

ASSIGNMENT BOOKLET

Master's Degree in BIOCHEMISTRY (MSCBCH)

TOXICOLOGY

(Valid from 1st July, 2025 to 31st December, 2026)



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

Dear Student,

Please read the section on assignments in the Programme Guide of M.Sc. Biochemistry (MSCBCH) that we sent you after your enrolment. A weightage of 30 percent, 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 it consists of two parts, Part A and B. It covers all blocks of the course. The total marks of all the parts are 100, of which 35% are needed to pass it.

SPECIFIC INSTRUCTIONS FOR TUTOR MARKED ASSIGNMENTS (TMA)

- 1) Write your Enrolment Number, Name, Full Address, Signature and Date on the top right hand corner of the first page of your response sheet.
- 2) Write the Programme Title, Course Code, Course Title, Assignment Code and Name of your Study Centre on the left hand corner of the first page of your response sheet.

Course Code and Assignment Code may be reproduced from the assignment.

The top of the first page of your response sheet should look like this:

ENROLMENT NO.:

PROGRAMME TITLE	:	NAME:
COURSE CODE	:	ADDRESS:
COURSE TITLE	:
ASSIGNMENT CODE	:	SIGNATURE:
STUDY CENTRE	:	DATE:

- 3) Read the assignments carefully and follow the specific instructions, if any, given on the assignment itself about the subject matter or its presentation.

- 4) Go through the Units on which the assignments are based (**Part A includes Block-1 and 2 and Part B Block 3 and 4**). Make some points regarding the question and then rearrange those points in a logical order and draw up a rough outline of your answer. Make sure that the answer is logical and coherent, and has clear connections between sentences and paragraphs. The answer should be relevant to the question given in the assignment. Make sure that you have attempted all the main points of the question. Once you are satisfied with your answer, write down the final version neatly and underline the points you wish to emphasize. While solving numerical problems, use proper format and give working notes wherever necessary.

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

1. Use only foolscap size paper for your response and tie all the pages carefully. Avoid using very thin paper. Allow a 4 cm margin on the left and at least 4 lines in between each answer. This would facilitate the evaluator to write useful comments in the margin at appropriate places.
2. Write the responses in your own handwriting. Do not print or type the answers. Do not copy your answers from the Units/Blocks sent to you by the University. It is advised to write your answers in your own words as it will help in grasping the study material.
3. Do not copy from the response sheets of other students. If copying is noticed, the assignment will be rejected.
4. Write each assignment separately. All the assignments should not be written in continuity.
5. Write the question number with each answer.
6. The completed assignment should be submitted to the Coordinator of the Study Centre allotted to you. TMAs submitted at any other place will not be evaluated.
7. After submitting the TMA, get the acknowledgement from the Coordinator on the prescribed assignment remittance-cum-acknowledgement card.
8. In case you have requested for a change of Study Centre, you should submit your TMA only to the original Study Centre until the change of Study Centre is notified by the University.
9. If you find that there is any factual error in evaluation of your assignments e.g. any portion of your assignment response has not been evaluated or the total of score recorded on your assignment response is incorrect, you should approach the Coordinator of your study center for correction and transmission of correct score to headquarters.

Assignment

TOXICOLOGY

Course Code: **MBCE-016**

Maximum marks: **100**

Assignment code: **MBCE-016/TMA/2025-26**

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

For any question worth 2 marks, the word limit is 50 words, for 5 marks question it is 100 words; and for 10 marks it is 250-300 words.

PART-(A)

Maximum marks: 50

- 1 (a) Write the scope of modern toxicology and environmental toxicology. 5
- (b) Differentiate between the following: 5
 - i) Reversible and irreversible toxicity
 - ii) Local and systemic toxicity
- 2 (a) Enlist various cosmetic ingredients and their possible toxic effects on humans and experimental animals. 5
- (b) What are TLVs? Mention their significance in occupational toxicology. 5
- 3 (a) Explain the difference between subchronic, chronic, subacute and acute toxicity with example. 5
- (b) Explain the dose-response relationship. 5
- 4 (a) Which are the three common routes through which humans are exposed to the toxicants. Discuss any one in detail. 5
- (b) Write short note on bioavailability of toxicants. 5
- 5 Enlist different types of phase I reactions and discuss the role of cytochrome P450 in toxicant metabolism. 10

PART-(B)

Maximum marks: 50

- 6 How does polymorphism in xenobiotic metabolizing enzymes result in variation in response to the toxicants? 10
- 7 Explain the following: 10
 - (a) Reasons of selective organs toxicity of toxicants
 - (b) Systemic lung toxicants
- 8 Discuss the mechanism of hepatotoxicity caused by the following toxicants: 10

(i) Carbon tetrachloride (ii) Paracetamol

- 9 (a) Which factors make kidney susceptible to nephrotoxicity? How does cyclosporin cause injury to kidneys? 5
- (b) Explain the mechanism of neurotoxicity by methylmercury and cardiovascular injury by cardiac glycosides. 5
- 10 (a) Give an example of the accident that led to radioactive spill. Enlist the toxic effects of exposure to radioactivity. 5
- (b) Explain the terms: (i) bioconcentration (ii) Biomagnification 5
