

Code No: 151AF**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B.Tech I Year I Semester Examinations, September/October - 2021****CHEMISTRY****(Common to EEE, CSE, IT, CSIT, ITE, CE(SE), CSE(CS), CSE(DS), CSE(Networks))****Time: 3 Hours****Max. Marks: 75****Answer any five questions****All questions carry equal marks**

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- 1.a) Explain Linear combination of atomic orbitals (LCAO) theory.
b) What is the effect of doping on conductance? [7+8]
- 2.a) Explain the molecular orbital energy level diagram of O₂ molecules.
b) Discuss the crystal field splitting in square planar complexes. [7+8]
- 3.a) Explain ion-exchange process for softening of hard water.
b) How does chlorination of water helps in disinfection and write its mechanism. [7+8]
- 4.a) Describe the various steps involved in treatment of potable water.
b) Explain priming and foaming and their prevention methods. [7+8]
- 5.a) Discuss the working of glass electrode.
b) Explain any five factors affecting the rate of corrosion. [7+8]
- 6.a) Explain potentiometric titrations of strong acid and strong base.
b) Differentiate between anodic and cathodic metallic coatings. [7+8]
7. Explain the S_N1 and S_N2 mechanism with stereochemistry. [15]
- 8.a) Explain the selection rules of IR-spectroscopy. Give its applications.
b) Discuss the significance of chemical shift. [7+8]

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