BBCCT-117

ASSIGNMENT BOOKLET

Bachelor (Honours) Degree in BIOCHEMISTRY (BSCBCH)

GENE ORGANISATION, REPLICATION AND REPAIR

(Valid from 1st January, 2023 to 31st December, 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 of B.Sc. (Hons.) Biochemistry (BSCBCH) 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** for this course. The assignment is in this booklet, and it consists of two parts, Part A and B. It covers all blocks of the course. The total marks of all the parts are 100, of which 35% are needed to pass it.

SPECIFIC INSTRUCTIONS FOR TUTOR MARKED ASSIGNMENTS (TMA)

1) Write your Enrolment Number, Name, Full Address, Signature and Date on the top right hand corner of the first page of your response sheet.

2) Write the Programme Title, Course Code, Course Title, Assignment Code and Name of your Study Centre on the left hand corner of the first page of your response sheet.

Course Code and Assignment Code may be reproduced from the assignment.

The top of the first page of your response sheet should look like this:

ENROLMENT NO.:

PROGRAMME TITLE	**: .....**	**NAME: .....**
COURSE CODE	**: .....**	**ADDRESS:.....**
		.....
COURSE TITLE	**: .....**	**.....**
ASSIGNMENT CODE	**: .....**	**SIGNATURE:.....**
STUDY CENTRE	**: .....**	**DATE: .....**

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3) Read the assignments carefully and follow the specific instructions, if any, given on the assignment itself about the subject matter or its presentation.

4) Go through the Units on which the assignments are based (**Part A includes Block-1 and 2 and Part B Block 3 and 4**). Make some points regarding the question and then rearrange those points in a logical order and draw up a rough outline of your answer. While answering an essay type

question, give adequate attention to introduction and conclusion. The introduction must provide a brief interpretation of the question and how you propose to develop it. The conclusion must summarise your response to the question. Make sure that the answer is logical and coherent, and has clear connections between sentences and paragraphs. The answer should be relevant to the question given in the assignment. Make sure that you have attempted all the main points of the question. Once you are satisfied with your answer, write down the final version neatly and underline the points you wish to emphasise. While solving numerical problems, use proper format and give working notes wherever necessary.

PLEASE FOLLOW THE ABOVE FORMAT STRICTLY TO FACILITATE EVALUATION AND TO AVOID DELAY.

1. Use only foolscap size paper for your response and tie all the pages carefully. Avoid using very thin paper. Allow a 4 cm margin on the left and at least 4 lines in between each answer. This would facilitate the evaluator to write useful comments in the margin at appropriate places.
2. Write the responses in your own handwriting. Do not print or type the answers. Do not copy your answers from the Units/Blocks sent to you by the University. It is advised to write your answers in your own words as it will help in grasping the study material.
3. Do not copy from the response sheets of other students. If copying is noticed, the assignment will be rejected.
4. Write each assignment separately. All the assignments should not be written in continuity.
5. Write the question number with each answer.
6. The completed assignment should be submitted to the Coordinator of the Study Centre allotted to you. TMAs submitted at any other place will not be evaluated.
7. After submitting the TMA, get the acknowledgement from the Coordinator on the prescribed assignment remittance-cum-acknowledgement card.
8. In case you have requested for a change of Study Centre, you should submit your TMA only to the original Study Centre until the change of Study Centre is notified by the University.
9. If you find that there is any factual error in evaluation of your assignments e.g. any portion of your assignment response has not been evaluated or the total of score recorded on your assignment response is incorrect, you should approach the Coordinator of your study centre for correction and transmission of correct score to headquarters.

Assignment

GENE ORGANISATION, REPLICATION AND REPAIR

Course Code: **BBCCT-117** Maximum marks:**100**

Assignment code: **BBCCT-117/TMA/2023**

Note: Attempt all questions. The marks for each question are indicated against it.
For any question worth 2 marks, the word limit is 50 words, for 5 marks question it is 100 words; and for 10 marks it is 250-300 words.

PART-(A) Maximum marks: 50

1 (a)	Draw the structure of nitrogenous bases.	5
(b)	Define primary and secondary structure of DNA.	5
2 (a)	Describe DNA denaturation and melting curve.	5
(b)	Write a short note on types of promoters in a prokaryotic gene.	5
3 (a)	Differentiate between (i) positive and negative supercoiling, (ii) relaxed and supercoiled DNA.	5
(b)	Explain the functions of Topoisomerases.	5
4 (a)	Differentiate between euchromatin and heterochromatin.	3
(b)	Mention the characteristics of eukaryotic chromosomes.	3
(c)	DNA replication is semi-conservative. Give experimental evidence.	4
5 (a)	Differentiate between prokaryotic and eukaryotic DNA polymerases.	5
(b)	Describe the enzymatic activity associated with prokaryotic DNA polymerases.	5

PART-(B) Maximum marks: 50

1 (a)	Describe the Holliday model for homologous recombination.	10
2 (a)	Differentiate between replicative and non-replicative transposition mechanisms.	5
(b)	Write a note on uses of transposons in post genomic era.	5
3 (a)	What is RNA editing?	5
(b)	Give an overview of mitochondrial inheritance.	5
4 (a)	Illustrate reporter assay and electrophoretic mobility shift assay.	5
(b)	Describe different types of point mutations.	5
5 (a)	Explain the base excision repair mechanism with the help of a suitable diagram.	5
(b)	What is xeroderma pigmentosum? Describe the cause of the disease.	5

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