QP CODE: D2BCH2503	(Pages: 2)	Reg. No : .....
		Name : .....

SECOND SEMESTER FYUGP EXAMINATION, APRIL 2026

(Regular/Improvement/Supplementary)

Discipline Specific Core (DSC) Courses - Minor

CHE2MN108 : Basic Inorganic and Physical Chemistry

(Credits: 4)

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

Section A

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

1.	Define entropy. What is the unit of entropy change?	BL1	CO1
2.	What is a buffer solution? Give examples.	BL1	CO2
3.	Name the complexing agent used in complexometric titrations. Give its structure.	BL1	CO3
4.	Define the term colloid. Discuss the dispersed phase and dispersion medium	BL1	CO5
5.	Differentiate between accuracy and precision.	BL1	CO3
6.	How is Gibb's free energy related to entropy and temperature?	BL1	CO1
7.	Define solubility product. Write the expression for the solubility product of lead chloride.	BL2	CO2
8.	Calculate the percentage of dissociation of NH_4OH in 0.02 M solution. Given the ionization constant of NH_4OH is 1.8×10^{-5} at 25 ^oC.	BL2	CO2
9.	Draw the two extreme conformations of ethane. Which of these is more stable?	BL3	CO4
10.	Draw the Sawhorse and Newman projections of ethane.	BL2	CO4

Section B

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

11.	Define entropy of vaporisation. How is it related to enthalpy of vaporisation? Diethyl ether boils at 35 degree celsius. Its heat of vaporisation at its boiling point is 27.2 kJ/mol. Calculate its entropy of vaporisation.	BL3	CO3

(PTO)

12.	Explain one method commonly used for distinguishing cis-trans isomers with a suitable example.	BL2	CO4
13.	Discuss the physical significance of Gibbs' Free energy.	BL2	CO1
14.	(i) Explain the mole concept. (ii) A sample of ammonia contains 1.4 moles of the substance. How many atoms are there in the sample?	BL4	CO3
15.	Explain why an aqueous solution of potassium acetate is basic while that of ammonium acetate is acidic.	BL2	CO2
16.	Examine the effect on As_2O_3 sol when it is subjected to the action of an electric field.	BL3	CO5
17.	Discuss the industrial applications of coagulation.	BL2	CO5
18.	Show that $q_v = \Delta U$ and $q_p = \Delta H$.	BL2	CO1
	Section C		
	Answer any one question. Each carries 10 marks (1 x 10 = 10 Marks)		
19.	What is meant by resolution of enantiomers? Discuss important methods used for resolution.	BL2	CO4
20.	(a) Distinguish between the terms molarity, normality and molality. (b) Calculate the mass in g require to prepare 250 mL of 0.05 M solution of sodium carbonate. Molar mass of sodium carbonate is 106 $gmol^{-1}$. (c) 0.22 g of silver nitrate ($AgNO_3$) dissolved in 400 g of acetonitrile. Calculate the molality of solution.	BL2	CO3
	CO : Course Outcome		
	BL : Bloom's Taxonomy Levels (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)		