5s^2$
- $_{41}Nb$ $[Kr] 4d^4 5s^1$
- $_{42}Mo$ $[Kr] 4d^5 5s^1$ ~~$4d^5 5s^2$~~
- $_{43}Tc$ $[Kr] 4d^5 5s^2$
- $_{44}Ru$ $[Kr] 4d^7 5s^1$
- $_{45}Rh$ $[Kr] 4d^8 5s^1$
- $_{46}Pd$ $[Kr] 4d^{10} 5s^0$
- $_{47}Ag$ $[Kr] 4d^{10} 5s^1$
- $_{48}Cd$ $[Kr] 4d^{10} 5s^2$

Vani Zare Nitkane
Maut tak Rupavast
Rohit Sam Aagam
Roi



Members of sd-blocks



[La 4f14 5d1]
 Simon Sillion
 Platinum Gold
 mercury

* In case of atomic number 71, 72, 78, 79, 80 and 4f¹⁴ 5s subshell has 1 electron.

• Members of 3d-series —

- Sc_{21} $[Ar] 4s^2 3d^1$
- Ti_{22} $[Ar] 4s^2 3d^2$
- V_{23} $[Ar] 4s^2 3d^3$
- Cr_{24} $[Ar] 4s^1 3d^5$
- Mn_{25} $[Ar] 4s^2 3d^5$
- Fe_{26} $[Ar] 4s^2 3d^6$
- Co_{27} $[Ar] 4s^2 3d^7$
- Ni_{28} $[Ar] 4s^2 3d^8$
- Cu_{29} $[Ar] 4s^1 3d^{10}$
- Zn_{30} $[Ar] 4s^2 3d^{10}$

Sum Toori wali Case
Hem fir koi na koi
Jayega

• Members of 4d-series —

- | | | | |
|---------|------------------|---------|---------------------|
| $39 Y$ | $[Kr] 5s^2 4d^1$ | $46 Pd$ | $[Kr] 5s^0 4d^{10}$ |
| $40 Zr$ | $[Kr] 5s^2 4d^2$ | $47 Ag$ | $[Kr] 5s^1 4d^{10}$ |
| $41 Nb$ | $[Kr] 5s^1 4d^4$ | $48 Cd$ | $[Kr] 5s^2 4d^{10}$ |
| $42 Mo$ | $[Kr] 5s^1 4d^5$ | | |
| $43 Tc$ | $[Kr] 5s^2 4d^5$ | | |
| $44 Ru$ | $[Kr] 5s^1 4d^7$ | | |
| $45 Rh$ | $[Kr] 5s^1 4d^8$ | | |