LSE-05

ASSIGNMENT BOOKLET
Bachelor's Degree Programme (B.Sc.)

Physiology

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

It is compulsory to submit the Assignment before filling in the Term-End Examination Form.

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 'out of those 64 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 'responsibility will be yours'.**

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

(2022)

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 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, 2022 to December 31, 2022**. 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)

Course Code: LSE-05
Assignment Code: LSE-05/TMA/2022
Maximum Marks: 100

Instructions: Attempt all questions. Write your answers for part I and II in separate answer books. Draw neat and labeled diagrams wherever necessary. Be precise in your answer. Apart from the content, your answer will be graded for using your own language, clarity and logical presentation.

Part I-(Animal Physiology)

1. (a) Define the following: (5)

   i) Stroke volume

   ii) Action Potential

   iii) Cardiac output

   iv) Pulse rate

   v) Glial Cells (2+3)

   (b) What is the sliding filament model of movement of muscles? How does the sliding movement occur at molecular level?

2. (a) How is glucose transported into epithelial cells of the small intestine? (5)

   (b) What kind of hormones bind to cell surface receptors? Explain the mechanism of action of one such hormone in a target cell with the help of a diagram. (5)

3. (a) Answer the following briefly: (5)

   i) Why don't *Paramecium* and jelly fish have a circulatory or respiratory system?

   ii) Mention any **two** functions of plasma proteins.

   iii) How does sex determination take place in birds?

   iv) Why does a mouse looking for food use upto thirty times more energy than a lizard of the same weight? (5)

   (b) Why does hyperventilation before diving cause unconsciousness in divers?

4. (a) What does an oxygen dissociation curve show? Draw and compare the oxygen dissociation curves of haemoglobin and myogobin. (1+4=5)

   (b) Why do animals exhibit differences between their essential food requirements? Where does the absorption of carbohydrates, lipids and amino acids take place in the vertebrate body? Describe the method of glucose absorption. (1+1+3=5)

5. Write short notes on the following: (10)

i) Regulation of kidney function.

ii) Factors responsible for deaths due to heat

iii) Modes of respiration in animals

iv) Effect of gastric hormones

Part II-(Plant Physiology)

6. Define the following : (1×5=5)

i) Field capacity

ii) Permanent Wilting

iii) Percentage Water potential (PWP)

iv) Osmotic pressure

v) Imbibition

7. (a) What are the functions of essential elemens? (5)

(b) Make a list of macronutrients and micronutrients and give the function of at least two from each category. (5)

8. Make a Z scheme to demonstrate the movement of electron in PSI and PSII and for reduction of $NADP^+$ to NADPH. (5)

9. (a) Describe Munch Pressure Flow Model & Protosmotic Model for the mechanism of translocation in phloem. (5)

(b) List the functions of Auxins, Gibberellins, Cytokinins and Abscisic acid. (5)

10. (a) How would you describe senescence? Write down its different types with bried. description and how it can be regulated in plants? (5)

(b) What is stress? Describe different strategies acquired by plants to adapt to stress. (5)

11. Write short notes on the following: (2½ × 4=10)

i) Vernalization

ii) Phytochrome

iii) Red drop

iv) Heat-shock responses