

BBCCT-123

ASSIGNMENT BOOKLET

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

GENE EXPRESSION AND REGULATION

Valid from Jan, 2023 to Dec, 2023



**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 total marks 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.

1. Use only foolscap size writing paper (but not of very thin variety) for writing your answers.
2. Leave 4 cm margin on the left, top and bottom of your answer sheet.
3. Your answers should be precise.
4. 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.**
5. **We strongly suggest that you retain a copy of your answer sheets.**
6. This assignment is **valid from Jan, 2023 to Dec, 2023** and submit it as per the instructions given in the Programme Guide.
7. **You cannot fill the exam form for this course** till you have submitted this assignment.

We wish you good luck.

ASSIGNMENT
GENE EXPRESSION AND REGULATION

Course Code: **BBCCT-123**
Assignment Code: **BBCCT-123/TMA/2022-2023**
Maximum Marks: **100**

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

1. A) Write a brief note on prokaryotic RNA Polymerases.
B) Explain the DNA footprinting technique. (5+5) 10
2. A) Describe Rho-dependent and Rho-independent termination of transcription. 10
3. A) Give a detailed account of prokaryotic transcription inhibitors.
B) With the help of neatly labelled diagrams explain the functions of 'cap' and "Poly-A" tail of eukaryotic m-RNA. (5+5) 10
4. A) What is RNA splicing? Explain the steps involved spliceosome machinery with a neat diagram?
B) Explain riboswitches with the help of their structures. (5+5) 10
5. Write a detailed note on salient features of genetic code with suitable diagrams. 10
6. A) Explain the structure and functions of tRNA using a neatly labelled diagram.
B) Enlist protein translation factors. (5+5) 10
7. Describe the protein translation in prokaryotes with the help of a labelled diagram. 10
8. Write a detailed note on role of activators and repressors in gene expression and regulation with relevant examples. 10
9. A) Describe the concept of '**operons**' in gene expression.
B) With the help of a neatly labelled diagram explaining regulation of "lac operon". (5+5) 10
10. A) Explain the physiology and consequences of SOS responses in prokaryotes.
B) Write a short note on heterochromatin and euchromatin. (5+5) 10