



বিদ্যাসাগর বিশ্ববিদ্যালয়  
**VIDYASAGAR UNIVERSITY**

**Question Paper**

**B.Sc. Honours Examinations 2020**

(Under CBCS Pattern)

**Semester - VI**

**Subject: CHEMISTRY**

**Paper: CC - 13 (T + P) (Inorganic Chemistry V – Theory + Practical)**

**Full Marks: 40 (Theory) + 20 (Practical)**

**Time: 4 Hours**

*Candidates are required to give their answer in their own words as far as practicable.*

*Questions are of equal value.*

Answer any **one question** [within 250 words] from each Part.

**Part A: Inorganic Chemistry (Theory)**

1. What are the essential differences in the functions of haemoglobin and myoglobin?
2.  $\text{Ni}(\text{CO})_4$  exists as a stable carbonyl complex, whereas  $\text{Pd}(\text{CO})_4$  and  $\text{Pt}(\text{CO})_4$  do not. Explain.
3. How does nature protect Fe(II) in haemoglobin from its irreversible oxidation in the presence of oxygen?
4. Write short note on “cooperative interaction”.
5. What do you mean by oxidative addition and reductive elimination? Give one example in each case.
6. Write the name of a zinc containing enzyme and state its biofunction.
7. Write short note on ‘PS-I’ and ‘PS-II’.



8. Do you expect any rotation of the ethylene molecule in the Zeise's salt without hampering the stability of the complex? Explain.
9. Discuss the toxic effects of mercury.
10. Write short note on "Alzheimer's Disease".
11. What is Wilkinson's catalyst? Give the catalytic cycle for the hydrogenation of ethylene molecule using Wilkinson's catalyst.
12. Comment on the CO stretching frequency ( $\bar{\nu}_{CO}$   $\text{cm}^{-1}$ ) in the following compounds:

Free CO	Ni(CO) <sub>4</sub>	[Co(CO) <sub>4</sub> ] <sup>-</sup>	[Fe(CO) <sub>4</sub> ] <sup>-2</sup>
2143	2060	1890	1790

### Part B: Inorganic Chemistry (Practical)

1. Write the principle involved in the separation of basic radicals in different groups.
2. Write down the procedure of phosphate separation from sample mixture before doing test for Group-III basic radical.
3. Write down the procedure of preparation of solution for wet test of basic radicals.
4. Write down the procedure for separation and detection of sulphite, sulphate and thiosulphate ions in same mixed sample.
5. Write down the procedure for separation of basic radicals into different groups.
6. Write down the procedure of preparation of solution for wet test of acid radicals.
7. Write down the chemistry involving flame test and modified flame test.
8. Suppose a sample contains Zn<sup>2+</sup>, Ca<sup>2+</sup>, Ni<sup>2+</sup> and Cl<sup>-</sup> ions, give the logic to establish the probable composition,
9. Write the procedure of Group IV ppt. analysis to detect Ca<sup>2+</sup> ion in a sample.
10. Discuss the necessity of removal of interfering acid radical during wet test for basic radicals.
11. Write down the procedure for detection of constituent ions of BaSO<sub>4</sub> as sample.
12. Write down the procedure for separation of the precipitation of Group IIA and Group IIB metal sulphides.