

BBCCT-125

ASSIGNMENT BOOKLET

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

GENETIC ENGINEERING AND BIOTECHNOLOGY

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 1st January, 2024 to 31st 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-125
Assignment Code: BBCCT-125/TMA/2024
Maximum Marks: 100

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

1. A) What is recombinant DNA technology? Explain the action mechanism of DNA modifying enzymes.
B) Describe the methods involved in extraction of bacteria from the microbial culture. (5+5) 10
2. A) Define synthetic oligonucleotides. Explain the steps involved in their synthesis. 4
B) Write a note on Yeast vectors. 6
3. What is replica plating technique? Explain various cloning vectors derived from *E.coli* plasmids. 10
4. Describe four gene transfer methods with suitable examples. (2.5 x 4= 10)
5. A) What do you understand by the term “blue white screening”? Explain its importance in gene cloning. 5
B) What is DNA library? List the applications of genomic DNA libraries. 5
6. A) With a schematic diagram explain the principle involved in polymerase chain reaction. 5
B) Give a detailed account on methods used for studying PCR products. 5
7. A) Write a comparative note on Sanger’s and Maxam-Gilbert DNA sequencing methods. 5
B) Explain the importance of fusion tags in biotechnology with suitable examples. 5
8. Define site-directed mutagenesis. Describe any two methods with the help of flow charts. 10
9. A) Explain, how genetic engineering techniques are helpful in health care and agriculture. 5
B) Write a note on gene therapy. 5
10. A) Illustrate the steps involved in protein engineering. 5
B) Enlist applications of protein engineering in pharma industry and medicine. 5