

ASSIGNMENT BOOKLET

**Bachelor's Degree Programme
B.Sc. Honours in Biochemistry (BSCBCH)**

**NUTRITIONAL BIOCHEMISTRY
(Valid from 1st January, 2025 to 31st December, 2025)**



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

Dear Student,

Please read the section on assignments in the Programme Guide of B.Sc. (Hons.) Biochemistry (BSCBCH) programme that we sent you after your enrolment. A weight age 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.

Instructions For Formatting Your Tutor Marked Assignments (TMA)

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:

You may reproduce the Course Code and Assignment Code from the assignment.

**ENROLMENT
NO.:**

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

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

2. 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.
3. 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.
4. Do not copy from the response sheets of other students. If copying is noticed, the assignment will be rejected.
5. Write each assignment separately. All the assignments should not be written in continuity.
6. Write the question number with each answer.
7. **The completed assignment should be submitted within the due date** to the Coordinator of the Study Centre allotted to you. TMAs submitted at any other place and after due date will not be evaluated.
8. After submitting the TMA, get the acknowledgement from the Coordinator on the prescribed assignment remittance-cum-acknowledgement card. **We strongly suggest that you retain a copy of your answer sheets.**
9. 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.
10. 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 Dec, 2025, then you need to get the assignment for the year 2026, and submit it as per the instructions given in the Programme Guide.
11. **You cannot fill the examination form for this course** until you have submitted this assignment.

We wish you good luck.

ASSIGNMENT

Nutritional Biochemistry Core Course in Biochemistry

Course Code: **BBCET-141**

Assignment code: **BBCET-141/TMA/2025**

Maximum marks: **100**

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

Write the answers in your own words; do not copy from the course material.

PART-(A)

Marks: 50

1. (a) State the difference between the following terms: (2.5X2=5)
 - (i) Recommended dietary allowance and adequate intake.
 - (ii) Basal and resting metabolism
- (b) What are dietary guidelines and their five dietary goals. (5)

2. (a) Explain the difference between the combustible energy and metabolizable energy of the food components. Illustrate with a suitable example. (5)
- (b) Explain the terms body mass index and Z-score. What type of information these provide in terms of the nutritional status of an individual? (5)

3. (a) Discuss the clinical significance of iodine deficiency? (5)
- (b) Illustrate the role of carbohydrates as structural or functional part of other biomolecules. (5)

4. (a) Discuss the role of lipids as chemical messengers, citing suitable examples. (5)
- (b) What are lipotropic factors and their clinical significance? (5)

5. (a) Explain the process of digestion and absorption of dietary proteins. (5)
- (b) How does measuring nitrogen content gives estimate of protein content of our food? Explain nitrogen balance and its significance. (5)

PART- (B)

Marks: 50

6. Discuss the biochemical functions and deficiency disease associated with following vitamins: (10)
 - (i) Vitamin B1
 - (ii) Niacin
 - (iii) Vitamin D
 - (iv) Vitamin K
 - (v) Vitamin A

7. (a) What is the importance of phosphorus in our body? (5)
(b) Give two examples each of NAD and FAD dependent enzymes. Also name the vitamins from which these cofactors are derived. (5)
8. (a) Explain the biochemical functions, dietary sources of iron. How does its absorption and transport take place? (5)
(b) How do nutrients influence the bioavailability and distribution of drugs? Illustrate with suitable examples. (5)
9. (a) Discuss the effect of smoking and depressants on food intake. (5)
(b) Discuss the factors that result in metabolic syndrome. (5)
10. (a) What is atherosclerosis? Explain the causative factors. (5)
(b) Write brief notes on the following food toxicants:
(i) Mycotoxins (ii) Pesticides (5)