

MCH-011

ASSIGNMENT BOOKLET

**M.Sc. in Chemistry Programme
(MSCCHEM)**

INORGANIC CHEMISTRY 1

Valid from 1st January, 2024 to 30th June, 2025

**It is Compulsory to submit the Assignment before filling in the Term-
End Examination Form.**



**School of Sciences
Indira Gandhi National Open University
Maidan Garhi, New Delhi-110068
(2024-25)**

Dear Student,

Please read the Section on assignments in the Programme Guide for M.Sc. in Chemistry that we sent you after your enrolment. A weightage of 30 per cent, as you are aware, has been earmarked for continuous evaluation, which would consist of one tutor-marked assignment for this course. The assignment is in this booklet, and covers all the four blocks of the course. The total marks of all the parts are 100, of which 40% are needed to pass it.

Instructions for Formatting Your Assignments

Before attempting the assignment please read the following instructions carefully:

- 1) On top of the first page of your answer sheet, please write the details exactly in the following format:

ENROLMENT NO.:

NAME:

ADDRESS:

.....

.....

COURSE CODE:

COURSE TITLE:

ASSIGNMENT NO.:

STUDY CENTRE: **DATE:**

PLEASE FOLLOW THE ABOVE FORMAT STRICTLY TO FACILITATE EVALUATION AND TO AVOID DELAY.

- 2) Use only foolscap size writing paper (but not of very thin variety) for writing your answers.
- 3) Leave 4 cm margin on the left, top and bottom of your answer sheet.
- 4) Your answers should be precise.
- 5) Solve Part (A) and Part (B) of this assignment, and **submit the complete assignment answer sheets within the due date.**
- 6) The assignment answer sheets are to be submitted to your Study Centre within the due date. **Answer sheets received after the due date shall not be accepted.**
We strongly suggest that you retain a copy of your answer sheets.
- 7) This assignment is **valid from 1st January, 2024 to 30th June, 2025.** If you have failed in this assignment or fail to submit it by June, 2025, then you need to get the assignment for the year 2025, and submit it as per the instructions given in the Programme Guide.
- 8) **You cannot fill the examination form for this course** until you have submitted this assignment.

We wish you good luck.

	b)	Explain the Curie Law and Curie-Weiss Law along with their plots.	(5)
9.	a)	With suitable illustration explain the super exchange mechanism in <i>d</i> -metal complexes.	(5)
	b)	Write the Russell-Saunders terms symbols for states with the angular momentum quantum numbers (L,S) (a) $(0, \frac{5}{2})$, (b) $(3, \frac{3}{2})$, (c) $(2, \frac{1}{2})$, (d), (1,1)	(5)
10.	a)	$[\text{FeF}_6]^{3-}$ is almost colourless whereas $[\text{CoF}_6]^{3-}$ is coloured and exhibits only a single band in the visible region of the spectrum. Justify.	(5)
	b)	Explain charge transfer spectra with suitable examples. What is the reason for the deep purple colour of the permanganate ion?	(5)