GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR
(GIET UNIVERSITY)

M. Sc. (Fourth Semester) Regular Examinations, April – 2025
22CHPE403 - Bio-inorganic and Supra Molecular Chemistry
(Chemistry)

Time: 3 hrs   Maximum: 70 Marks

(The figures in the right hand margin indicate marks.)

PART – A   **(2 x 10 = 20 Marks)**

Q.1. Answer *ALL* questions

		CO #	Blooms Level
a.	Write note on Co-operative effect.	CO3	K3
b.	Draw the structure of deoxy and oxy Hemerythrin.	CO3	K2
c.	What do you mean by siderophores.	CO1	K2
d.	Explain Ferritin.	CO2	K4
e.	Write note on Molecular recognition.	CO2	K2
f.	Role of Calcium in Muscle contraction.	CO2	K2
g.	Explain Blood clotting mechanism.	CO1	K1
h.	How PS-I works.	CO3	K3
i.	How Peroxo linkage and hematin form.	CO4	K4
j.	Explain deoxy and oxy Hemoglobin	CO3	K3

PART – B   **(10 x 5 = 50 Marks)**

Answer *All the* questions

		Marks	CO #	Blooms Level
2. a.	Explain the composition of nitrogenase (Fe cluster and Mo-Fe cofactor).	5	CO1	K2
b.	Describe Blue copper proteins like Plastocyanin and Azurin with structure.	5	CO1	K2
3.a.	Briefly explain Superoxide dismutase with structure.	5	CO1	K3
b.	Explain the catalytic cycle of cytochrome P-450.	5	CO2	K2
4. a.	What is photosynthesis? Describe dark and light reaction.	5	CO2	K2
b.	Explain with the structure of Metalloprotein responsible for photo synthesis.	5	CO2	K3
5.a.	Explain three major type of Ferrodoxins (Fe_2S_2, Fe_3S_4 and Fe_4S_4).	5	CO3	K2
b.	Explain the non-heme protein like Hemerythrin.	5	CO4	K2
6. a.	Explain the copper containing protein hemocyanin.	5	CO4	K2
b.	Draw the structure of Ruberodoxin and also explain the oxidized and reduced form.	5	CO1	K3
7.a.	Explain the structure and function of Co-enzyme B_{12}.	5	CO1	K3
b.	Cis-Platin is an anti-cancer drug, Explain.	5	CO4	K2
8. a.	Explain the cation binding spherical recognition.	5	CO4	K1
b.	Describe the recognition of anionic substrate.	5	CO2	K2