

Code No: 152AB

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech I Year II Semester Examinations, July/August - 2021

CHEMISTRY

(Common to CE, ME, ECE, EIE, MCT, MMT, AE, MIE, PTM)

Time: 3 Hours

Max. Marks: 75

Answer any five questions  
All questions carry equal marks

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- 1.a) Give reason for crystal field splitting of spectral lines. Write about crystal field splitting of spectral lines in tetrahedral field.  
b) With the help of a neat diagram explain  $\pi$  molecular orbitals of butadiene. [8+7]
- 2.a) How EDTA helps in removing Hardness from water? Write the chemical reaction involved. Explain the process.  
b) Reverse osmosis is the best method of desalination. Explain. [8+7]
- 3.a) What are the steps involved in the treatment of potable water?  
b) Write about calgon and phosphate conditioning of water with chemical reactions involved. [7+8]
- 4.a) How do you determine pH of a solution using quinhydrone electrode.  
b) Explain electroless plating of Nickel with suitable examples. [7+8]
- 5.a) What are primary and secondary batteries? Give the construction and working of Lithium ion Battery.  
b) Differentiate chemical and electrochemical theories of corrosion. [8+7]
- 6.a) What is conformational isomerism. Draw various conformations of n-butane.  
b) What is Markownikoff's rule? Explain how HBr adds on to propene? [7+8]
- 7.a) Differentiate E1 and E2 eliminations? What is Saytzeff's rule?  
b) Write about hydroboration of olefins. [8+7]
- 8.a) Write about various stretching and bending vibrations in IR spectroscopy.  
b) What is the principle of NMR spectroscopy? Write its application in MRI. [7+8]

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