

**BBCCT-113**

**ASSIGNMENT BOOKLET**

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

**METABOLISM OF  
AMINO ACIDS AND NUCLEOTIDES**

**Valid from 1<sup>st</sup> Jan, 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 for B. Sc. (Hons) Biochemistry 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 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 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:

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**ROLL NO.:** .....

**NAME:** .....

**ADDRESS:** .....

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**COURSE CODE:** .....

**COURSE TITLE:** .....

**ASSIGNMENT NO.:** .....

**STUDY CENTRE:** ..... **DATE:** .....

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**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 1<sup>st</sup> Jan, 2025 to 31<sup>st</sup> December, 2025**. If you have failed in this assignment or fail to submit it by December, 2022, 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 this assignment.

We wish you good luck.

## ASSIGNMENT

### Metabolism of Amino Acids and Nucleotides Core Course in Biochemistry

Course Code: BBCCT-113  
Assignment Code: BBCCT-113/TMA/2025  
Maximum Marks: 100

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Note: Attempt all questions. The marks for each question are indicated against it. Write all answers in your own words; do not copy from the course material.

#### **PART-(A)** (50)

1. a) Draw nitrogen cycle and explain biological nitrogen fixation. (5)  
b) Write short note on Marasmus. (5)
2. Give an overview of urea cycle. (10)
3. Explain the catabolism of amino acids that are converted to pyruvate. (10)
4. Explain the following disorders of amino acid metabolism: (5+5=10)  
a) Homocystinuria  
b) Hartnup disease
5. a) Describe biosynthesis of non essential amino acids of aromatic amino acid family. (5)  
b) What are catecholamines? (5)

#### **PART-(B)** (50)

6. a) Explain de novo synthesis of UMP. Describe the steps. (10)
7. a) How purine synthesis is regulated? (6)  
b) Explain the structure of type I RNR. (4)
8. a) Enlist any two inhibitors of nucleotide synthesis with their mechanism of action, enzyme inhibited and their use in medicine. (5)  
b) Elaborate on the fate of uric acid in the degradation of purine nucleotides. (5)
9. Compare catabolism of purine and pyrimidine nucleotides (10)
10. a) Describe briefly the signs and symptoms of SCID (5+5 =10)  
b) Distinguish between white and brown adipose tissue.