

BZYCT-135

ASSIGNMENT BOOKLET

**Bachelor's Degree Programme
(BSCG)
PHYSIOLOGY AND BIOCHEMISTRY**

Valid from 1st July, 2020 to 30th June, 2021



**School of Sciences
Indira Gandhi National Open University
Maidan Garhi
New Delhi-110068
(2020-2021)**

Dear Student,

Please read the section on assignments in the Programme Guide for Core Courses 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 three parts, Part A, B and C. 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) Complete each of Part A, Part B and Part C of this assignment separately, and **submit them together.**
- 6) The assignment answer sheets are to be submitted to your Study Centre as per the schedule made by the study centre. **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, 2020 to 30th June, 2021.** If you have failed in this assignment or fail to submit it by June, 2020, then you need to get the assignment for the year 2021-22, and submit it as per the instructions given in the Programme Guide.
- 8) **You cannot fill the exam form for this course** till you have submitted this assignment.

We wish you good luck.

ASSIGNMENT
PHYSIOLOGY AND BIOCHEMISTRY

Course Code: BZYCT-131
Assignment Code: BZYCT-135/TMA/2020-2021
Maximum Marks: 100

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

Part-A

Maximum Marks: 50

1. i) a) Which nutrient of among following is absorbed mainly in the large intestine? (1)
 - (i) glucose
 - (ii) amino acid
 - (iii) sodium
 - (iv) water
- b) Why are villi present in the small intestine and not in the stomach? (1)
- ii) What are the end-products of food that can be absorbed by the body? (5)
 Explain how absorption of fats differs from absorption of proteins and sugars.
- iii) Why does diffusion alone suffice to supply oxygen in both protists (protozoans) and flatworms? (2)
- iv) Write a formula representing the reaction between haemoglobin and oxygen. (1)
2. i) a) State the differences between blood and plasma. (2 $\frac{1}{2}$)
- b) How do intercellular fluids differ from intracellular fluids? (2 $\frac{1}{2}$)
- ii) Explain with the help of a flow chart the cascade of events occurring in secondary haemostasis. (5)
3. i) Describe with the help of a diagram the cyclic function of osmoregulation in *Amoeba*. (2)
- ii) Draw a simple flow chart and explain how kidney function is hormonally regulated. (7)
4. i) a) In a relaxed muscle fibre, the myosin binding site on action is blocked by (1)
 - i) titin
 - ii) troponin
 - iii) myoglobin
 - iv) tropomyosin

- b) According to the sliding filament model, binding sites on action open when (1)
- creatine phosphate levels rise
 - ATP levels rise
 - acetylcholine levels rise
 - calcium ion levels rise
- ii) Write down the steps that take place when an action potential arrives in a presynaptic axon terminal and the generation of another action potential in the post synaptic neuron. (8)
5. i) Compare the action of steroid and peptide hormones with respect to: (3)
- structure
 - receptor
 - mechanism of action.
- ii) Write the function of following in male reproductive system. (2)
- Seminiferous tubules
 - Leyding cells
 - Epidydmis
 - Androgen
- iii) With the help of a flow diagram explain the function of female hormones in humans. How is it regulated? (5)

Part-B

Maximum Marks: 50

6. i) Describe the proteins in terms of levels of organization in primary, secondary, tertiary and quaternary structures. (5)
- ii) What is activation energy? (2)
- iii) Explain briefly the functioning of allosteric enzymes. (3)
7. i) How a value for K_m can be obtained from the v_o vs S graph when $v_o = 1/2 V_{max}$? (5)
- ii) Indicate whether the following statements are true (T) or false (F): (3)
- Vitamins are inorganic compounds.
 - TPP participates in the carboxylation reactions.
 - Thiazole ring is present in the niacin vitamin.
- iii) Fill in the blanks: (2)
- EDRF is
 - Semi-ubiquinone is present in
8. i) Match the following: (3)

Column A

Column B

a) Proteins

i) lipid peroxidation

- b) Lipids
- c) Nucleic acids
- ii) thymine dimmers
- iii) oxo acids

- ii) Briefly explain the regulation of glycolysis. Why is step 3 and not step 1 of glycolysis the major control point? (7)
- 9. i) Indicate whether the phosphorylated form of the following enzymes is active or inactive? (3)
 - a) Glycogen phosphorylase
 - b) Glycogen synthase
 - c) Protein phosphatase
- ii) Discuss the function of electron transport complex- I. (7)
- 10. i) Explain the processes of activation and transport of fatty acids to mitochondrial matrix for their oxidation. (5)
- ii) Write a note on amino acid biosynthesis. (5)