ST. FRANCIS DE SALES COLLEGE

A FRANSALIAN INSTITUTE OF HIGHER EDUCATION **AUTONOMOUS**

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Electronics City P.O., Bengaluru - 560 100, Karnataka, INDIA (+91) 8088140679 pro@sfscollege.in www.sfscollege.in

END SEMESTER EXAMINATION –NOV/DEC 2025

CHEMISTRY – III SEMESTER BSC

25BSC35B: CHEMISTRY III

Time: 3 Hours **Max. Marks: 80**

Instruction: *Answer should be written completely in English.*

SECTION – A

I. 1. Answer any **TEN** questions. Each question carries **TWO** marks. **(10X2=20)**

a) State any two differences between order and molecularity.
b) What is PEDT polymer? Give an example.
c) What is meant by activation energy?
d) State the first law of thermodynamics and mention its limitation.
e) Give the permissible levels of ions NO_3^- and PO_4^{3-} present in water.
f) Mention two advantages of using fertilizers in agriculture
g) What is artificial radioactivity? Give one example.
h) State the cause and consequence of the greenhouse effect.
i) Give any two salient features of Ellingham diagrams.
j) How can phenol be converted into aspirin?
k) Give the action of concentrated H_2SO_4 on glycerol.
l) What are thiols? Write the structure of 2-propanethiol.

SECTION -B

II. Answer any **SIX** questions. Each question carries **EIGHT** marks. **(6X10=60)**

2. a) Explain Lindemann's hypothesis of unimolecular reactions with an example. **(5)**
   b) Explain Carnot's cycle by deriving efficiency of the thermal engine based on entropy concept. **(5)**
3. a) How Urea is manufactured? **(4)**
   b) What are thermosetting and thermosoftening polymers? Give examples. **(3)**
   c) How are the following synthesized?
   (i) Neoprene (ii) PVC **(3)**
4. a) Write a note on depletion of ozone in the stratosphere. **(3)**
   b) How is chromium extracted from chromite ore? **(3)**
   c) What is hardness of water? What are the causes for hardness? **(4)**

5. a) Explain the acidic strength of phenols and effect of substituents. **(5)**
   b) Discuss umpolung character in carbonyl compounds with an example and describe the acid and base catalysed cleavage of epoxides. **(5)**
6. a) Give Arrhenius equation and explain its terms. Explain the effect of temperature on the velocity of a reaction. **(5)**
   b) Explain the manufacture of urea. **(5)**
7. a) Write the difference between the addition and condensation polymerization with an example each. **(4)**
   b) What is Polyester? How is it prepared? Write its partial structure and what are its applications? **(3)**
   c) Explain the ion-exchange process for demineralization of water. **(3)**
8. a) Explain the environmental effects of nuclear waste. **(5)**
   b) How is chromium extracted from chromite ore? **(5)**
9. a) Draw Ellingham's diagrams for formation of oxides of Carbon and explain the curves. **(5)**
   b) Explain the effect of i) electron withdrawing group electron. ii) electron donating group on the acidity of phenol. **(5)**