

ST. JOSEPH'S COLLEGE (AUTONOMOUS), BANGALORE-27
MID SEMESTER TEST: AUGUST 2019
B.Sc BIOTECHNOLOGY-I SEM
BT 118: Fundamentals of Biochemistry and Microbiology

Time: 60 Min

Max Marks: 30

Note: The question paper has **TWO SECTIONS** and **ONE** printed page.

Section A- 15 marks

I. Answer any 5 of the following **2x5=10**

1. What is the proof in support of Biochemical Evolution?
2. Write a note on the stability of α -helical structure.
3. Write the structure of a) sucrose b) lysine
4. Explain the various states of an amino acid across pH ranges.
5. State the role of insulin in blood glucose control.
6. Why is deoxyribose selected as the sugar in genetic material over ribose?

II. Answer the following **3x1= 3**

7. Outline the process of dialysis in protein purification.

OR

Give the structure and function of starch

III. Match the following **0.5x4= 2**

- | | |
|--|---------------|
| 8. Glyceraldehyde | H bonds |
| 9. $-\text{CO}-\text{NH}-$ | Anomers |
| 10. β -sheets | Stereoisomers |
| 11. $\begin{array}{c} \\ \text{H}-\text{C}_1-\text{OH} \\ \end{array}$ | Planar |

Section B- 15 marks

I. Answer ANY ONE of the following **1x10=10**

1. Explain the chemical methods used in control of microorganism.
2. Describe with the help of an illustration, the life cycle of a protozoan parasite causing malaria.

II. Answer ANY ONE the following **5x1= 5**

3. When Dr. Janaki, a botanist sampled the biodiversity of Varthur lake in 1994, she found 49 different species of algae at several depths ranging from 5 to 20 ft and around 7 species on the lake surface. However, last year when she returned to resample, she found a lot of industries surrounding the murky and foamy lake. Only 5 algal species were recovered across entire depth of the lake and just one abundantly growing organism on lake surface.

- a. Describe the possible phenomenon that caused the disappearance of flora.
- b. What is the trophic nature of the organisms thriving on the surface?
- c. Do you expect any changes in the lake fauna as well?
- d. Suggest ideas to recover the biodiversity.

4. Discuss a contribution by the scientist to the Microbiology field prior to 1920. Explain why it was an important one in the current scenario.