BBYET-141

ASSIGNMENT BOOKLET

Bachelor's Degree Programme

(BSCG)

(Cell and Molecular Biology)

Valid from 1st January, 2023 to 31st December, 2023

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

(2023)

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: ……

……

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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 January, 2023 to 31st December, 2023**. If you have failed in this assignment or fail to submit it by December, 2023, then you need to get the assignment for the year 2024, 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/2023
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) Speed of ultracentrifuge ranges between 60,000 to 150,000 rpm.

   ii) During anaphase I, the tetrad chromosomes separate into dyad chromosomes.

   iii) Both DNA and RNA are regarded as genetic material.

   iv) Wobble hypothesis is connected with gene expression regulation.

   v) G_2 checkpoint is known as spindle assembly checkpoint.

   b) Define the following: (1×5=5)

   i) Plasmodesmata

   ii) Microtubles

   iii) Resolution of a microscope

   iv) Peroxisomes

   v) Replication bubble

2. a) Describe the structure of plant cells and their cell organelles with suitable diagram. (5×2=10)

   b) Explain Sandwich model of plasma membrane with labelled diagram.

3. a) Describe the different kinds of RNA with suitable diagram. (5×2=10)

   b) Differentiate between A-DNA and Z-DNA.

4. a) Compare the theta-model and rolling circle model of DNA replication. (5×2=10)

   b) Describe Hershey Chase experiment and give the main conclusions obtained from this experiment.

5. a) Explain polytene chromosomes with labelled diagram? (5×2=10)

   b) Elucidate in detail the mechanism of transcription in prokaryotes with suitable diagram.

6. a) Explain the mechanism of RNA editing with the help of a neat illustration. (5×2=10)

   b) Why is genetic code considered to be 'nearly universal'? Explain.

7. a) What are the roles of different enzymes in DNA replication? (5×2=10)

   b) What are autonomously replication sequences?

8. a) Give a detailed structure of cilia and flagella. (5×2=10)

   b) Explain how cellular structure of prokaryotes is different from that of eukaryotes.

9. Discuss the different forms of post translational modification of proteins. (10)

10. Write short notes on: (2½×4=10)

    i) Phase contrast microscope

    ii) Ion exchange chromatography

    iii) Two dimensional gel electrophoresis

    iv) Kinetochore