

BBYET-141

ASSIGNMENT BOOKLET

Bachelor's Degree Programme

(BSCG)

(Cell and Molecular Biology)

Valid from 1st July, 2021 to 30th June, 2022



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

(2021-2022)

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, 2021 to 30th June, 2022.** If you have failed in this assignment or fail to submit it by June, 2022, then you need to get the assignment for the year 2022-23, 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/21-22
Maximum Marks: 100

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

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) Give an outline of polypeptide synthesis in bacteria.

3. a) Explain the structure of DNA with the help of a well labelled diagram. (5×2=10)
- b) Enlist the major functions of Golgi bodies.

4. 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.

5. a) Explain various stages of cell cycle with the help of well labelled diagrams. (5×2 =10)
- b) Describe the cloverleaf structure of tRNA with the help of labelled diagram.

6. a) Describe in brief the various cell inclusions found in plants. (5×2 =10)
- b) Discuss the role of enzyme *topoisomerases* in DNA replication.

7. Describe the various steps of DNA replication in prokaryotes. (10)
8. a) Describe *lac* operon of *E.coli* highlighting its major features. (5×2 =10)
b) Enlist the major features of Genetic code.
9. Give a diagrammatic representation of transcription process in prokaryotes. (10)
Enlist the role of various enzymes involved in it.
10. Write short notes on: (2×5 =10)
- a) Kinetochore
 - b) Synaptonemal complex
 - c) Biological significance of meiosis
 - d) Gene silencing
 - e) Cell theory