

This question paper contains 4 printed pages]

NA—04—2023

FACULTY OF SCIENCE

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

NOVEMBER/DECEMBER, 2023

(CBCS/New Course)

CHEMISTRY

Paper XII

(Organic and Inorganic Chemistry)

(Saturday, 02-12-2023)

Time : 10.00 a.m. to 12.00 noon

Time—2 Hours

Maximum Marks—40

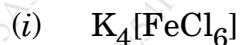
N.B. :— (i) Attempt *all* questions.

(ii) Figures to the right indicate full marks.

1. Solve any *three* of the following : 3×5=15

(a) What are the coordination compounds ? How do they differ from double salt ? Explain with suitable examples.

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



- (iii) $[\text{CoCl}_2(\text{en})_2]\text{SO}_4$
- (iv) $[\text{Ag}(\text{NH}_3)_2]\text{Cl}$
- (v) $[(\text{NH}_3)_4 \text{CO} \begin{array}{c} \text{NH}_2 \\ \diagup \quad \diagdown \\ \text{NO}_2 \end{array} \text{CO} (\text{NH}_3)_4] (\text{NO}_3)_4$

- (c) Define chelation therapy. Give its application as a chelating agent.
- (d) Define optical isomerism. Explain it in co-ordination number 4 and 6 complexes.
- (e) Give the symptoms of cancer disease and discuss the treatment on it.

2. Solve any *three* of the following : 3×5=15

(a) Give preparation of furan from :

- (i) Muccic acid
- (ii) Succinaldehyde

Explain nitration, Gomberg and Diels-Alder reaction of furan.

(b) What are drugs ? Give qualities of good drug.

(c) Explain the following terms with suitable examples :

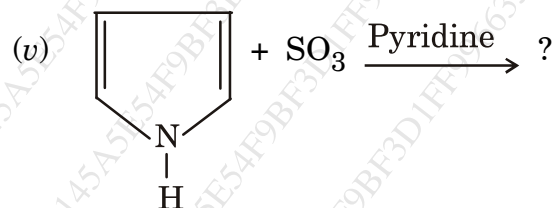
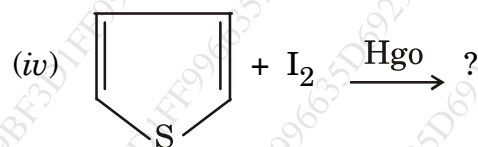
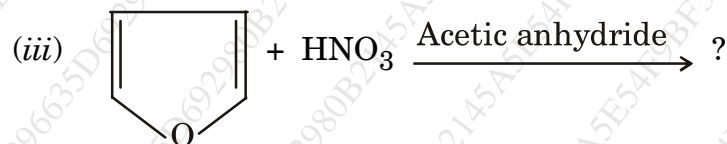
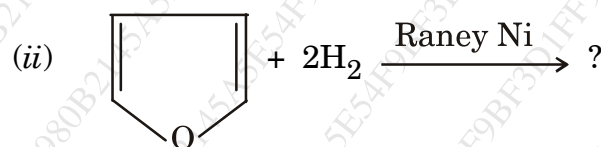
- (i) Dyes
- (ii) Chromophore
- (iii) Chromogene
- (iv) Auxochrome
- (v) Mordant dye

- (d) Discuss the constitution of Ephedrine.
- (e) What are pesticides ? Give the synthesis and uses of DDT and carbaryl.

3. Solve any *two* of the following :

2×5=10

(a) Predict the products :



P.T.O.

- (b) Explain aromatic and basic character of pyridine ? Give its IUPAC name.
- (c) What are chemotherapeutic agents ? Explain antidiabetics, Hypnotics and tranquilizers with suitable example.
- (d) What are vitamins ? How are they classified ? Give sources and deficiency diseases of vitamin A and vitamin C.