

ASSIGNMENT BOOKLET**Bachelor's Degree Programme (B.Sc.)****BIOCHEMISTRY****(Valid from 1st January, 2022 to 31st December, 2022)****It is Compulsory to submit the Assignment before filling in the
Term-End Examination Form.****Please Note**

- You can take electives (56 to 64 credits) from a minimum of TWO and a maximum of FOUR science disciplines, viz. Physics, Chemistry, Life Sciences and Mathematics.
- You can opt for elective courses worth a MINIMUM OF 8 CREDITS and a MAXIMUM OF 48 CREDITS from any of these four disciplines.
- At least 25% of the total credits that you register for in the elective courses from Life Sciences, Chemistry and Physics disciplines must be from the laboratory courses. For example, if you opt for a total of 64 credits of electives in these 3 disciplines, at least 16 credits should be from lab courses.
- You cannot appear in the Term-End Examination of any course without registering for the course. Otherwise, your result will not be declared and the onus will be on you.



School of Sciences
Indira Gandhi National Open University
New Delhi
(2022)

Dear Student,

We hope, you are familiar with the system of evaluation to be followed for the Bachelor's Degree Programme. At this stage you may probably like to re-read the section on assignments in the Programme Guide 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. The assignment is based on Blocks 1, 2, 3 and 4.

Instructions for Formatting Your Assignments

Before attempting the assignments, 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 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 While writing answers, clearly indicate the Question No. and part of the question being solved.
- 6 Please note that:
 - i) The Assignment is valid from 1st January, 2022 to 31st December, 2022.
 - ii) The response to this assignment is to be submitted to the Study Centre Coordinator within eight weeks of the receipt of this booklet in order to get the feedback and comments on the evaluated assignment.
 - iii) In any case, you have to submit the assignment response before appearing in the term end examination.
- 7 **We strongly suggest that you should retain a copy of your assignment responses.**

Wishing you all good luck.

Tutor Marked Assignment
CHE-09: Biochemistry
An Elective course in Chemistry and Life Sciences

Course Code: CHE-09
Assignment Code: CHE-09/TMA/2022
Maximum Marks: 100

Answer all the questions given below.

1. a) List the important cell organelles of a typical eukaryotic cell. Describe the structure and function of any two organelles from this list. (5)
- b) Describe in brief the structure of disaccharides? How is maltose different from sucrose? (5)
2. a) What are the blood group substances? How do they chemically differ from each other? (5)
- b) What are lipoproteins? What is their functional role? (5)
3. a) List the important functions of biomembranes. (5)
- b) What are the main steps involved in transcription? Briefly describe the process of transcription in a cell. (5)
4. a) Write the structures of tyrosine and tryptophan. Which group are they categorised into and why? (5)
- b) Describe the steps involved in the synthesis of a polypeptide. (5)
5. a) Name the types of interactions involved in the primary and higher order structures of protein. How is the primary structure of proteins different from the structural formula of organic compounds? (5)
- b) Differentiate between the following pairs. (5)
 - i) Cofactor and Coenzyme
 - ii) Apoenzyme and Holoenzyme
6. a) Explain the mechanism involved in the enzyme catalysis of biochemical reactions. (5)
- b) Define the following: (5)
 - i) Entropy
 - ii) Free energy
 - iii) Metabolism
 - iv) Metabolites
7. a) Explain with the help of examples what is meant by convergent and divergent nature of metabolism. (5)
- b) Describe in brief the first ATP - generating step of glycolysis. (5)
8. a) Name the enzyme involved in the conversion of pyruvate to acetyl-CoA. Explain (5)

how it is different from the other enzymes.

- b) Which metabolic processes the following reactions belong to? What is the similarity between the two? (5)

i) Pyruvate \longrightarrow Oxaloacetate

ii) Acetyl-S-CoA \longrightarrow Malonyl-CoA

9. a) Taking a suitable example explain the inhibition of protein biosynthesis by antibiotics in prokaryotes. (5)

- b) How is polypeptide chain elongated during protein biosynthesis? Describe the process. (5)

10. a) Name the different RNAs found in the cell and explain the structure of any one of these. (5)

- b) What are the similarities and differences between RNA replication and RNA transcription? Explain. (5)