

Code No: 152AN

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B.Tech I Year II Semester Examinations, June - 2022****CHEMISTRY****(Common to EEE, CSE)****Time: 3 Hours****Max. Marks: 75**

**Answer any five questions**  
**All questions carry equal marks**

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- 1.a) Explain the  $\pi$  molecular orbitals of benzene with diagram.  
b) Discuss the crystal field splitting of 'd' orbitals in tetrahedral field. [7+8]
- 2.a) What is internal conditioning of boiler water. Write about calgon conditioning and colloidal conditioning of water.  
b) How is hardness of water determined by complexometry? [8+7]
- 3.a) Explain the lead-acid storage battery.  
b) Describe cathodic protection methods for corrosion control. [7+8]
- 4.a) Explain the markownikoff and anti markownikoff's additions.  
b) Describe the synthesis and pharmaceutical applications of Paracetamol. [8+7]
- 5.a) Explain magnetic resonance imaging.  
b) Describe the selection rules and applications of electronic spectroscopy in quantitative analysis. [6+9]
- 6.a) Mention the salient features of crystal field theory.  
b) With the help of neat diagram, explain desalination of water. [7+8]
- 7.a) Discuss the mechanism of electro chemical corrosion.  
b) Describe the mechanism of reduction of carbonyl compounds using  $\text{LiAlH}_4$ . [8+7]
- 8.a) What are the selection rules applicable to uv-visible spectroscopy?  
b) Write an account on:  
i) Chemical shift  
ii) MRI [7+8]

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