QP Code: R252G035 | Reg. No | | | | | | | | | | | AY 24

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET UNIVERSITY)

M.Sc. (Second Semester - Regular) Examinations, July – 2025

24MCYPC12003 – Physical Chemistry-II

(Chemistry)

Time: 3 hrs | Maximum: 60 Marks

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. State Gibb's Heltzmolt's equation.	CO1	K2
b. What is zeroth law of thermodynamics?	CO2	K1
c. Write the relationship between entropy and partition function.	CO3	K2
d. Explain the irreversible thermodynamics for biological system.	CO4	K1
e. State RRKM theory.	CO5	K2

PART – B **(10 x 5 = 50 Marks)**

Answer ***ALL*** the questions	Marks	CO #	Blooms Level
2. a. Calculate the work done for adiabatic irreversible process.	5	CO1	K4
b. Differentiate between reversible and irreversible process.	5	CO1	K3
(OR)			
c. For the relation, Calculate the value of ΔH-ΔU (in KJ) at 300K and 1 bar pressure.	8	CO1	K4
d. Write the two conditions for ideal mixing of gasses.	2	CO1	K2
3.a. Calculate the entropy of a reversible and irreversible process.	5	CO2	K3
b. Write the difference between state functions and path functions.	5	CO2	K3
(OR)			
c. Calculate the entropy change when phase transformation is equal to zero.	7	CO2	K4
d. Explain Trounton's rule.	3	CO2	K2
4.a. Distribute four distinguishable particles among various energy level such that total energy is 5E.	5	CO3	K3
b. Explain the relationship between pressure and partition function.	5	CO3	K3
(OR)			
c. Calculate the rotational partition function in a rigid rotator.	5	CO3	K3
d. Calculate the vibrational partition function in 1D SHO.	5	CO3	K3
5.a. Explain the entropy production in chemical reaction.	8	CO4	K3
b. Explain open and closed system.	2	CO4	K1
(OR)			
c. Explain the principle of microscopic reversibility.	8	CO4	K3
d. What is reversible transformation of a system?	2	CO4	K2
6.a. Explain activated complex theory.	8	CO5	K3
b. What is Pseudo-order reaction?	2	CO5	K2
(OR)			
c. Derive the Lindemann theory of unimolecular reaction.	8	CO5	K3
d. Calculate the half-life of the first order reaction.	2	CO5	K2

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