

## UNIT:-1; SOLID STATE(other questions)

**1.22.Ionic solids, which have anionic vacancies due to metal excess defect, develop colour. Explain with the help of a suitable example.**

**Ans:** Let us take an example of NaCl. When NaCl crystal is heated in presence of Na vapour, some Cl<sup>-</sup> ions leave their lattice sites to combine with Na to form NaCl. The e<sup>-</sup>s lost by Na to form Na<sup>+</sup> ( $\text{Na} + \text{Cl}^- \rightarrow \text{NaCl}$ ) then diffuse into the crystal to occupy the anion vacancies. These sites are called F-centres. These e<sup>-</sup>s absorb energy from visible light, get excited to higher energy level and when they fall back to ground state, they impart yellow colour to NaCl crystal.

**1.23.A group 14 element is to be converted into n-type semiconductor by doping it with a suitable impurity. To which group should this impurity belong?**

**Ans:** Impurity from group 15 should be added to get n-type semiconductor.

**1.24.What type of substances would make better permanent magnets, ferromagnetic or ferrimagnetic. Justify your answer.**

**Ans:** Ferromagnetic substances make better permanent magnets. This is because when placed in magnetic field, their domains get oriented in the directions of magnetic field and a strong magnetic field is produced. This ordering of domains persists even when external magnetic field is removed. Hence, the ferromagnetic substance becomes a permanent magnet.