

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)

CLASS: IMSC
BRANCH: CHEMISTRY

SEMESTER: VI
SESSION : SP/2019

SUBJECT: IMC6007 INORGANIC CHEMISTRY III

TIME: 1.5 HOURS

FULL MARKS: 25

INSTRUCTIONS:

1. The total marks of the questions are 30.
 2. Candidates may attempt for all 30 marks.
 3. In those cases where the marks obtained exceed 25 marks, the excess will be ignored.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. The missing data, if any, may be assumed suitably.
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- Q1 (a) Why were Lanthanides referred as 'rare earths'? [2]
(b) Write the first seven elements of lanthanide series with electronic configuration? [3]
- Q2 (a) Check hapticity of (i) Tropolium cation and (ii) Ethene. [2]
(b) Check if (i) $\text{HMn}(\text{Co})_5$ (ii) Ferrocene and (iii) $[\text{PtCl}_4]^{2-}$ follow 18 electron rule or not? [3]
- Q3 (a) Discuss the limitations of 18 electron rule? [2]
(b) Classify with examples the σ bonded transition metal hydrocarbyls? [3]
- Q4 (a) Discuss the hydrogenolysis reaction with example? [2]
(b) Give an account of ionic OMCs including general characteristics, structure, bonding and stability? [3]
- Q5 (a) Discuss structure and bonding in metal carbonyls? [2]
(b) With the help of suitable reactions, discuss general preparation and properties of metal caronyls [3]
- Q6 (a) Discuss acylation reaction in ferrocene molecule? [2]
(b) Discuss the structure and bonding in Ferrocene molecule? [3]

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