

Ans: (a) Lanthanoid contraction

(b) Poor shielding effect of 4f orbitals filled before 5d orbitals in the series and as the nuclear charge increase with increase of atomic number, there is regular decrease in the size of 4f orbitals

Consequences - 2nd & 3rd transition series elements exhibit similar radii

- Have very similar physical & chemical properties

Que 6: The outer electronic configuration of Au is $5s^25p^65d^{10}6s^1$ and that of Zn is $3s^2 3p^63d^{10}4s^2$

Marks :(2)

(a) Write the outer electronic configuration of Au^{2+} and Zn^{2+} ions

(b) Explain why Au is considered as a transition element but Zn is not

Ans: (a) $Au^{2+} 5s^25p^65d^9$

$Zn^{2+} 3s^23p^63d^{10}$

(b) Zn has completely filled d orbitals ($3d^{10}$) in the ground state as well as in its oxidised state. Au has partially filled 'd' orbitals in Au^{2+} and Au^{3+}