

B.Sc. 6th Semester (Honours) Examination, 2020 (CBCS)

Subject: Chemistry

Paper: CC-13

Time: 2 Hours

Full Marks: 40

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

Answer any eight questions from the following:

8 × 5 = 40

1. Give a brief introduction of photosynthesis with PS-I and PS-II systems.
2. Outline the molecular mechanism of ion transport across membrane.
3. Comment on oxygen uptake and equilibrium in Myoglobin and Hemoglobin.
4. Discuss the poisoning effects of arsenic and mercury. Mention at least two remedial measures of each.
5. Draw different bonding motifs of CO in metal carbonyl complexes. Briefly describe with suitable examples the effect of the metal ion oxidation state and the coligand on ν_{CO} values.
6. Write down the composition of Wilkinson's and Ziegler-Natta catalysts. 'Ziegler-Natta polymerization is an example of heterogeneous catalysis.' - Justify.
7. What is Zeise's salt? Write down its synthesis and structure. What is the nature of metal-olefin interaction in Zeise's salt?
8. Explain the catalytic cycle for the production of acetaldehyde from ethylene by using Wacker process.
9. State the different factors affecting the rate of substitution reactions in octahedral complex.
10. Distinguish between *cis*- and *trans*-effect. Discuss the synthesis of *cis*-platin and *trans*-platin following the *trans*-effect.