



**AC-1414**  
**M. Sc. (Reg. & Ev.) (Sem. II) Examination**  
**April / May – 2015**  
**Inorganic Chemistry : Paper - I**

Time : 3 Hours]

[Total Marks : 70

**Instructions :**

(1)

<p>नीचे दर्शाविए निशानीवाणी विगतो उत्तरवही पर अवश्य लખवी. Fillup strictly the details of signs on your answer book.</p> <p>Name of the Examination :</p> <p><b>M. Sc. (Reg. &amp; Ev.) (Sem. II)</b></p> <p>Name of the Subject :</p> <p><b>Inorganic Chemistry : Paper - I</b></p> <p>Subject Code No. : <b>1 4 1 4</b> Section No. (1, 2,.....) : <b>Nil</b></p>	<p>Seat No. :</p> <table border="1" style="width: 100%; height: 20px;"><tr><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td></tr></table> <div style="border: 1px solid black; border-radius: 15px; height: 60px; margin-top: 10px; display: flex; align-items: center; justify-content: center; padding: 10px;">Student's Signature</div>						

- (2) Attempt all questions.
- (3) Figures to the right indicate full marks.
- (4) Answer of all questions to be written in same answer book.

1 Answer briefly any three of the following: 18

- (a) What is paramagnetism? Explain the origin of paramagnetism.
- (b) What is meant by orbital contribution to magnetic moment? Discuss giving suitable examples the quenching of orbital contribution.
- (c) Describe the Guoy's method for determining magnetic susceptibility of solid substance.
- (d) Explain the terms:
  - (i) Pole strength
  - (ii) Magnetic permeability
  - (iii) Magnetic induction.

- 2 Answer briefly any three of the following: 18
- (a) Explain the preparation and properties of nitrosyl halides of Iron, Cobalt and Nickel.
  - (b) Discuss structure and bonding in  $\text{Os}_3(\text{CO})_{12}$ .
  - (c) Explain chemical properties of metal carbonyl with reference to
    - (i) Substitution reaction
    - (ii) Action of NaOH
    - (iii) Action of halogen.
  - (d) Explain molecular weight, number average and weight average in inorganic polymers.
- 3 Answer briefly any three of the following: 18
- (a) What do you mean by polymerization? How polymerization can be achieved? Give the classification of inorganic polymers.
  - (b) What is crystallinity? Describe dialometry method for determining of percent crystallinity of polymer.
  - (c) Give the method of preparation, properties and applications of poly-phosphazenes.
  - (d) Describe back bone bonding in inorganic polymers.
- 4 Answer briefly any three of the following: 16
- (a) Write a short note on diamagnetism and Pascal constant.
  - (b) Derive the Langevin equation for the system when multiplet width is Larger than thermal energy.
  - (c) What is EAN rule? Calculate EAN for any two from the following:
    - (i)  $\text{Ni}(\text{CO})_4$
    - (ii)  $\text{Co}_2(\text{CO})_8$
    - (iii)  $\text{Cr}(\text{CO})_6$
  - (d) Give synthesis and of polysiloxanes.