SECOND SEMESTER FYUGP EXAMINATION, APRIL 2025

MINOR COURSE

CHE2MN102 : Liquid State, Gaseous State and Electrochemistry

(Credits: 4)

Time: 2 Hours   **Maximum Marks: 70**

Section A

Answer the following questions. Each carries 3 marks (Ceiling: 24 marks)

1.	What is Boyle temperature?	BL1	CO1
2.	Define the term critical volume of a gas.	BL1	CO1
3.	Mention any four limitations of Henry's law.	BL1	CO1
4.	Explain any one use of van't Hoff factor.	BL1	CO2
5.	Write a note on vapour pressure.	BL1	CO1
6.	Explain why a delta is formed where a river and sea water meet.	BL3	CO3
7.	Brownian motion is absent in macroscopic suspensions. Justify the statement.	BL3	CO3
8.	Discover the role protective colloids play in preventing the coagulation of colloids.	BL2	CO3
9.	Give an example of a basic buffer and explain its buffer action.	BL1	CO4
10.	Sate and explain Kohlrausch's law.	BL2	CO2

Section B

Answer the following questions. Each carries 6 marks (Ceiling: 36 Marks)

11.	Using the van der Waals equation, explain how real gases transition from non-ideal to ideal behavior with changes in temperature and pressure.	BL1	CO1
12.	Explain the term continuity of states.	BL1	CO1

(PTO)

13.	What are the characteristics of an ideal solution? Explain with examples.	BL1	CO2
14.	Derive an expression for determining the molecular mass of a solute using relative lowering of vapour pressure.	BL2	CO2
15.	Explain how dialysis can be used to remove destabilizing ions from a colloidal system.	BL3	CO3
16.	Illustrate the properties of colloids that distinguish them from true solutions and suspensions.	BL1	CO3
17.	Sketch the conductometric titration curves for a) weak acid – strong base titration b) strong acid – strong base titrations.	BL2	CO4
18.	Define conductivity. How is it related to equivalent conductivity and molar conductivity for electrolyte solution?	BL3	CO4
	Section C		
	Answer any one question. Each carries 10 marks (1 x 10 = 10 Marks)		
19.	Define osmotic pressure. Derive van't Hoff's equation for osmotic pressure and explain how it is used to determine the molar mass of a solute.	BL2	CO2
20.	a) What is meant by the term standard potential? Outline a method for its determination. b) Explain the use of standard potential values in electrochemical series.	BL2	CO4
	CO : Course Outcome		
	BL : Bloom's Taxonomy Levels (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)		