Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

III SEMESTER B.TECH. (CHEMICAL ENGINEERING)

END SEMESTER EXAMINATIONS, JANUARY 2022

SUBJECT: PHYSICAL AND ORGANIC CHEMISTRY [CHM 2151]

REVISED CREDIT SYSTEM

MAX. MARKS: 20

Instructions to Candidates:

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

1A.	Derive Langmuir adsorption isotherm and clausius Clapeyron equation for vaporization process.	**4**
1B.	Explain the boiling temperature and composition curve for hydrochloric acid-water system and the phase diagram of triethyl amine and water system.	**3**
1C.	Explain the potentiometric titration of Mohr's salt against standard potassium dichromate solution and derive the rate constant expression for first order reaction.	**3**
2A.	Explain the classification of protein and synthesis of polypeptide.	**4**
2B.	Explain the chromophore and auxochrome theory of dyes and evidences in favor of ring structure of benzene.	**3**
2C.	Give reason for the following. a) Benzoic acid is more acidic than acetic acid. b) Sucrose does not undergo mutarotation. c) Hydroxyl group in phenol is ortho-para director, but nitro group in nitro benzene is meta director.	**3**

Scheme pf evaluation
III Chemical
Physical and organic chemistry-CHM-2151

1A. Derivation of Langmuir adsorption isotherm. 2M
Derivation of Clauisius Clapeyron equation. 2M
1B.Explanation of boiling-temperature hydrochloric acid system 2M
Explanation of Triethyl amine-water system 1M
1C. Explanation of potentiometric titration of Mohr's salt against standard potassium dichromate solution. 2M
Derivation of first order rate constant equation 1M
2A. Classification of proteins 2M
Synthesis of polypeptide 2M
2B. Explanation of chromphore and Auxochrome theory of dyes 2M
Factors in favor of Ring structure of Benzene (1+1+1)M
2C. Proper reasons