

NS4-331

B.Sc. DEGREE EXAMINATIONS::JULY,2023

FOURTH SEMESTER

PART-II

CHEMISTRY

Paper-IV:Inorganic,Organic and Physical Chemistry

(New regulations 20-21)

Time: 3 hours

Max.Marks:75

SECTION-A

Answer any FIVE questions. Each question carries FIVE marks.

5x5M=25M

1. Write a note on synergic effects.
2. Explain 18 electron rule in mono nuclear and polynuclear metal carbonyls.
3. Write about Muta rotation.
4. Write about peptide bond and zwitter ion
5. Explain the aromaticity of five membered heterocyclic compounds.
6. Explain tautomerism of Nitroalkanes.
7. Write a note on Quantum yield.
8. Define Internal energy and Enthalpy.

SECTION-B

Answer ALL questions. Each question carries TEN marks.

5x10M=50M

9. a)What are Organometallic compounds. Write their classification based on the type of bonds with examples.
(or)
b) Write the general methods of preparation of mono and bi-nuclear carbonyl compounds of 3d series.

P.T.O

10.a)Explain Haworth projections and conformational structures of Glucose.

(or)

b)Write a method of converting

i) arabinose to glucose

ii) Glucose to arabinose.

11.a) What are aminoacids and explain their classification.

(or)

b) Write any three methods of preparation of pyrrole and electrophilic substitution reactions of pyrrole at 2,5-positions.

12.a)Explain the following reactions

i)Mannich reaction

ii)Nef reaction and

iii)Michael addition reaction.

(or)

b) i)Write about the basicity of amines

ii)Write any three synthetic applications of diazonium salts.

13.a)Draw and explain Jablonski diagram.

(or)

b) State and explain Carnot's theorem. Derive an expression for the efficiency of heat engine using carnot cycle.
