

QP CODE: D2BCH2504	(Pages: 2)	Reg. No :
		Name :
SECOND SEMESTER FYUGP EXAMINATION, APRIL 2026		
(Regular/Improvement/Supplementary)		
Discipline Specific Core (DSC) Courses - Minor		
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. Define the term 'critical temperature' for a substance.	BL1	CO1
2. What is meant by compressibility factor?	BL1	CO1
3. State any one use of van't Hoff factor.	BL1	CO2
4. Explain how vapour pressure is affected by intermolecular forces.	BL2	CO1
5. What is meant by reverse osmosis?	BL1	CO1
6. The Tyndall effect is generally not observed for true solutions. Illustrate with an example.	BL2	CO3
7. Explain the effect of the addition of oppositely charged ions to a colloidal system.	BL2	CO3
8. Explain the ultrafiltration method for the purification of colloids.	BL1	CO3
9. What is Galvanic cell? Give example?	BL1	CO4
10. Give an example for an acidic buffer and explain its buffer action.	BL1	CO4
Section B		
Answer the following questions. Each carries 6 marks (Ceiling: 36 Marks)		
11. Define Boyle temperature and explain its significance in the context of real gases. How is Boyle temperature related to the van der Waals constants?	BL1	CO1
12. Discuss the Andrews' experiments on the isotherms of a real gas.	BL2	CO1
(PTO)		

13.	State Henry's Law. Derive the relationship between pressure and the solubility of a gas in a liquid using Henry's law.	BL2	CO2
14.	An aqueous solution of urea (CON_2H_4) freezes at 272.6 K. What mass of urea is present per 100 g of water in the solution? K_f is 1.86 K kg mol ⁻¹ .	BL3	CO2
15.	Discuss various applications of emulsions and emulsification.	BL3	CO3
16.	Classify colloids based on the physical states of components. Give one example for each.	BL1	CO3
17.	The resistance of a 0.01M solution of an electrolyte was found to be 212 ohms at room temperature when taken in a cell containing electrodes of area 2.25 cm ² placed 2 cm apart. Calculate the molar conductivity of the solution.	BL3	CO4
18.	Explain the principle of conductometric titration with examples. What are the advantages of conductometric analysis?	BL2	CO4

Section C

Answer any one question. Each carries 10 marks (1 x 10 = 10 Marks)

19.	Differentiate between ideal and non-ideal solutions. Explain positive and negative deviations from Raoult's law with suitable examples and diagrams.	BL2	CO2
20.	a) Define molar conductivity and explain its variation with dilution. b) At 25°C, the resistance of 0.01 M KCl solution taken in conductivity cell is 525 ohms and conductivity is $1.401 \times 10^{-3} \text{ ohm}^{-1}\text{cm}^{-1}$. The resistance of 0.1 M NH_4OH when taken in the same cell was found to be 2030 ohms at 25 °C. Calculate the degree of dissociation of NH_4OH in this dilution. $\Lambda^\circ(\text{NH}_4\text{OH}) = 384 \text{ ohm}^{-1}\text{cm}^2 \text{ mol}^{-1}$.	BL3	CO4

CO : Course Outcome

BL : Bloom's Taxonomy Levels (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)