

Date _____ FN/AN, Time 3 Hrs, Full Marks - 60 , Deptt - Chemistry

No of Students - 45 , Spring Semester : 2011-2012

Subject No - CY 50033

Name of Subject – **Solid State Chemistry**

Answer all questions

Q1. A) What are the physio-chemical conditions for a solid to act as good ionic conductor ? 6

B) What are the principles used to fabricate an oxygen sensor for molten steel ? 6

Q2 A) What is the origin of the diamagnetism of materials ? Discuss briefly . 6

B) Prove that $\mu_{\text{eff}} = g [J(J+1)]^{1/2}$ 6

Q3 A) Discuss briefly the structure of ferrites and its' variations of saturation magnetizations with chemical compositions 6.

B) Write briefly the differences between Ferromagnetism and Ferrimagnetism . 6

Q4 A) Discuss briefly the mechanism of fluorescence of sulfide phosphor . 6

B) What are Ferroelectrics ? Illustrate with examples . 6

Q5 . Write short-notes on (any three) : 4x3

- i) Concentration dependence of luminescence efficiency
- ii) Electroluminescence
- iii) Origin of permanent magnetic dipole
- iv) Weiss field and its interpretation through quantum principle
- v) Magnetic domain in Ferromagnets
- vi) Paramagnetic relaxation