

ASSIGNMENT BOOKLET
Bachelor's Degree Programme in Science

Elective Course
in
Cell Biology

(Valid from 1st January 2021 to 31st December, 2021)

Please Note

- **You can take electives (56 to 64 credits) from a minimum of TWO and a maximum of FOUR science disciplines, viz. Physics, Chemistry, Life Sciences and Mathematics.**
- **You can opt for elective courses worth a MINIMUM OF 8 CREDITS and a MAXIMUM OF 48 CREDITS from any of these four disciplines.**
- **At least 25% of the total credits that you register for in the elective courses from Life Sciences, Chemistry and Physics disciplines must be from the laboratory courses. For example, if you opt for a total of 64 credits of electives in these 3 disciplines, at least 16 credits should be from lab courses.**
- **You cannot appear in the Term-End Examination of any course without registering for the course. Otherwise, your result will not be declared and the onus will be on you.**



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(2021)

Dear Student,

We hope you are familiar with the system of evaluation to be followed for the Bachelor's Degree Programme. At this stage you may probably like to re-read the section on assignments for Elective Courses in the Programme Guide that we have 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 (TMA)** for this course.

Instructions for Formatting Your Assignments

Before attempting the assignment please read the following instructions carefully.

- 1) On top of the first page of your TMA answer sheet, please write the details exactly in the following format:

ENROLMENT 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) While solving problems, clearly indicate the question number along with the part being solved. Be precise.
- 6) **This assignment will remain valid for one year from January 1, 2021 to December 31, 2021.** However, you are advised to submit it within **12 weeks** of receiving this booklet to accomplish its purpose as a teaching-tool. Answer sheets received after the due date shall not be accepted.
- 7) **You cannot fill the exam form for this course until you have submitted this assignment.**

We strongly feel that you should retain a copy of your assignment response to avoid any unforeseen situation and append, if possible, a photocopy of this booklet with your response.

We wish you good luck!

ASSIGNMENT
(Tutor Marked Assignment)
Cell Biology

Course Code: LSE- 01
Assignment Code: LSE-01/TMA/2021

Maximum Marks: 100

1. (a) Discuss the endosymbiont theory of origin of organelles in eukaryotes. (5)
(b) Explain electron microscopy and its types. In what way is it advantageous over light microscopy? (5)
2. (a) Why is water absolutely necessary for biological systems? (4)
(b) Explain the structure and function of Golgi apparatus. How does this organelle aid in recycling of plasma membrane? (6)
3. (a) Compare the structure of nucleic acids found in eukaryotic cells. (4)
(b) Explain the concept of self assembly and discuss the assembly of 30S subunit of *E. coli* ribosome. (6)
4. (a) List the enzyme categories and mention the type of reaction catalyzed by each along with an example of a reaction. (6)
(b) How is enzyme activity genetically controlled in prokaryotes? (4)
5. (a) What is mediated permeability and how is it different from simple diffusion? (4)
(b) What is a transport molecule? With the help of an example describe the process of active transport by ion gradient. (6)
6. (a) Outline the reaction steps of tricarboxylic acid cycle. (6)
(b) How is glycogen synthesized? (4)
7. (a) Explain the semi-conservative replication of DNA and list the enzymes involved, in this process. (5)
(b) How is protein synthesis regulated at translational level? (5)
8. (a) Explain the role of cAMP as second messenger during signalling. (5)
(b) Describe the events of cells cycle. (5)
9. (a) Show the stages of meiotic division with the help of well labelled diagrams. (5)
(b) Describe the structural components of communicating junctions found both in plants and animals. (5)
10. (a) With the help of diagrams describe the structure and function of any *five* types of epithelial tissues found in animals. (5)
(b) Explain the structural organization and major molecular components of plant cell wall. (5)