

ASSIGNMENT BOOKLET

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

**M.Sc. in Analytical Chemistry Programme
(MSCANCHEM)**

ENVIRONMENTAL CHEMISTRY

(Valid from July, 2026 to December, 2026)

**It is compulsory to submit the assignment before filling in
the examination form**



**School of Sciences
Indira Gandhi National Open University
New Delhi
(2026)**

Dear Learner,

Please read the Section on Assignments in the Programme Guide for M.Sc. in Chemistry Programme 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 :

(NAME AND CODE)

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

- 2) Use only foolscap size paper (but not of very thin variety) for writing your answers.
- 3) Leave about 4 cm margin on the left, top and bottom of your assignment response sheet.
- 4) Your answers should be precise.
- 5) 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 July, 2026 to December, 2026. If you have failed in this assignment or fail to submit it by December, 2027, then you need to get the new assignment, 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 the assignment.

Wishing you good luck

Tutor Marked Assignment
MCH-023: ENVIRONMENTAL CHEMISTRY

Course Code: MCH-023
Assignment Code: MCH-023/TMA/2026
Maximum Marks: 100

Note: Answer all the questions given below.

1. a) Explain the following in brief. (5)
 - i) Soil profile
 - ii) Topography
 - iii) Parent material
 - iv) Metamorphic rocks
 - v) Granular disintegration
- b) How is the soil texture analysis done? Describe in brief. (5)
2. a) Describe the reasons of soil alkalinity and the consequences of the same. (5)
- b) How is nitrogen important to the plants? Write the sources of this macronutrient to plants. (5)
3. a) What is meant by the cation exchange capacity (CEC) of soils? What is the property of soil that determines the CEC of soils? How does CEC vary with pH? (5)
- b) Describe the distribution of the world's water resources among oceans, icecaps/ glaciers, groundwater, and surface water, providing approximate percentages. (5)
4. a) Explain the importance of groundwater as a water resource in India. What are the problems in overusing ground water? (5)
- b) Define turbidity in water and explain its causes, measurement, and significance for water quality. (5)
5. a) Briefly explain the factors affecting water quality. (5)
- b) State the five "designated best uses" of water as per the Central Pollution Control Board (CPCB) classification and give one corresponding primary water quality criterion for each. (5)
6. a) What is meant by the atmospheric effect and the greenhouse effect? (5)
- b) Explain how ozone layer depletion is related to global warming. (5)
7. a) How do the following factors affect the discharge of pollutants in the atmosphere? (5)
 - i) Atmospheric stability ii) Temperature iii) Precipitation
 - iv) Turbulence v) Solar radiation
- b) Distinguish between the following pairs giving examples: (5)
 - i) Stationary and Mobile sources of pollutants
 - ii) Indoor and Ambient air pollution

8. a) Name any two methods that are used for collecting gaseous samples and explain any one of these. (5)
- b) Briefly explain the following terms: (5)
- i) Dissolved Oxygen (DO)
 - ii) Biochemical Oxygen Demand (BOD)
9. a) Discuss the method of aeration in the treatment of daily wastes. Also give the problems associated with it. (5)
- b) Give the characteristics of an ideal pesticide. (5)
10. a) In which form the phosphorous occurs in sewage? Also, briefly explain the methods of removing it. (5)
- b) How are Pathogenic bacteria transmitted in water? List any five diseases transmitted by them. (5)