

**BBCCT-101**

**ASSIGNMENT BOOKLET**

**Bachelor's Degree Programme  
BSc (Major) Biochemistry (BSCFBC)**

**MOLECULES OF LIFE**

**Valid from January, 2024 to Dec, 2024**



**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 for Core Courses 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 three parts, Part A, B and C. 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:

---

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

**NAME:** .....

**ADDRESS:** .....

.....

.....

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

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

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

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

---

**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) Complete each of Part A, Part B and Part C of this assignment separately, and **submit them together.**
- 6) The assignment answer sheets are to be submitted to your Study Centre as per the schedule made by the study centre. **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> January, 2024 to 31<sup>st</sup> Dec, 2024** and submit it as per the instructions given in the Programme Guide.
- 8) **You cannot fill the exam form for this course** till you have submitted this assignment.

We wish you good luck.

ASSIGNMENT  
MOLECULES OF LIFE

**Course Code: BBCCT-101**  
**Assignment Code: BBCCT-101/TMA/2024**  
**Maximum Marks: 100**

Answer all the questions given below. All Questions carry equal marks.

1. A) Define the term Biochemistry and briefly explain the origin of Biochemistry.  
B) Describe the importance of biochemistry as an interdisciplinary subject. (5+5) 10
2. A) Define the following terms with suitable examples: Buffer and  $p^H$  2.5 x2 =5  
B) Explain, why water is considered as universal solvent? 5
3. A) Describe zwitter ion concept. Calculate the  $p^I$  of alanine where  $p^{K1}$  and  $p^{K2}$  are 2.34 and 9.69.  
B) Write a note on classification of amino acids based on their R-groups. (5+5) 10
4. A) What is peptide bond?  
B) Distinguish between  $\alpha$ -helix and  $\beta$ -sheet structures of proteins?  
C) Draw the linear structures of D-glucose and D-ribose. (3+5+2) 10
5. Write a detailed note on biologically important sugar derivatives with suitable examples and draw their structures. 10
6. A) Write systemic names of isomaltose, maltose and raffinose. Draw their structures.  
B) Give a detailed account on glycosaminoglycans. (5+5) 10
7. A) What are blood group antigens? Explain them with suitable examples.  
B) Write a note on storage lipids? (5+5) 10
8. A) Write the structure, shorthand form and occurrence of the given fatty acids? 10  
i) Myristic acid ii) Palmitoleic acid iii) Linoleic acid iv) Arachidonic acid
9. A) Describe the composition and role of biological membranes.  
B) Briefly explain classification of eicosanoids and their importance. (5+5) 10
10. A) Describe and draw the structure and biological functions of Vitamins A, C, B12 and B1.  
B) Define denaturation of DNA and explain the effect of temperature and pH on DNA. (5+5) 10