

BBCCT-123

ASSIGNMENT BOOKLET

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

GENE EXPRESSION AND REGULATION

Valid from Jan, 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 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, 2024 to Dec, 2024** 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/2024
Maximum Marks: 100

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

1. A) What are promoter sequences. Explain their significance in prokaryotic transcription. 5
B) Draw and explain the structural organization of a gene. (5+5) 10
2. A) Describe transcription bubble formation in prokaryotes. 5
B) What are inhibitors? List prokaryotic transcription inhibitors and describe any two of them. 5
3. Write a note on RNA polymerase I mediated transcription in eukaryotes. 10
4. A) Give a comparative account on eukaryotic and prokaryotic transcription. 5
B) Explain the mechanism of mRNA capping and its biological significance. 5
5. A) Define mRNA splicing. Describe spliceosome mediated splicing. 5
B) Differentiate between alternative and trans splicing. 5
6. A) Elaborate homing and retrohoming mechanisms. 5
B) Illustrate the structure of transfer RNA and its functions. 5
7. What is genetic code? Explain Khorana experimental contributions in understanding genetic code. Give the salient features of genetic code. 10
8. Write a detailed note on eukaryotic translation. 10
9. A) What is antibiotic? Give the details of antibiotics used in medicine. 5
B) Differentiate between negative and positive gene regulation. 5
10. A) Explain how SOS response help DNA in repairing the damage caused by external agents. 5
B) Describe the synthesis and function of miRNA 5