

**ASSIGNMENT BOOKLET****Bachelor's Degree Programme (B.Sc.)****BIOCHEMISTRY****(Valid from 1<sup>st</sup> January, 2021 to 31<sup>st</sup> December, 2021)****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  
(2021)

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 1<sup>st</sup> January, 2021 to 31<sup>st</sup> December, 2021.
  - 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**  
**CVHE-09: Biochemistry**  
**An Elective course in Chemistry and Life Sciences**

**Course Code: CHE-09**  
**Assignment Code: CHE-09/TMA/2021**  
**Maximum Marks: 100**

Answer all the questions given below.

---

1. a) What is cell theory? Briefly describe the essential features of a prokaryotic cell. (5)  
b) What is the role of golgi bodies and lysosomes in the cell? Explain. (5)
2. a) Define the following terms taking specific examples from carbohydrates: (5)  
i) Diastereomers  
ii) Anomers  
iii) Mutarotation  
b) What are unsaturated fatty acids? What type of isomerism occurs in them? (5)  
Explain with the help of an example.
3. a) What are nucleic acids why are they important? Explain their principal (5)  
constituents.  
b) What is meant by active site of an enzyme? How do the binding groups and (5)  
catalytic groups of an active site differ from each other?
4. a) What are isozymes? What is the basis of their nomenclature? Write briefly on (5)  
the usefulness of an isozyme study in any clinical diagnosis.  
b) What is the basis of classification of amino acids? Write the structures of (5)  
following peptides:  
i) Alanine-glycine-lysine  
ii) Serine-alanine-lysine  
iii) Phenylalanine-tryptophan-leucine
5. a) Describe the role of zinc and cobalt in any metabolic process. (5)  
b) Name any three minerals that are essential for human health. What will be the (5)  
effect on a person who is deficient in any one of them nutritionally?
6. a) What is meant by phosphate group transfer potential? How does it help in (5)  
making ATP the molecule of choice for providing energy for different  
functions? (5)  
b) How is the generation of ATP by glycolysis different from the one by Krebs's (5)  
cycle? What would happen under anaerobic conditions?
7. a) What do you understand by the term committed step? Describe in brief how the (5)  
committed step in case of glycolysis is regulated.  
b) What is the net result of calvin cycle? Explain the action of transketolase (5)  
enzyme giving structures.
8. a) Give one similarity and one dissimilarity between the action of DNA (5)  
polymerase and RNA polymerase. Describe the transcriptional process.  
b) Name the steps involved in the biosynthesis of a protein. Describe the first step (5)  
in detail.

9. a) Explain any three factors which modify the immune response. (5)
- b) List the different types of antibodies. What are the gross structural features of an antibody molecule? Name any three mechanisms by which these interact with antigens. (5)
10. Write short notes on the following: (10)
- a) Immobilised enzymes
  - b) Carcinogens
  - c) The genetic code
  - d) Cellular immunity