

BBYET-141

ASSIGNMENT BOOKLET

Bachelor's Degree Programme

(BSCG)

(Cell and Molecular Biology)

Valid from 1st July, 2022 to 31st December, 2022



**School of Sciences
Indira Gandhi National Open University
Maidan Garhi
New Delhi-110068**

(2022)

Dear Student,

Please read the section on assignments in the Programme Guide for B. Sc. 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 two parts, Part A and B. 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) Solve this assignment, and **submit the complete assignment answer sheets within the due date.**
- 6) The assignment answer sheets are to be submitted to your Study Centre within the due date. **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 July, 2022 to 31st December, 2022.** If you have failed in this assignment or fail to submit it by December, 2022, then you need to get the assignment for the year 2023, and submit it as per the instructions given in the Programme Guide.
- 8) **You cannot fill the examination form for this course** until you have submitted this assignment.

We wish you good luck.

ASSIGNMENT

Course Code: BBYET-141
Assignment Code: BBYET-141/TMA/2022
Maximum Marks: 100

Note: Attempt all questions. The marks for each question are indicated against it.

Part A

1. a) State whether these statements are 'True' or 'False'. (1×5=5)
- i) In descending chromatography, the solvent travels down the paper and the movement of solvent is assisted by gravity.
 - ii) Gas chromatography is generally used for thermo-unstable and non-volatile samples.
 - iii) Diaphragm (Iris) regulates the amount of light entering the condenser in the microscope.
 - iv) The cells of prokaryotes are simpler than those of eukaryotes and lack internal compartmentalization and complexity.
 - v) The progression of a cell to the next stage in the cell cycle can be halted at specific points.
- b) Define the following: (1×5=5)
- i) Plasmodesmata
 - ii) Micelle
 - iii) Retention factor
 - iv) Microbodies
 - v) Replicon
2. a) With the help of a well labelled diagram describe the major differences between prokaryotic and eukaryotic cells. (5×2=10)
- b) Enlist the major functions of Golgi bodies.
3. a) Chloroplast and mitochondria are the semi autonomous organs. Justify the statement. (5×2=10)
- b) Describe the major features of endosymbiont theory of origin of chloroplast and mitochondria.
4. a) Explain various stages of cell cycle with the help of well labelled diagrams. (5×2 =10)
- b) Describe in brief the various cell inclusions found in plants.
5. Write short notes on: (2½×4 =10)
- a) Kinetochore
 - b) Synaptonemal complex
 - c) Biological significance of meiosis
 - d) Cell theory

Part B

6. a) Give an outline of polypeptide synthesis in bacteria. (5×2=10)
b) Explain the structure of DNA with the help of a well labelled diagram.
7. a) Describe the cloverleaf structure of tRNA with the help of labelled diagram. (5×2=10)
b) Discuss the role of enzyme *topoisomerases* in DNA replication.
8. Describe the various steps of DNA replication in prokaryotes. (10)
9. a) Describe *lac* operon of *E.coli* highlighting its major features. (5×2=10)
b) Enlist the major features of Genetic code.
10. Give a diagrammatic representation of transcription process in prokaryotes. (10)
Enlist the role of various enzymes involved in it.