
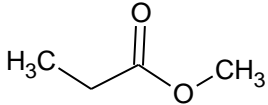
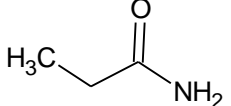
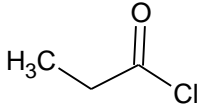
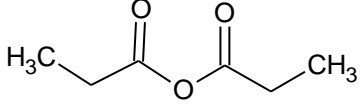


Name:			
Enrolment No:			
UPES End Semester Examination, December 2023			
Course: SPECE & FGOE (Chemistry) Program: B Sc (H) Geo/ B Sc (H) Phy/B Sc (H) Math (GE) Course Code: CHEM1009G		Semester: III Time : 03 hrs. Max. Marks: 100	
Instructions: <ol style="list-style-type: none"> Write your enrolment number on the top left of the question paper Do not write any thing else on the question paper except your enrolment number Attempt all part of a question at one place only Internal choice is given for question number 9 of Section B and question number 11 of Section C only. 			
SECTION A (5Qx4M=20Marks)			
S. No.		Marks	CO
Q 1	How many triple points are in the phase diagram of Sulphur system. Explain them briefly.	4	CO1
Q 2	The molar conductances of CH ₃ COONa, HCl and NaCl at infinite dilution are 95x10 ⁻⁴ , 434.18x10 ⁻⁴ and 133.24x10 ⁻⁴ S m ² mol ⁻¹ , respectively at 25°C. Calculate the molar conductance at infinite dilution for CH ₃ COOH.	4	CO1
Q 3	How will justify that glucose has one aldehydic group and one primary hydroxyl group.	4	CO2
Q 4	What is Nernst distribution law?	4	CO2
Q 5	Give a brief account on isoelectric point and zwitter ions.	4	CO1
SECTION B (4Qx10M= 40 Marks)			
Q 6	Describe the following: a) Mutarotation b) Enantiomers and Diastereomers	5+5	CO1
Q 7	Propose synthesis of the following from propanoic acid. i) 	10	CO3

	ii)  iii)  iv) 		
Q 8	Elucidate the terms maximum boiling azeotrope and minimum boiling azeotrope?	10	CO3
Q 9	Explain the role of a) Salt bridge in an electrochemical cell b) Reference electrode in potentiometric titration OR a) Can we use a silver vessel to store 1M ZnSO ₄ solution? Give appropriate reason. Given $E^{\circ}_{Zn^{2+}/Zn} = -0.76 \text{ V}$ and $E^{\circ}_{Ag^{+}/Ag} = 0.80 \text{ V}$ b) 0.1 N solution of a salt placed between two platinum electrodes, 30cm apart and an area of 4cm ² has a resistance of 35Ω. Calculate the equivalent conductance of the solution.	10	CO2
SECTION-C (2Qx20M=40 Marks)			
Q 10	a) Draw and explain phase diagram of Silver and lead system. b) Explain the following tests. i) Hinsberg test ii) Carbylamine test	10+10	CO2
Q 11	a) Explain Ruff degradation in detail. b) Briefly explain the following reactions i) Perkin's reaction ii) Reaction of glucose with Bromine water OR a) Explain Killani Fischer synthesis in detail b) Briefly explain the following reactions i) Reformatsky reaction. ii) Reaction of glucose with conc. HNO ₃	10+10	CO3