

MCH-015

ASSIGNMENT BOOKLET

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

BIOLOGY FOR CHEMISTS

(Valid from January, 2025 to December, 2025)

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



**School of Sciences
Indira Gandhi National Open University
Maidan Garhi, New Delhi-110068
(2025)**

Dear Learner,

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 both the 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 1st January, 2025 to 31st December, 2025. If you have failed in this assignment or fail to submit it by December, 2025, then you need to get the assignment for the year 2026, 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 BIOLOGY FOR CHEMISTS (MCH-015)

Course Code: MCH-015
Assignment Code: MCH-015/TMA/2025
Maximum Marks: 100

Note: Attempt all questions. The marks for each question are indicated against it.

1.	a)	What is the name of the system of classification applied for the domains of life? List the common features of prokaryotes and eukaryotes.	(5)
	b)	Which cell organelle is called the “control centre”? Describe its composition.	(5)
2.	a)	Write the step wise reactions of formation of a glycoside taking glucose as an example.	(5)
	b)	What are hormones? Name the classes of steroid hormones along with their important functions.	(5)
3.	a)	Describe how the cell membrane regulates the movement of various molecules into and out of the cell.	(5)
	b)	Differentiate between the essential and non essential amino acids. Describe the amphoteric nature of amino acids.	(5)
4.	a)	Explain the geometry of the peptide backbone. Illustrate your answer.	(5)
	b)	Describe the tertiary structure of proteins in terms of the bonds and forces that stabilise the structure.	(5)
5.	a)	Why the metabolism is called the ‘intermediary metabolism’? Describe the convergent and divergent nature of metabolism.	(5)
	b)	Explain what is meant by high energy phosphate compounds and what their significance is in the living systems.	(5)
6.	a)	What is EMP pathway? Explain the isomerisation reaction of glycolysis giving the catalyst involved.	(5)
	b)	Explain the role of constituent enzymes of pyruvate dehydrogenase complex involved in the conversion of pyruvate into acetyl-CoA.	(5)
7.	a)	What are ketone bodies? Explain their significance to human beings.	(5)
	b)	Draw a diagrammatic sketch of the urea cycle indicating the products and enzymes involved.	(5)
8.	a)	Give a comparative account of purine and pyrimidine nucleotide degradation.	(5)
	b)	Define immunity. Differentiate between innate and acquired immunity.	(5)
9.	a)	What is the significance of antigen-antibody interaction? Describe in brief the mechanisms involved in antigen-antibody interaction.	(5)
	b)	Name the enzymes involved in DNA replication and describe their role in this process.	(5)
10.		Write short notes on the following :	(10)
	a)	Water and electrolyte balance in living systems	
	b)	Blood group substances	
	c)	Nucleosides and nucleotides	
	d)	Homeostasis	