

S-443

Total Pages : 2

Roll No.

MCH-501

Inorganic Chemistry-I

M.Sc. Chemistry (MSCCH)

1st Semester Examination, 2022 (Dec.)

Time : 2 Hours]

[Max. Marks : 35

Note : This paper is of Thirty Five (35) marks divided into two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein.

SECTION-A

(Long Answer Type Questions)

Note : Section 'A' contains Five (05) long answer type questions of Nine and Half ($9\frac{1}{2}$) marks each. Learners are required to answer any Two (02) questions only.
($2 \times 9\frac{1}{2} = 19$)

1. Discuss element of symmetry in detail.
2. Describe crystal field theory of octahedral complexes and also discuss the application of it.

3. Give the postulates of Molecular orbital theory and draw the MO diagram and O_2 , O_2^+ and O_2^- .
4. Draw and explain the Orgel diagram of d^2 ion in both octahedral and tetrahedral field.
5. Discuss the character table of water and ammonia molecules.

SECTION-B

(Short Answer Type Questions)

Note : Section 'B' contains Eight (08) short answer type questions of Four (04) marks each. Learners are required to answer any Four (04) questions only. (4×4=16)

1. Draw the molecular orbital diagram of CO molecule.
2. Draw the Orgel diagram of d^6 ion in octahedral field.
3. Discuss centre of symmetry with suitable example.
4. Mention the point group of H_2O_2 , SO_2 and CO_2 .
5. What do you mean by optical activity? Explain.
6. Discuss Non-abelian rules of groups.
7. Write a short note on ligand field parameters.
8. Discuss the Tanabe-Sugano diagram for the d^3 ion.