

Code No: 152AB**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B.Tech I Year II Semester Examinations, June - 2022****CHEMISTRY****(Common to CE, ME, ECE, EIE, MCT, MMT, ECM, AE, MIE, PTM, CSBS,
CSE(AI&ML), CSE(IOT))****Time: 3 Hours****Max. Marks: 75****Answer any five questions
All questions carry equal marks****- - -**

- 1.a) Explain molecular orbital diagram of O_2 molecule.
b) Discuss crystal field splitting in octahedral complexes. [7+8]
- 2.a) Describe complexometric method for estimation of hardness of water.
b) Explain disinfection of water by chlorination and ozonization methods. [8+7]
- 3.a) Discuss the applications of electrochemical series.
b) Explain cathodic protection methods. [7+8]
- 4.a) Write the reactions involving reduction of carbonyl compounds using $NaBH_4$.
b) Discuss conformation analysis of n-butane. [7+8]
- 5.a) Explain the principle involved in electronic spectroscopy and mention its applications in quantitative analysis.
b) Discuss the applications of IR spectroscopy and MRI. [8+7]
- 6.a) Write notes on linear combination of atomic orbitals (LCAO).
b) Explain ion exchange process for softening of hard water. [7+8]
- 7.a) Explain the working of secondary batteries taking Li-ion battery as an example.
b) Discuss Markownikoff and anti Markownikoff's rule. [7+8]
- 8.a) Describe the construction and working of lead acid storage battery.
b) Explain (i) Types of hardness (ii) Pitting corrosion (iii) Enantiomers. [8+7]

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