

This question paper contains 3 printed pages]

**GA—07—2023**

**FACULTY OF SCIENCE**

**B.Sc. (Third Year) (Fifth Semester) EXAMINATION**

**APRIL/MAY, 2023**

**(New CBCS Pattern)**

**CHEMISTRY**

**Paper XII**

**(Organic and Inorganic Chemistry)**

**(Friday, 21-4-2023)**

**Time : 10.00 a.m. to 12.00 noon**

*Time—Two Hours*

*Maximum Marks—40*

*N.B. :—* (i) Attempt *All* questions.

(ii) Figures to the right indicate full marks.

1. Solve any *three* of the following :

3×5=15

(a) Define the following terms giving suitable examples :

(i) Ligands

(ii) Co-ordination number

(iii) Co-ordination sphere

(iv) Complex ion

(v) Double salt

(b) Give the IUPAC names of the following compounds :

(i)  $[\text{Ni}(\text{Co})_4]$

(ii)  $\text{K}_2[\text{Cu}(\text{CN})_4]$

P.T.O.

- (iii)  $[\text{Co}(\text{en})_2 \text{Cl}_2]^+$
- (iv)  $\text{K}_2[\text{Ni}(\text{CN})_4]$
- (v)  $\text{Na}_2[\text{SiF}_6]$
- (c) Write a note on imaging agent.
- (d) What is isomerism ? Explain structural isomerism with suitable example.
- (e) Define cancer. Give the treatment on it.
2. Solve any *three* of the following : 3×5=15
- (a) How will you prepare pyrrole from :
- (i) Furan
- (ii) Succinamide
- Explain the following reactions of pyrrole :
- (i) Gatterman
- (ii) Sulphonation
- (iii) Reimer-Tiemann reaction
- (b) What are pharmacodynamic agents ? Explain anaesthetics, sedatives and antifungal drugs with suitable example.
- (c) Define dyes. Give qualities of good dye.
- (d) Discuss the constitution of Nicotine
- (e) What are pesticides ? Give its classification with suitable example.
3. Solve any *two* of the following : 2×5=10
- (a) Explain aromatic character and molecular orbital picture of Thiophene.

(b) How is pyridine prepared from :

(i) Acetylene

(ii)  $\beta$ -picoline

Explain nitration and amination reaction of pyridine :

(c) What are drugs ? Offer the synthesis and uses of :

(i) Benzocaine

(ii) Aspirin

(d) Give structure, sources and deficiency diseases of vit. A and vit. C.