



18-12-2021

Reg. No.

**MANIPAL INSTITUTE OF TECHNOLOGY**
MANIPAL*A Constituent Institution of Manipal University***III SEMESTER B.TECH. (CHEMICAL ENGINEERING)****IN SEMESTER EXAMINATION, December 2021****SUBJECT: PHYSICAL AND ORGANIC CHEMISTRY [CHM 2151]****REVISED CREDIT SYSTEM**

Time: 1.5 Hours

MAX. MARKS: 20

Instructions to Candidates:

- ❖ Answer **ALL** the questions.
- ❖ Missing data may be suitably assumed.

1.	Explain the phase diagram calcium fluoride and calcium chloride system	3
2.	The freezing point of water decreases by the addition of nonvolatile solute. Show that this decrease is a colligative property	3
3.	Explain the preparation, structure and reactions of carbocations	3
4.	Describe the nuclear/chain and positional isomerism with suitable example.	3
5.	Explain the conversion of fructose to mannose, structure(open and ring), and reactions of fructose	4
6.	Define Henry's law and derive an expression for solution properties of the carbon tetrachloride-methanol system.	4