

H-4/09/22

Roll No.

IV Semester Examination, 2022

M.Sc.

CHEMISTRY

Paper I

(Photo Inorganic & Bioinorganic Chemistry)

Time : 3 Hours]

[Max. Marks : 80

Note : *All questions are compulsory. Question Paper comprises of 3 sections. Section A is objective type/multiple choice questions with no internal choice. Section B is short answer type with internal choice. Section C is long answer type with internal choice.*

SECTION A

1×8=8

(Objective Type/Very Short Answer Type Questions)

1. Give an example of naturally occurring M-C bonded species.
2. Give two names of anticancerous drug.
3. Name the enzyme containing tungsten.
4. Why P-450 enzyme is so named ?
5. What is flash photolysis ?
6. Define Frank-Condon principle.

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7. Give example of photoaction Reaction ?
8. Define and give example of photosensitized reaction leads to polymerization.

SECTION B

6×4=24

(Short Answer Type Questions)

Note : Attempt *one* question from each unit.

Unit-I

1. What is the role of Calcitrol and PTH in biological activity ?

Or

Give example of chelating ligands in treatment of metal toxicity ?

Unit-II

2. What are cytochromes ? What are their functions ?

Or

Explain the photosystem I and photosystem II.

Unit-III

3. Describe the factors affecting quantum yields ?

Or

Explain Stark Einstein law ? Briefly.

Unit-IV

4. Describe photochemical reaction of chromium (Cr) complexes.

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Or

Explain photochemistry of Carbonyl complexes.

SECTION C

12×4=48

(Long Answer Type Questions)

Note : Attempt *one* question from each unit.

Unit-I

- 1.** What are siderophores ? Name the structural features present in enteronaction. Explain the role of serum transferrin in the body.

Or

Write notes on : (any **three**)

- (i) Structure of ferritin.
- (ii) Na^+/K^+ ATphase pump.
- (iii) Calcium in living cells.
- (iv) Toxic effect of mercury.

Unit-II

- 2.** Give the features of Haemoglobin and oxyhaemoglobin for binding and release oxygen. What prevents the oxidation of Ferrous ion of heme to the Ferric state.

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Or

Write notes on : (any **two**)

- (i) DNA polymerization
- (ii) Role of zinc in carbonic anhydrase and carboxy peptiduse
- (iii) Iron sulphur proteins
- (iv) Copper enzymes—Superoxide dismutase (SOD).

Unit-III

- 3.** Describe primary and secondary processes of photochemical reactions.

Or

Write notes on : (any **two**)

- (i) Absorption and Absorption spectra
- (ii) Reactivity of excited steles life time measurements
- (iii) Lambert-Beer law
- (iv) Acid Base strength

Unit-IV

- 4.** Describe the photo oxidation-reduction reaction photo isomerization reaction and photo-substitution reaction with example.

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Or

Write short notes on : (any **three**)

- (i) Adamson Rule
- (ii) Photo aquation reaction
- (iii) Photo chemistry of Iron complexes
- (iv) Photo dissociation reaction
- (v) Energy conversion

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