

CS/2110

**Paper - II**  
**Organic Chemistry**

10391/NH

**Max. Marks : 26 Marks**

**Max. Time : 3 hrs**

**Min. Pass Marks : 35%**

Candidates are required to attempt two questions (4 marks each) selecting each from section A & B. Section C is compulsory (2 marks each question).

**SECTION - A**

1. Discuss relaxation process and coupling constant in NMR spectroscopy?
2. Write a note on: (a) Chemical shift and (b) Shielded and deshielded protons?
3. Derive and explain Beers law?
4. (a) Discuss various types of electronic transition with example?  
(b) what do you understand by Hypsochromic and hyperchromic shift ?

**SECTION - B**

5. Discuss molecular vibrations in IR spectroscopy?
6. How will you identify the following on the basis of IR and NMR Spectroscopy ?  
(a) Acetone and methanol, (b) Ethyl amine and Acetic acid
7. Discuss structure, preparation and types of reaction given by organozinc compounds?
8. Discuss methods of formation and acidic nature of sulphonic acid?

**SECTION - C**

9. (a) What do you meant by deuterium exchange in NMR spectroscopy?  
(b) Why broad bands are observed in electronic spectroscopy instead of sharp peaks?  
(c) What is selection rule for molecule to be IR active?  
(d) What are Grignard reagents and why they are prepared under dry conditions?  
(e) Give chemical reactions of sulphonamides?