This question paper contains 3 printed pages.]

Your Roll No. .....

5103

B.Sc. (Prog.) / II B

CH-201 – INORGANIC CHEMISTRY

(Admissions of 2008 onwards)

Time : 2 Hours **Maximum Marks : 50**

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt any **four** questions.

1. (a) With reference to the Ellingham diagrams discuss the slopes of the lines for the oxides of carbon and also discuss the versatility of carbon as a reducing agent when it forms CO gas. 4½

   (b) Describe Kroll's and Mond's processes. 4

   (c) Discuss bonding in diborane. 4

2. Write short notes on any **three** of the following :

   (a) Silicates 4½

(b) Borazine 4

(c) Toxic effects of arsenic and mercury. 4

(d) Allotropes of phosphorus. 4

3. (a) Giving reasons arrange the oxoacids of chlorine in the increasing order of their acidic strength. 4½

(b) NH_3 is more basic than PH_3. Comment. 4

(c) Draw and discuss the structures of PCl_3 and PCl_5, respectively. 4

4. (a) What is inert-pair effect ? How does it influence the chemical behaviour of the compounds ? 4

(b) Discuss the mode of occurrence of metals on the basis of standard electrode potentials. 4½

(c) SO_2 acts as a strong reducing agent in alkaline medium. Explain. 4

5. (a) Complete and balance the following equations : 2×5

(i) $K_2Cr_2O_7 + H_2SO_4 + SO_2 \longrightarrow$

(ii) $N_2H_4 + O_2 \longrightarrow$

(iii) $NH_2OH + Cl_2 \longrightarrow$

(iv) $ClO_2 + H_2O_2 \longrightarrow$

(v) $AgNO_3 + H_3PO_3 + H_2O \rightarrow$

(b) Why is $SnCl_2$ a stronger reducing agent ? **2½**

6. (a) Describe Na/K pump. **4½**

(b) Discuss the toxic effects of carbon monoxide and hydrogen sulphide gases. **4**

(c) "Stability of hydrides decreases down the gp". Explain. **4**
